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CO 01 A Delphi consensus study on living with carotid artery disease – patient reported outcome measures

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INTRODUCTION: Currently, evidence is lacking for disease-specific patient reported outcome measure (PROM) for use in carotid artery disease. This study aimed to obtain expert consensus on the most important items to include in a PROM designed to capture the impact of carotid artery stenosis on overall health and health-related quality-of-life (HRQOL).

METHODS: A three round modified Delphi consensus study was performed. A mixed expert Delphi panel of doctors and patients (as patients are experts in their own disease) was implemented. The aim was to obtain pre-defined consensus on items in four pre-defined domains: generic, quality-of-life, symptom-related and treatment-related. Consensus was reached in rounds 2 and 3 with >70% agreement.

RESULTS: The experts agreed on 24 items (out of 50) on the four pre-defined domains. The final items were distributed as follows: five in the Generic, six in the Quality-of-life, six in the Symptom and seven in the Treatment-related domain. Interestingly, comparing the items that reached consensus in our study, with the generic and disease-specific PROMs previously used in carotid artery disease investigation, the only constant items were: “difficulty with walking” and “ability to perform daily activities” included in the “Symptom Domain”.

The items that reached expert consensus in this study included three additional domains with emphasis given to the impact of the diagnosis, treatment and follow-up on patient´s life and to fear/concern "about the future and “about severe stroke”. In the “Treatment Domain” emphasis was also attained on the side-effects, long-term patient satisfaction and on the information provided regarding treatment options.

DISCUSSION: As hard clinical outcomes become increasingly rare, comparison between different approaches to carotid artery disease becomes increasingly difficult. The consensus reached provides insight into patient and clinical expert opinion regarding the most important items to include in a holistic disease-specific PROM for carotid artery disease.

CO 02 Effect of smoking cessation on abdominal aortic aneurysm growth: a systematic review and meta-analysis

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OBJECTIVE: Smoking is the single most important factor associated with the development of abdominal aortic aneurysms (AAA), however the effect of smoking cessation on AAA growth in poorly understood. We aimed to conduct a systematic review and meta-analysis of the effect of smoking cessation in abdominal aortic aneurysm growth compared to active smokers and non-smokers.

METHODS: A systematic review was performed following the PRISMA guidelines. We searched MEDLINE, CENTRAL, PsycInfo, Web of Science Core Collection and OpenGrey databases from inception to December 2021 for studies reporting on aneurysm growth according to smoking habits. AAA was defined as an infra-renal aortic diameter >3cm. The main outcome was to estimate the mean difference of abdominal aortic aneurysms growth between smokers, former smokers, and nonsmokers. The estimates were pooled through a random-effects model meta-analysis and heterogeneity assessed through the I2 statistic. The protocol was published in PROSPERO (CRD 42021295315)

CONCLUSION: After 567 abstracts reviewed and 17 full text studies, 6 studies were included in the review and meta-analysis. Studies reported data from 1987-2017, encompassing a population of 2960 people with diagnosis of AAA, which 972 were active smokers, 1254 were former smokers and 679 were nonsmokers. The pooled calculated mean difference of AAA growth was -0.41mm/year for former smokers compared to active smokers (95% CI: -0.62; -0.20; p<0.001; I^2:13%). The pooled calculated mean difference of AAA growth was -0.52 for nonsmokers compared to active smokers (95%CI: -0.95; -0.08; p=0.02; I^2:63%). The pooled calculated mean difference of AAA growth was -0.07 for nonsmokers compared to former smokers (95%CI: -0.59; 0.45; p=0.10; I^2:56%).

CONCLUSION: Smoking cessation seems to reduce the growth rate of AAA to rates similar to non-smokers, being a potential therapeutic target. These findings should lead to a higher awareness of the importance of smoking eviction in AAA patients and to future studies on this matter.

CO 03 The experience of a tertiary center in the total endovascular aortic arch repair with a double-branch platform

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INTRODUCTION: Endovascular repair of aortic arch pathology has reduced the invasiveness associated with open surgery and therefore broadened the spectrum of patients amenable to treatment. The aim of this study is to assess the early and mid-term results of the endovascular aortic arch repair using a double inner branch endovascular stentgraft.

METHODS: A prospective cohort study including all patients treated for aortic arch pathology with endovascular repair using a double-branch stentgraft was conducted between January 2019 and April 2022. The technical success, mortality, major complications and need for reintervention are reported.

RESULTS: During the study period, 9 patients were treated with the Relay® double-branch system (Terumo Aortic, Sunrise, FL, USA) for degenerative aneurysms (n=6), post-dissection aneurysms or endoleaks (n=2) and syphilitic aneurysm (n=1). All patients underwent staged Ishimaru zone 2 arch debranching. A Proctor was present in 7 cases. The technical success was 88.9% (n=8) as one patient required open conversion due to an intraoperative retrograde dissection. No early type IA/IB endoleaks were recorded. There were no disabling strokes nor spinal cord ischemia during the post-operative period; however, a non-disabling transient ischemic attack occurred in one patient (11.1%). The aortic-related mortality was 11.1% (1 patient with an intra-operative retrograde dissection that died 38 days after emergency open repair). Two additional patients died due to non-vascular related causes (septic shock due to respiratory infection and ventilator-associated pneumonia). During the mid-term follow-up period (median follow-up 35 months, IQR 13.75 – 38.5) one patient was diagnosed with a type A aortic dissection, refused repair (Jehovah Witness) and died in other hospital. No late re-interventions were needed and the follow-up imaging showed adequate exclusion of the aneurysms and stability of the stentgrafts.

CONCLUSION: The results of this cohort support endovascular arch repair as a viable alternative for high-risk patients. However, despite an acceptable aortic-related mortality, the overall mortality in this short initial experience was high, raising the importance of an adequate patient selection.

CO 04 Octopus endograft technique in complex aortic pathologies – retrospective single-center review

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INTRODUCTION: Customized endografts, namely f/bEVAR, present favorable outcomes compared to open repair in complex aortic pathologies. However, f/bEVAR carries a waiting time for customization and requires specific anatomic features. Alternatively, adapting off-the-shelf readily available commercial devices has been used with variable success. Among these strategies is the Octopus technique, where a standard bifurcated EVAR is deployed in the thoracic aorta and up to four bridging stentgrafts are used to revascularize visceral branches. Despite an off-label combination of commercial devices, it can play a role when f/bEVAR is unavailable or inapplicable.

METHODS: Single center retrospective study. All consecutive patients treated with the Octopus technique since 2015 until March 2022 were included. Patients were identified through institutional files. Baseline characteristics, aortic pathology, procedural, post-operative and follow-up data were obtained. Primary endpoint is clinical success. Secondary endpoints are complications and secondary interventions in all follow-up.

RESULTS: Between May 2015 and February 2022, six patients, 50% male, with a mean(SD) age of 74(9) were identified. Most common comorbidities were hypertension(5/6) hyperlipidemia(5/6) and cardiac disease(4/6). Indications included three type 1 endoleaks and 3 thoracoabdominal aneurysms without prior intervention, one of which mycotic. (Table 1) Mean(SD) aortic diameter was 62(6.7)mm. Four procedures were elective and the remaining emergent. Other than emergent setting, this technique was chosen in 3 patients due to anatomical constraints and in other due to limited life expectancy. All procedures went under general anesthesia. CSF drain was used in 1 procedure. Excluder and Incraft endografts were used in 5 and 1 cases, respectively. Thirteen visceral branches were revascularized with Viabahns (6 SMA, 4 renal and 3 celiac), with no failed branch implantation attempts. Branches not revascularized were due to occlusion, previous embolization or because distal sealing was proximal to their origin. Final angiography showed gutter endoleaks in 2 patients, without further intraoperative procedures. Two percutaneous axillary access hemorrhage were noted and treated with stentgrafts. Mean(SD) blood loss, surgery time and contrast use was 483(300)mL, 288(73)min and 120(57)mL, respectively. Mean(SD) hospitalization was 26(19.5) days. Most frequent postoperative complications were acute renal failure(2/6), paraplegia(2/6), and infection(2/6).(Table 2) Two patients had

early reinterventions: one relining with bare stent due to renal branch compression and gutter coil embolization; and one axillary hematoma drainage. One perioperative death occurred. On follow-up, there were no new endoleaks or endoleak-related interventions. Four patients died within two years, one with aneurysm related complication(endograft infection). Other deaths were not aneurysm related.

CONCLUSION: Octopus technique offers a valuable off-the-shelf solution for patients with complex aortic pathologies, particularly in anatomical constraints or emergent setting limiting the use of customized grafts. Despite a high technical success rate, there is a learning curve to consider and significant early morbidity and high mid-term mortality in a frail group of patients. In our small series, durability was reasonable with no need for secondary interventions. Our outcomes are in accordance with other reported outcomes.

	Total
Urgent, n(%)	2 (33%)
Elective, n(%)	4 (67%)
Previous endovascular aortic intervention, n(%)	3 (50%)
-TEVAR + coil embolization celiac artery	1(17%)
-AUI EVAR + femoral crossover + proximal aortic extension cuff	1(17%)
-FVAR + IRD + limb extension + proximal Palmaz stent	1(17%)
Pathology	
- Ruptured mycotic aneurysm	1 (17%)
- rEVAR due to type 1a endoleak	1 (17%)
-Type 1a EL post-EVAR	1 (17%)
-Type 1b EL post-TEVAR	1 (17%)
-Type 4 TAAA	1 (17%)
-Type 5 TAAA	1 (17%)

30-day outcomes	
ICU stay, days, mean (SD)	6 (2.7)
Hospitalization, days, mean (SD)	26(19.5)
Renal, n(%)	2 (33%)
Infection, n(%)	2 (33%)
Pulmonary, n(%)	1 (17%)
Cardiac, n(%)	-
Paraplegia, n(%)	2 (33%)
Other neurologic, n(%)	1 (17%)
Pot-implantation Syndrome, n(%)	1 (17%)
Branch compression, n(%)	1 (17%)
Branch thrombosis, n(%)	-
Reintervention, n(%)	2 (33%)
Mortality, n(%)	1 (17%)

CO 05 A systematic review and meta-analysis of the incidence of acute aortic dissections in population-based studies. Retrospective single-center review

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OBJECTIVE: Acute aortic dissections (AAD) are considered one of the most serious aortic diseases with a significant associated morbidity and mortality. Epidemiologic data regarding these serious conditions is widely dispersed.5,7,8 Described incidence rates vary between studies and population-based information regarding clinical data such as need of repair, risk factors and mortality is scarcely reported. This expresses the need for a pooled estimate of incidence of AAD and an overall analysis on their outcomes. We sought out to fill this gap in the literature by performing a systematic-review and meta-analysis of all population-based studies reporting on incidence of acute aortic dissections worldwide.

METHODS: We searched MEDLINE, EMBASE, CENTRAL and Open Grey databases from inception to August 2020 for population-based studies reporting on the incidence of AAD. A systematic review was conducted following the PRISMA guidelines using a registered protocol (CRD42020204007). Data was pooled using a random-effects model of proportions using Freeman-Tukey double arcsine transformation. The main outcome was the incidence of AAD. Secondary outcomes were incidence type A aortic dissections (TAAD) and type B aortic dissections (TBAD); incidence of aortic dissection repair and medical management and incidence of in-hospital mortality. In addition, we estimated the proportion of aortic dissection repair and mortality (in hospital, overall and specific mortality according to sub-type) among patients with AAD.

RESULTS: Thirty-three studies were included. The pooled incidence of AADs was 4.8 per 100 000 individuals/year (95%CI: 3.6; 6.1). Incidence of TAAD was 3.0 per 100 000/year (95%CI: 1.8; 4.4) and incidence of TBAD was 1.6 per 100 000/year (95%CI: 1.1; 2.2). The incidence of AAD needing repair was 1.4 per 100 000/year (95%CI: 1.0; 2.0) [1.4 (95%CI: 1.2; 1.7) for TAAD and 0.4 (95%CI: 0.2; 0.7) for TBAD]. Incidence of medically managed AAD was 3.4 per 100 000/year (95%CI: 2.4; 4.5). Incidence of in-hospital death due to AAD was 1.3 per 100 000 individuals/year (95%CI: 0.9; 1.9); 1.0 (95%CI: 0.6; 1.4; I297%) for TAAD and 0.3 for TBAD (95%CI: 0.2; 0.4; I296%).

CONCLUSION: A global estimate regarding the incidence rate of acute aortic dissections was achieved. Incidence of acute aortic dissection varied significantly between study designs and geographical regions. More accurate

information on acute aortic dissection epidemiology is crucial for public-health decisions, clinical understanding, and healthcare management.

CO 06 Blunt traumatic injuries of thoracic aorta and supra-aortic trunks, a portuguese single centre's experience

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INTRODUCTION: Despite advances in surgical techniques, ruptured aortic aneurysm is still associated with extremely high mortality. The presence of preoperative factors related to shock have been associated with 30-day mortality after ruptured abdominal aortic aneurysm surgery. This study aimed to identify pre-operative risk factors for 48-hour and 30-day mortality after both abdominal and thoracic aorta aneurysm rupture.

METHODS: All patients with ruptured descendent thoracic and abdominal aorta aneurysms who entered the operating room for surgical repair attempt from a 30-month period in our institution were retrospectively identified. Demographic data, comorbidities including chronic anticoagulation, 48-hour and 30-day mortality rate and complications, data concerning to aneurysm diameter, transfer from other institution and time to operating room, surgery duration, endovascular/open surgery, massive transfusion, minimum pre-operative systolic arterial pressure and pre-operative analysis including haemoglobin, platelets, leukocytes, neutrophil-to-lymphocyte ratio (NLR), creatinine, albumin, C-reactive protein and lactates were collected.

Fisher and Mann-Whitney U tests were used to evaluate difference between results in thoracic and abdominal aneurysms. Logistic regression was used to evaluate significant factors for 48-hour and 30-day mortality. ROC curves were used to predict cut-off values in the relevant parametric data. A P-value of <0.05 was considered as statistical significance.

RESULTS: During this period 53 patients with aortic rupture entered the operating room, in 4 of them surgery was not completed. Only 15.1% were descendent thoracic aortic ruptures. 84.9% were male and average age was 77.4±8.6 years. There was a 37.7% 48-hour mortality and a 50.9% 30-day mortality rate. The only significant difference between thoracic and abdominal rupture was surgery duration (p=0.03, inferior in thoracic aorta surgery). No difference in mortality rate was noted (p=0.31).

Lowest pre-operative minimum systolic arterial pressure and increased NLR were the most significant pre-operative factors related to 48-hour mortality (p=0.01 and p=0.04, respectively). An optimal Youden Index was identified as a pre-operative minimum systolic pressure of <81mmHg with 85.0% sensitivity and 66.6% specificity and a NRL>8.58 with 76.9% sensitivity and 64.0% specificity for 48-hour death. A value <52mmHg minimum systolic pressure had 15.0% sensitivity and 93.9% specificity and NRL>15.0 had 53.8% sensitivity and 92.0% specificity for early per-operative mortality. Endovascular repair was identified as a protective factor for 30-day mortality (35.3% in endovascular versus 70.6% in open repair, OR=0.31, p=0.02) but not for 48h death (p=0.77). Low albumin was the most significant factor associated with 30-day mortality (p=0.02), with an optimal Youden Index <2.25 allied to a 52.9% sensitivity and 90.0% specificity and a cut-off <1.5 to a 23.5% sensitivity and 95.0% specificity for 30-day mortality.

CONCLUSION: The identified risk factors are easily assessed in the emergency setting and may provide additional information to the development of a more precise preoperative mortality scoring system. This information may contribute to improve identification of patients with ruptured aortic aneurysm suitable for attempted repair.

CO 07 Preoperative predictors of 48-hour and 30-day mortality in ruptured aortic aneurysms: a retrospective analysis

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INTRODUÇÃO: A disseção aórtica tipo B (DAB) é uma síndrome aórtica aguda que apresenta elevada taxa de mortalidade. Atualmente, na fase aguda, preconiza-se o tratamento médico nos casos de DAB não complicada, ficando a cirurgia reservada para os casos de DAB complicada (rutura, síndrome de má perfusão, dor/hipertensão refratária, expansão rápida ou progressão proximal/distal).

CASO CLÍNICO: Apresentamos o caso de uma mulher de 70 anos, com antecedentes de hipertensão e dislipidémia que recorreu ao serviço de urgência em Novembro de 2021 por quadro de dor abdominal e hematemese. À admissão, apresentava hipotensão, taquicardia e dor à palpação abdominal. A endoscopia digestiva alta não identificou hemorragia ativa nem lesões estruturais. A angio-TC mostrou DAB com origem após a emergência da artéria subclávia esquerda, com extensão até à ilíaca primitiva esquerda. As artérias viscerais, com exceção da artéria renal direita, emergiam do verdadeiro lúmen (VL), que se encontrava colapsado a este nível; a artéria renal direita, apesar de emergir do falso lúmen (FL), mantinha-se permeável. Destacava-se ainda dilatação aneurismática

(6 cm) da aorta torácica descendente proximal e volumoso hemotórax esquerdo.

RESULTADOS: Por se tratar de um caso de DAB complicada de falso aneurisma/rotura e de má perfusão visceral, no contexto de colapso do VL, a doente foi submetida a cirurgia urgente: implantação de endoprótese torácica (TEVAR) na aorta torácica descendente, de stent descoberto na aorta toracoabdominal (PETTICOAT) e angioplastia com implantação de stent coberto nas artérias renal direita, ilíacas primitivas ("kissing stent") e ilíaca externa direita. No final da cirurgia foi colocado dreno torácico, com saída imediata de 600cc de conteúdo hemático.

O pós-operatório, na unidade de cuidados intensivos, foi complicado de AVC isquémico do hemisfério direito (plegia do membro superior esquerdo e paresia do membro inferior esquerdo, sem tradução imagiológica), detetado às 48h de pós-operatório, após extubação. Durante o internamento recuperou francamente dos défices motores, tendo alta ao 21° dia pós operatório, após resolução social, sem mais intercorrências.

A angio-TC de controlo aos 2 meses mostrou expansão do verdadeiro lúmen com adequada perfusão das artérias viscerais, exclusão do falso lúmen exceto em zonas focais de realce extraluminal em relação com endoleak tipo II, à custa das artérias intercostais, mantendo derrame pleural residual.

CONCLUSÃO: A DAB complicada tem elevada taxa de mortalidade estando recomendado o tratamento cirúrgico. A cirurgia endovascular apresenta taxas de morbi-mortalidade francamente inferiores à cirurgia aberta, estando recomendada quando possível.

CO 08 Cardiovascular outcomes after renal angioplasty: what changed after the coral trial?

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INTRODUCTION: As a form of peripheral artery disease, renal artery stenosis carries a significant burden in vascular patients. Its incidence ranges from 1 to 5% in recent epidemiological series. Apart from medical therapy, renal angioplasty was proposed as an approach for renovascular hypertension and acute renal failure due to renal artery stenosis. Nevertheless, the landmark clinical trials ASTRAL and CORAL did not show a clear clinical benefit when performing this technique. This study aims to evaluate cardiovascular outcomes after renal angioplasties performed before and after the publication of these trials in a university center.

METHODS: We designed a longitudinal cohort study from patients submitted to isolated renal angioplasty between 1999 and 2021 in a tertiary center. Patients were selected from electronical surgical records using the following ICD-10 codes: "renovascular hypertension", "atherosclerosis of renal artery" or "hypertensive chronic kidney disease." Renal arteriograms were excluded from the analysis. Patients were divided into two cohorts: 1999-2013 (before CORAL) and 2014-2021 (after CORAL). The total number of procedures, demographic data, cardiovascular comorbidities, and baseline kidney function and lesions were assessed. Patients were followed up for a minimum period of 12 months. Changes in creatinine, glomerular filtration rate, and hypertensive control were evaluated during follow-up.

RESULTS: 180 renal angioplasties were performed in 147 patients during the study period. The median follow-up period was 37.5 months IQR (17.5-81). There was a 60% decline in the number of procedures after 2014 (105 vs. 42 procedures). A total of 33 patients (22.45%) were subjected to bilateral renal angioplasty. Patients in the pre-CORAL cohort were non-significantly older (67.6 ± 13.1 vs 63.9 ± 10.9; p .11) and predominantly male (75% vs 71.4%; p .69). The median number of preoperative antihypertensive drugs was significantly higher in patients subjected to renal angioplasty before 2014 (2.7 vs. 1.9; p < .001). Mean serum creatinine levels were significantly higher in patients submitted to angioplasty before 2014 (1.60 mg/dL vs 1.13 mg/dl; p .003). Renal stenoses were significantly more severe in patients submitted to angioplasty in the early cohort (85.1% vs. 80.4%; p . 04). Most lesions were at the renal artery origin (45.9%), followed by proximal lesions (36.4%). 6 to 12 months after the procedure, over 47% of all patients managed to withdraw one or more antihypertensive drugs, with no statistical difference between both cohorts (47.8% vs. 47.6%; p .986). Patients undergoing interventions before 2014 had a mean 20% reduction in creatinine levels, while patients after 2014 had a 15% increase in postoperative creatinine levels (p .005).

CONCLUSION: Following the publication of the ASTRAL and CORAL trials, there was an overall decrease in the number of renal angioplasties and the severity of the treated lesions. Despite similar comorbidities, patients subjected to renal angioplasty after the landmark clinical trials had significantly lower preoperative creatinine levels and were taking less antihypertensive drugs preoperatively. Nevertheless, renal angioplasty seemed to offer some clinical benefit regarding hypertensive control, although with different results regarding renal function.

CO 09 Cognitive and balance evaluation after carotid endarterectomy in asymptomatic patients: a prospetive study

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INTRODUCTION: Recent studies proved impaired mobility, balance and cognition in patients with significant

asymptomatic carotid stenosis (ACAS) in comparison to general community adult population, with higher limitations in patients with severe stenosis. In our study, we tested the hypothesis that patients with severe ACAS (unilateral or bilateral ≥70% diameter-reducing stenosis) will have cognitive and balance improvement after carotid revascularization.

METHODS: All asymptomatic patients who underwent carotid endarterectomy between 2020 and 2021 in our institution were enrolled in the study. Patients with past history of stroke/amaurosis fugax more than 6 months ago with complete clinical recovery were included. Cognitive, mobility and balance tests were performed the week before surgery and were randomized to post-operative re-evaluation at 6-8 months or 12-14 months. Executed tests were Mini-Mental State Exam (MMSE), Timed Up and Go test (TUG), 2 Minute Walk Test (2MWT), Berg Balance Scale (BBS) and Activities-specific Balance Confidence (ABC) Scale. Cognitive defect was considered if MMSE≤22 if ≤2 years education and MMSE≤24 if 3-6 years education. A TUG score of ≥13.5 seconds was used to identify individuals at higher risk of falling. 2MWT was used to calculate gait speed and classified as risk of frailty if <0.8m/s. Impaired balance was diagnosed using 14-item BBS if score <45 or ABC scale <80%.
Student's t tests were used to evaluate difference between baseline and post-operative results and McNemar's test to compare frequency of patients with pre-operative and post-operative impairment in each test. Pearson's correlation was used to examine relationship between cognitive and balance change after surgery. A P-value of <.05 was considered as statistical significance.

RESULTS: 18 patients were recruited. The mean age was 70.1±7.3 years. 72.2% were man. 44.4% had severe unilateral stenosis and the remaining had bilateral stenosis. One patient was lost in follow-up. Patients showed reduced scores at baseline, ranging from 11.1% to 38.9% depending on the evaluated test. Also, 44.4% of the patients had MMSE<28 at baseline. Statistical difference was noted between pre and post-operative changes in the majority of the tests (p<.05, except for TUG). Greatest significant improvement was noted in BBS score (38.9% impaired baseline results versus 5.9% after surgery, p=.004) and MMSE score (11.1% cognitive deficit before surgery versus 0% after revascularization, p<.001). After surgery significant improvement in absolute score was noted in overall and impaired patients using balance scale BBS (p=.001) and for patients with baseline cognitive deficit using MMSE (p=.04). Patients with lower balance and cognitive scores had higher improvement after revascularization (r=0.82 for BBS and r=0.87 for MMSE, p<.001). Time of post-operative evaluation did not influence tests scores.

CONCLUSION: Carotid endarterectomy improved balance and cognitive scores in asymptomatic patients with severe unilateral or bilateral stenosis. Greatest improvements were noted in patients with most impaired scores at baseline.

CO 10 Impact of charlson comorbidity index adjusted to age in prognosis after endovascular abdominal aortic aneurysm repair

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BACKGROUND: Baseline comorbidity adjustment is an important component of health services research and clinical prognosis and can be obtained considering comorbidities individually or through the use of summary measures such as Charlson Comorbidity Index adjusted to age (CCIa), the most widely validated and used comorbidity assessment tool in research. There are many studies proving its value as predictor of mortality for a variety of conditions including cancer, stroke, acute mesenteric ischemia, coronary artery bypass grafting and COVID-19 patients; however, its prognosis value in patients submitted to elective endovascular abdominal aortic aneurysm repair (EVAR) has not been studied.

METHODS: Asymptomatic patients submitted to EVAR implantation between January 1, 2017 and December 31, 2021 in our Vascular Surgery Department were retrospectively evaluated. After exclusion criteria were applied, 123 patients were included. Patient characteristics, pre- and post-operative period variables were collected and CCIa calculated. Surgical complications were classified according to Clavien-Dindo. The area under the curve (AUC) of the receiver operating characteristic curves (ROC) was calculated to validate and determine the discriminating ability of CCIa in predicting complications and mortality. Youden index was used to determine the critical value. A p value of <0.05 was considered statistically significant.

RESULTS: The mean age was 73,49±7.95 years and the mean follow-up 30,55±16,49 months. 30-day complication rate was 16%, 30-day mortality 1,63% and overall mortality 16%. Patients with higher CCIa had higher overall mortality (p=.002, AUC 0.718 (95% CI 0.576-0.861)) but CCIa had no impact on 30-day complications (p=.740) and 30-day mortality (p=.0889). Logistic regression showed that even after adjusting for patients' comorbidities individually, CCIa was the only independent mortality predictor (p=.003). The optimal cutoff associated with higher overall mortality was found to be 5.5.
Conclusions: CCIa does not seem to be a good predictor of complications and early mortality after elective EVAR, however it seems to be a good predictor of overall mortality. These results show the limited role of this score in predicting the outcomes after surgery of these patients but may help to identify a sub-population whose shorter life-expectancy should be considered towards the benefits of elective EVAR.

CO 11 Incidence of acute aortic dissections in patients with out of hospital cardiac arrest: a systematic review and meta-analysis of observational studies

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INTRODUÇÃO: Acute Aortic dissection (AAD) may present as out-of-hospital cardiac arrest (OHCA). However, the incidence of this presentation is not well known. Our aim was to perform a systematic review and meta-analysis of all observational studies reporting on the incidence of AAD in patients with OHCA.

METHODS: We searched MEDLINE, CENTRAL, PsycInfo, Web of Science Core Collection and OpenGrey databases from inception to March-2021, for observational studies reporting on the incidence of AAD in patients with OHCA. Data was pooled using a random-effects model of proportions. The primary outcome was the incidence of AAD in OHCA patients. Secondary outcomes were the incidence of type A aortic dissections (TAAD) and type B aortic dissections (TBAD) in OHCA patients, overall mortality following AAD-OHCA and risk of death in AAD-OHCA patients compared to risk of death of non-AAD-OHCA patients.

RESULTS: Fourteen studies were included. The pooled calculated incidence of OHCA due to AAD was 4.39% (95%CI: 2.55; 6.8). Incidence of OHCA due to TAAD was 7.18% (95%CI: 5.61; 8.93) and incidence of OHCA due to TBAD was 0.47% (95%CI: 0.18; 0.85). Overall mortality following OHCA due to AAD was 100% (95%CI: 97.62; 100). The risk of death in AAD-OHCA patients compared with non-AAD-OHCA patients was 1.10 (95%CI: 0.94; 1.30).

CONCLUSION: AAD as a cause of OHCA is more frequent than previously thought. Prognosis is dire, as it is invariably lethal. These findings should lead to a higher awareness of AAD when approaching a patient with OHCA and to future studies on this matter.

CO 12 Time goals na rotura de aneurisma da aorta abdominal – experiencia de um centro de referenciação

João Pedro Rato, Pedro Amorim, Alice Cabral Lopes, Ryan Gouveia e Melo, Mariana Moutinho, Luís Mendes Pedro

Centro Hospitalar e Universitário Lisboa Norte

INTRODUÇÃO: A elevada morbimortalidade associada à rotura de aneurisma da aorta exige que o tratamento desta patologia seja feito de forma o mais célere possível – esta é uma norma amplamente aceite na literatura atual, existindo inclusive recomendações internacionais nesse sentido.
Este trabalho tem como objetivo principal avaliar a influência do tempo decorrido entre o diagnóstico e a instituição de tratamento bem como a sua eventual relação com a taxa de mortalidade.

MATERIAL E MÉTODOS: Foi realizado um estudo observacional, tipo coorte, unicêntrico, no qual foram incluídos todos os doentes com o diagnóstico de aneurisma da aorta abdominal justa ou infra-renal em rotura ou sintomáticos, referenciados ao nosso centro entre 2012 e 2021.

RESULTADOS: Durante o período do estudo foram tratados 150 doentes (90.7% homens; idade média 78.3 anos, dp 8.7). A apresentação clínica foi de rotura em 86% dos casos, correspondendo os restantes 14% a aneurismas sintomáticos. O tempo médio entre a realização de exame de imagem (estabelecimento de diagnóstico) e a entrada do doente no bloco operatório (instituição de tratamento) foi de 150 +/- 198 minutos. Em apenas 22% da totalidade dos casos foram cumpridas as recomendações internacionais - tempo abaixo dos 90 minutos; a distribuição temporal dessa percentagem de doentes manteve-se inalterada ao longo do período de tempo analisado.

Não se observou uma diferença estatisticamente significativa nos tempos apresentados entre sobreviventes e óbitos às 24 horas (p = 0.907, 95%IC), 48 horas (p = 0.743, 95%IC) ou aos 30 dias após (p = 0.650, 95%IC).

A idade do doente foi o único fator preditor de mortalidade a 48 horas e a 30 dias (não a 24 horas), ajustado para género e para o tempo entre diagnóstico e instituição de tratamento.

CONCLUSÃO: Apenas 22% dos doentes com aneurismas da aorta em rotura/sintomáticos são tratados dentro dos tempos recomendados. Apesar da ausência de impacto estatístico sobre a mortalidade no coorte apresentado, a distribuição uniforme ao longo dos anos dos doentes que cumprem o critério dos 90 minutos até ao início do tratamento deve funcionar como um alerta para a comunidade vascular não só pela baixa taxa registada como pela ausência de evolução ao longo do tempo.

CO 13 Internal carotid artery trauma due to elongated styloid process – a case study

Celso Nunes, Juliana Sousa, Joana Silva, Vânia Constâncio, Eduardo Silva, Leonor Baldaia, Miguel Silva, Manuel Fonseca

CHUC

INTRODUCTION: Eagle syndrome was first described by W. Eagle who estimated the length of a normal styloid process at 2.5–3.0 cm. Two groups have been defined: classic form, typically seen in patients after pharyngeal surgery. Ipsilateral cervical pain, dysphagia, tinnitus or otalgia are possible symptoms due to cranial nerves anatomical proximity; the vascular form is caused by the conflict with the vascular structures leading to carotid artery dissection (CAD) or compression, thus, possible neurological events. Being headache the most common initial symptom in patients with spontaneous CAD, eagle syndrome could be one explanation for some so-called spontaneous dissections.

METHODS: extensive electronic search of the literature using PubMed and Embase databases. The combination of keywords used in our search strategy was the following: (Eagle syndrome OR stylocarotid syndrome) AND (carotid artery dissection OR compression OR stenosis). We ended up with 8 cases related to carotid artery compression and 32 cases of CAD from 33 articles.

RESULTS: We divided the sample into two groups: the compression group and the CAD group. The first group consisted of 1 female and 7 male patients, with a mean age of 55.8 years. All cases presented with transient neurological events triggered by cervical rotation. Six out of eight cases had clinical symptoms for over one year and only two patients presented with symptoms for a month. All patients were treated with resection of the styloid process on the symptomatic side, except for one with bilateral involvement, who had a preventive resection. No patient had symptoms relapse after surgical management. The CAD group showed that 71.9% were generally fit and the mean age was 47.5 years old. The condition was more common in men with a ratio of 2.2:1. Four patients had no focal neurological deficits and presented with sudden headache, being this symptom present in one-third of the patients. In terms of initial management, 22 patients were managed with medical therapy only; 5 underwent endovascular and/or intra-arterial fibrinolysis and 5 patients were managed with angioplasty and stent placement. Acute recurrence symptoms were observed in 34% of patients, 9 were initially treated with medical therapy leading to balloon angioplasty and stent placement in 4. After initial management 17 patients were selected for styloidectomy. Three cases reported recurrence symptoms during follow-up.

CONCLUSION: On one hand, in the compression group, patients present with reproducible symptoms with cervical rotation. Neurological sequelae are not common since these events are most transient. After establishing the relationship between the carotid artery and the styloid process, the treatment with surgical resection seems logical and very effective. On the other hand, in CAD group, the clinical presentation is usually sudden. In our case study, there was no significant difference between the anti aggregating and anticoagulation therapy in terms of symptoms recurrence but since more than one-third of the patients experienced symptoms despite medical treatment, we can assume the recurrence rate is quite high. The presence of deteriorating clinical neurologic symptoms despite medical treatment in this subgroup of CAD makes stenting one treatment of choice. Whether delayed styloidectomy after medical management plays a role in CAD, as it does for the compression group, is something to investigate.

CO 14 Doxycycline is not effective in reducing abdominal aortic aneurysm growth: a systematic review and meta-analysis of randomized controlled trials

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INTRODUCTION: Abdominal aortic aneurysms (AAA) are an entity that, although widely studied and with significant progress in surgical repair, still has no effective pharmacological therapy. Surgical options are offered for definitive treatment but many patients are diagnosed with “small aneurysms” (i.e. below surgical treatment threshold). For these patients, reducing aneurysmal growth rate seems to be ideal. To date, no drug has been found to meet these criteria. One option would be to target the inflammatory pathway mediated by metalloproteinases and doxycycline has been shown to reduce the level of these enzymes in both animal models and humans and it’s effect on aneurysm growth has seemed significant in the first. We sought out to perform a systematic review and meta-analysis of randomized controlled trials analyzing the effect of doxycycline compared to placebo in the reduction of aneurysm growth (PROSPERO CRD42020201058).

METHODS: Our search was conducted in Medline, Embase and CENTRAL databases, from inception to July 2020, for all studies reporting on the effect of doxycycline versus placebo or non-exposure on aneurysm growth. Articles were screened and data appraised and extracted by two authors. Data were pooled using a random effects model, and quantitative analysis was performed using the Review Manager Version 5.4 (The Cochrane Collaboration, 2020). Statistical heterogeneity was reported through the I2 measure. Main outcome was the mean difference in aneurysm growth during the time of the study. Secondary outcome was the risk ratio of progression leading to aneurysm diameter eligible for repair.

RESULTS: A total of 695 articles were pooled. After title and abstract review, 20 were fully evaluated and only 3 met the criteria for qualitative and quantitative synthesis. All studies were randomized placebo-controlled clinical trials. Different daily doses of doxycycline and follow-up periods were used. Baxter et all studied 100mg td for an intended follow-up of 2 years, Meijner et al. 100mg od for a follow-up of 18 months and Mosorin et al. studied 150mg od for 3 months, for a follow-up of 18 months. Initial aneurysm diameters also varied, in Baxter et al., patients were included with diameters of 3.5-5.0cm for men and 3.5-4.5cm for women, in Meijner et al., AAA between 3.5-5.0cm and in Mosorin et al. AAA between 3-5.5 cm. Outcome assessment also varied, with CTscans in the first vs abdominal ultrasound in the latter two studies. A total of 572 patients were analyzed, 290 in the doxycycline and 282 in the placebo arm. Baseline aneurysm diameter was similar in both groups except for Mosorin et al., which had non-significant higher baseline diameter in the placebo group. This study, however, showed a high risk of bias due to unclear risk regarding sequence generation, selective outcome reporting and baseline differences. Doxycycline did not show a reduction in aneurysm growth, with a pooled mean difference between groups of 0.24mm (95%CI -0.61 to 1.08; p=0.58; I2 65%). The need for surgical repair also appeared unaltered (pooled risk ratio 1.19 (95%CI: 0.70 to 2.03; p=0.52; I2 17%).

CONCLUSION: Results obtained show that doxycycline was not effective in preventing both small AAA growth and need for repair. This might be explained by other interactions in the cascade that dull this effect. A continuous need for research, both in therapeutic strategies and maybe even in our core preconceptions of pathophysiology of AAA may be at stake.

CO 15 Inflammation and chronical limb threatening ischaemia

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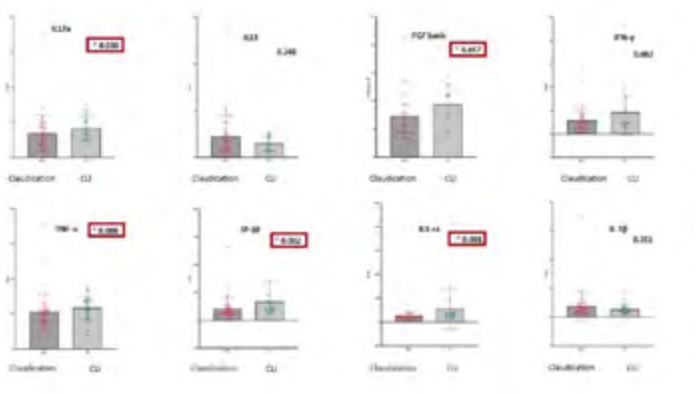
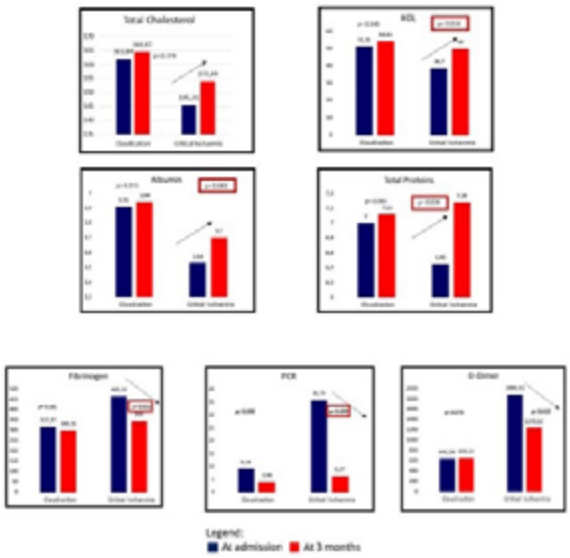
INTRODUCTION: Lower extremity peripheral arterial disease (PAD) is one of the most common manifestations of atherosclerosis. Atherosclerosis is a chronic inflammatory disease of the vessel wall and inflammation is deeply involved in the initiation and progression of atherosclerosis. This study aims to determine the differences in the inflammatory parameters of patients with claudication and with chronical limb threatening ischaemia (CLTI). The second goal is to analyze the evolution of inflammatory parameters after revascularization in patients with CLTI.

METHODS: An observational, prospective, longitudinal study, including patients with PAD, was conducted from january 2018 to december 2021. Inclusion criteria: patients with PAD suggested by the clinical history and objective examination and confirmed with ankle-brachial index. The patients were observed at admission or immediately prior revascularization and after three months. The following data was registered at this two time-points: clinical characteristics; cardiovascular risk factors, usual medication, routine analytic evaluation and inflammatory parameters. The inflammatory parameters registered were: positive acute phase proteins (C-reactive Protein- CRP- and fibrinogen), negative acute phase proteins (albumin, total cholesterol and high-density lipoprotein- HDL). A panel of cytokines were measured at admission (Bio-Plex Pro Human Cytokine 27-plex Assay #M500KCAF0Y- Bio-Rad Laboratories).

RESULTS: 116 patients (mean age: 67.65±9.53 years-old) 64% with claudication and 46% with CLTI were enrolled in the study. No differences were registered between patients with claudication and CLTI on age, cardiovascular risk factors and medication. Analyzing the inflammatory parameters, we noted that patients with CLTI, compared with claudicants had increased serum levels of positive acute phase proteins: CRP (35.73±46.61mg/L versus 9.18±26.12mg/L, p=0.000), and fibrinogen (466.18±208.07mg/dL versus 317.37±79.42mg/dL, p=0.000). CLTI patients had decreased negative acute phase proteins: albumin (3.53±0.85g/dL versus 3.91±0.72g/dL, p=0.001), total cholesterol (145.41±38.59mg/dL versus 161.84±34.94mg/dL, p=0.013) and HDL (38.70±12.19mg/dL versus 51.31±15.85mg/dL, p=0.000). CLTI patients also had significantly higher cytokines serum levels (TNF-□; IL-1ra; IL-17a; FGF basic; IP-10)(Fig. 1). When analyzing the data at the third month of follow-up, it became evident that after resolution of CLTI there is a reversion in the inflammatory parameters (Fig.2). In CLTI patients there is an increase in negative acute phase proteins (albumin, total cholesterol and HDL) and a decrease in positive acute phase proteins (CRP, fibrinogen, albumin)(Fig. 2). Analyzing these data, in patients with claudication, no significant changes were noted at three months of follow up(Fig.2). Despite this “inflammatory improvement” in patients with CLTI, their “inflammatory burden” remains higher than in claudicants (Fig. 2).

CONCLUSION: Patients with CLTI have an inflammatory state, with potential deleterious consequences, that can be at least partially reversed after revascularization. Recognizing that patients with CLTI have an inflammatory state with lethal consequences, that can be partially reversed is an opportunity to implement a timely revascularization and to optimize medical treatment.





CO 16 Abordagem endovascular como terapêutica de primeira linha nas malformações arterio-venosas congénitas

Andreia Pinelo, Luís Loureiro, Paulo Almeida, Daniel Mendes, Carlos Veterano, Henrique Rocha, João Castro, Henrique Almeida, Miguel Queirós, Rui Almeida

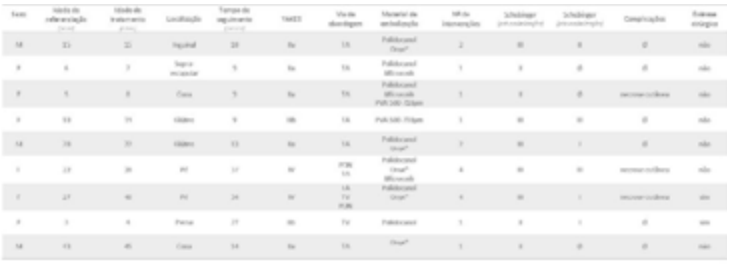
Centro Hospitalar Universitário do Porto

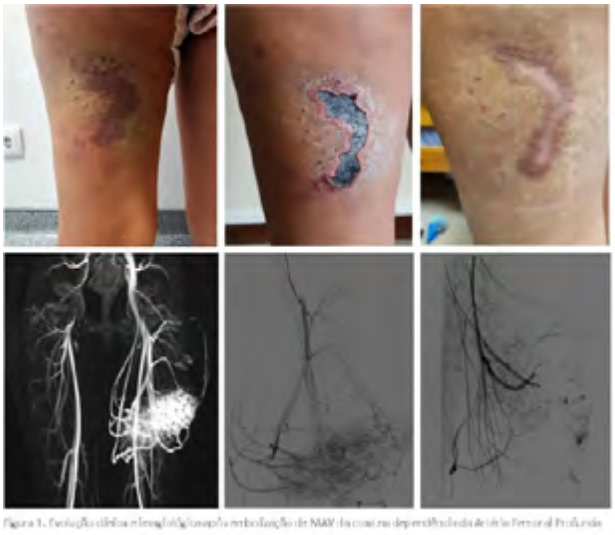
INTRODUÇÃO: As malformações vasculares congénitas são entidades com um amplo espectro de apresentações e prognóstico variável, manifestando-se desde pequenas lesões cutâneas com envolvimento apenas capilar até grandes comunicações arterio-venosas com sintomas compressivos e impacto hemodinâmico. Apresentam-se tipicamente em idade jovem e estão historicamente associadas a cirurgias de ressecção extensas e com elevada morbilidade associada. Este trabalho tem como objetivo avaliar os resultados da embolização de malformações arterio-venosas como abordagem de primeira linha.

MATERIAIS E MÉTODOS: Foi realizada uma análise retrospetiva dos casos clínicos de doentes com malformações arterio-venosas submetidas a embolização no nosso centro entre 2019 e 2021. Foi aplicada a Classificação de Schöbinger para categorização do estadio clínico e os achados angiográficos foram reportados conforme a Classificação de Yakes. A diminuição do grau de Schöbinger após tratamento, a necessidade de reintervenção e as complicações associadas foram os principais outcomes considerados. Tendo em conta o reduzido número de doentes incluídos na série foi apenas realizada uma análise estatística descritiva.

RESULTADOS: Foram avaliados 9 doentes submetidos a embolização de malformações artério-venosas, todas do tipo extratroncular infiltrativo, contabilizando-se um total de 17 intervenções. Verificou-se uma preponderância do sexo feminino (n=6; 66,7%) e a idade média de referenciação à consulta de Cirurgia Vascular e do primeiro tratamento foi de 16,8 (±12,9) e 20,9 (±14,5) anos, respetivamente. Todos os doentes se encontravam em estadio II (n=4; 44,4%) ou III (n=5; 55,6%) de Schöbinger. O tipo de MAV, classificado através do estudo angiográfico segundo a Classificação de Yakes, guiou a abordagem. O subtipo IIa foi encontrado mais frequentemente (n=5; 55,6%), seguido pelo tipo IV (n=2; 22,2%), tipo IIb (n=1; 1,1%) e tipo IIIb (n=1; 1,1%). Os doentes foram submetidos a embolização da MAV por via transarterial, transvenosa ou por punção direta do nidus com agentes esclerosantes, embolizantes líquidos, micropartículas e microcoils, em separado ou em combinação. O número mediano de intervenções por doente foi de 1 (1 – 4) e o tipo IV de Yakes parece estar associado a uma maior taxa de reintervenção. A redução do estadio de Schöbinger foi conseguida em 7 (77,8%) doentes com resolução clinica em 3 (33,3%). A necrose cutânea foi a única complicação reportada nesta série (n=3; 33,3%).

CONCLUSÕES: O tratamento endovascular de malformações arteriovenosas através da embolização do nidus e/ou aferentes/eferentes requer uma caracterização angiográfica pormenorizada mas parece ser uma estratégia terapêutica eficaz e com baixo risco de complicações. A classificação de Yakes, além auxiliar na escolha da abordagem pode ser também um preditor da necessidade de reintervenção.





CO 17 Sex disparities in peripheral arterial occlusive disease

Leonor Baldaia, Luís F. Antunes, Miguel Silva, Eduardo Silva, Celso Nunes, Vânia Constâncio, Joana Silva, Manuel Fonseca

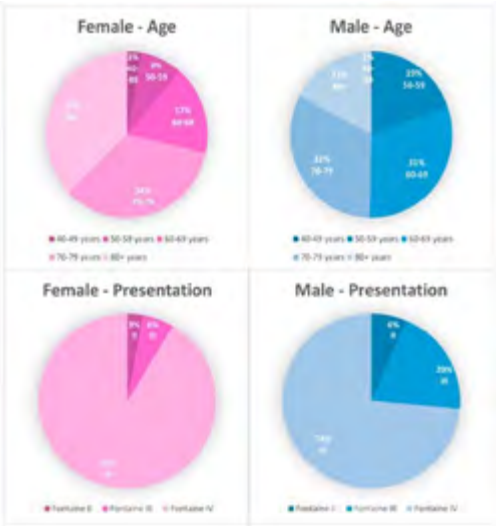
Centro Hospitalar e Universitário de Coimbra

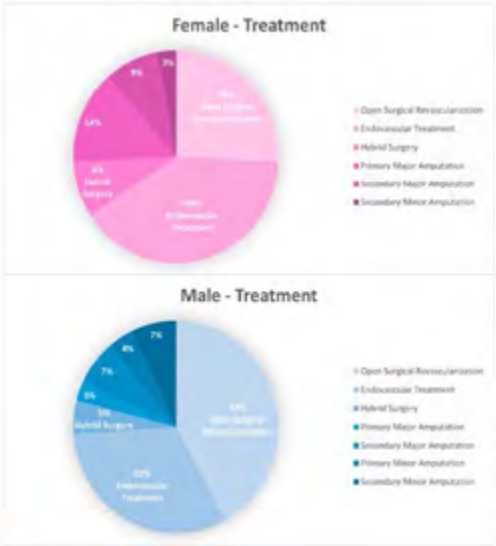
INTRODUCTION: Recently published studies on peripheral arterial occlusive disease (PAOD) have revealed marked sex disparities in patient selection and treatment outcomes. Female patients tend to be older at the time of invasive treatment, have worse peri-operative morbidity and mortality rates, and they are also less likely to be taken optimal pharmacological treatment (OPT) at long-term follow-up, compared to male patients. In a recent retrospective study published in the European Journal of Vascular and Endovascular Surgery (EJVES), with a population of 1 164 497 patients from 11 different countries, Portugal was highlighted as one of the countries with greater sex discrepancies related to PAOD treatment. We aimed to analyze sex specific differences in the treatment of symptomatic PAOD, concerning different variables, in a single hospital centre, in Portugal.

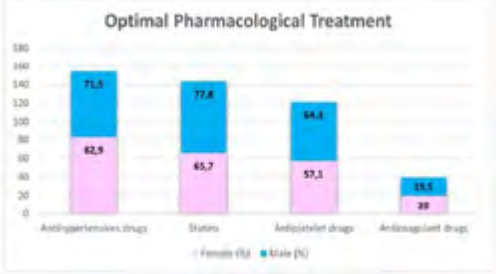
METHODS: Data on treatment of symptomatic PAOD patients from October 1st, 2020, to December 31st, 2021, were retrospectively collected from clinical registries from a single portuguese hospital centre. Different variables were analyzed dichotomized by sex, such as discrepancies in age, comorbidities, presentation (Leriche-Fontaine classification II, III or IV), treatment modality, mean length of hospital stay, and pharmacological treatment for PAOD at the time of invasive treatment. Differences in post-operative outcomes (90-day mortality and 90-day need of a major amputation) were also assessed.

RESULTS: A total of 220 patients, 15,9% female and 84,1% male, were treated for PAOD, in the selected period, in a hospital centre from Portugal. Female patients were older (mean age of 73.8 years versus 69.5 years in male patients) and had a higher proportion of octogenarians (37.1% versus 17.3% in the male group). Comorbidities distribution was similar between the two sex groups, except for known smoking history that was much more prevalent in men with PAOD, compared to women (49.7% male versus 8.9% female). Women were less likely to be treated for intermittent claudication (Leriche-Fontaine classification II in 3% of women versus 6% of men). Instead, they were more often treated at a more advanced stage of the disease with trophic lesions (Leriche-Fontaine classification IV in 91% of women versus 74% of men). Female patients were more frequently treated with endovascular procedures (40% versus 26% treated with OSR), with the opposite occurring for male patients (42% treated with OSR versus 32% treated with endovascular procedures). Hybrid surgery was performed in 8% of the female versus 5% of the male patients. Females were significantly more likely to be offered primary major amputation (14% versus 3% of male patients). Also, they were less likely to be taken statins as part of PAOD OPT (65.7% versus 77.8% of male, with a total discrepancy of -12.1%). Although 90-day mortality rate was higher in women (17.1% versus 6.5% in men), they had a lower 90-day major amputation rate (5,7% versus 11,4% in men).

CONCLUSIONS: Remarkable sex discrepancies in the treatment of PAOD were found in our portuguese hospital centre. This study brings awareness to the scientific medical community for sex disparities in the management of patients with PAOD. Future research is needed to better understand the impact of selection sex bias in PAOD treatment outcomes.







CO 18 Ultra-distal revascularization in chronic limb-threatening ischemia: results are never out of fashion

Gonçalo Cabral, Tony Soares, Tiago S. Costa, José Manuel Tiago, José L. Giménez, Armanda Duarte, Diogo Cunha e Sá

Hospital Beatriz Ângelo

INTRODUCTION: The progression of diabetes mellitus to a global epidemic resulted in an increased prevalence of tibioperoneal disease in chronic limb-threatening ischemia (CLTI). Distal disease still poses an enormous challenge to vascular surgeons. Crural angioplasty was formerly restricted to patients with short stenotic lesions or to poor candidates for bypass surgery. Despite the heterogenous results, endovascular therapy has been used preferentially over bypass surgery in most centers.
Aim: To analyze the results of open ultra-distal revascularization in a single-center with a limb preservation program for CLTI.

METHODS: A single-center retrospective analysis of all patients with CLTI submitted to below the ankle bypass. The end points of the present study were limb-based patency (LBP), primary patency (PP) and secondary patency (SP) rates, freedom from CLTI, freedom from new CLTI, freedom from major index limb amputation, amputation free-survival, and overall survival. Patients were categorized in subgroups based on age (above or below 75 years), dialysis status, wound and infection grade (0 and 1 vs 2 and 3 in WIfI classification). Statistical analysis was carried out using Stata 12.1 (StataCorp®, Lakeway Drive, College Station, Texas, USA). Time-to-event end points were presented with Kaplan–Meier estimates, censored at major amputation, death, or last follow-up, and compared with the logrank test.

RESULTS: A total of 134 limbs in 123 patients with CLTI (83% male, median age of 68 years) were submitted to below the ankle bypasses. The median follow-up was 33.7 months. LBP, PP and SP were, respectively, 78%, 78% and 92% at 1 year, 73%, 73% and 88% at 2 years, and 62%, 62% and 79% at 4 years. At 1 year, 83% of the limbs were free from CLTI. 89% and 74% of the limbs remained without recurrences during a follow-up of 2 and 4 years, respectively. Eighty-two percent of the patients were free from major index limb amputation at 4 years. 30-day mortality was 1.6% (2 patients). 1-year and 2-year survival was 90.5% and 82.5%, respectively. Age, dialysis status and wound/infection grade (WIfI classification) did not influence patency rates.

CONCLUSIONS: Below the ankle bypass is safe and has excellent clinical outcomes. The present study emphasizes the value of open surgery in a challenging territory, with high rates of patency, limb salvage, freedom from CLTI and from new CLTI. These results were not affected by patient status or clinical severity factors. Ultra-distal revascularization is a first line treatment that every vascular surgeon involved in CLTI should master.

CO 19 A systematic review of the natural history of donor artery aneurysm degeneration after arteriovenous access for hemodialysis

Daniel Azevedo Mendes, Sérgio Teixeira, Rui Machado, Paulo Almeida, Carlos Veterano, Henrique Rocha, João Castro, Andreia Pinelo, Henrique Almeida, Miguel Queirós, Rui de Almeida

Centro Hospitalar e Universitário de Porto

INTRODUCTION: True aneurysms of the upper extremity arteries are rare, usually associated with trauma or infection. Arterial aneurysmal degeneration could also occur proximally to arteriovenous hemodialysis access, a complication that has been reported more frequently.
This study aims to define the anatomical characteristics and natural history of true arterial upper extremities aneurysms associated with hemodialysis arteriovenous access.

METHODS: We performed a systematic review of the literature in the MedLine, Scopus, and Cochrane databases from 1991 to 2021. Cases of pseudoaneurysms and anastomotic aneurysms were excluded. A total of 47 articles referring to 98 patients were included. Demographic characteristics, patient comorbidities, history of vascular diseases, detailed characteristics of vascular access (location and duration), symptoms, previous kidney transplant, surgical or endovascular treatment, and follow-up were analyzed. A database was constructed based on the reported clinical data from each patient. Since we only identified case reports and small series, no meta-analysis could be performed.

RESULTS: Most patients included were male (85%) with a mean age of 51 years (20-77 years). The brachial artery was the most frequently affected in 87% of cases (n=86), with the axillary and radial arteries being less affected. The most associated vascular accesses were autologous radiocephalic arteriovenous fistulas in 57% (n=56) and brachycephalic fistulas in 39% (n=38). Most patients had a history of kidney transplantation (88%; n=86) and previous vascular access ligation or thrombosis (84%; n=82). The median time from access ligation to aneurysm diagnosis was ten years (range 1-32 years), and the median time from kidney transplantation was 13 years (range 1-32 years).

Only 8% of patients (n=8) had a history of diabetes mellitus. Treatment was open surgery with interposition bypass or end-to-end reconstruction in most cases, and endovascular treatment was only reported in one patient to repair a ruptured axillary artery aneurysm. The median follow-up of the vascular reconstructions was 12 months (range 1-72

months), and no stenosis or thrombosis of the vascular reconstructions was reported.

CONCLUSION: Aneurysmal degeneration of the inflow artery proximal to the hemodialysis vascular access must be understood as an individualized entity with specific characteristics. It usually affects the brachial artery after kidney transplant and is more associated with wrist arteriovenous fistulas after ligation of the vascular access. Our review suggests that donor artery aneurysm degeneration screening with ultrasound should be considered 10 to 15 years after access ligation and kidney transplant.

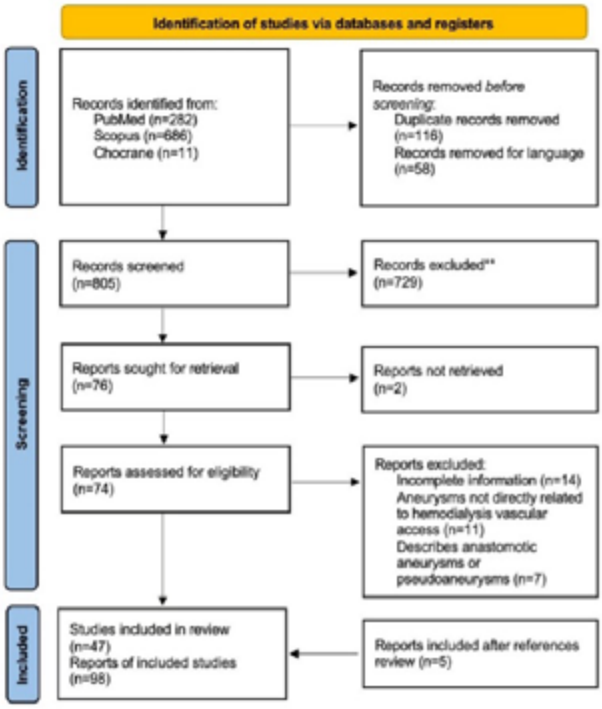


Fig 1. PRISMA flow diagram.

CO 20 Outcomes of varicose vein surgery within hiv/aids population - nested case-control study

António Pereira-Neves, Diogo Domingues-Monteiro, Leandro Nóbrega, Luís Duarte-Gamas, Alfredo Cerqueira, João Rocha-Neves, José Oliveira-Pinto, Armando Mansilha

CHUSJ

NTRODUCTION: Nowadays, people living with HIV/ AIDS (PLWHA) attain a life expectancy similar to a non-HIV population. However, these patients experience a status of chronic inflammation, which is a known cause of arteriopathy. Yet, literature is scarce regarding the potential venous inflammatory effect, especially after varicose vein surgery. The aim of this study was to perform a descriptive analysis alongside evaluating short and long-term outcomes after varicose vein surgery in PLWHA while comparing with a control group.

METHODS: A retrospective nested case-control study was performed. A retrospective review was performed, in a tertiary university hospital's database, resorting to ICD 9 codification. All PLWHA patients which had any hospital interaction with the Vascular Surgery Department (either outpatient clinic, emergency or surgery) due to venous disease between April 2006 and December 2019 were identified. PLWHA found to have undergone varicose vein surgery within the study inclusion period were included. The immediately consecutive varicose vein surgery in a patient with no-HIV infection was included in the control group in a 1:1 ratio. Comorbidities were collected at the time of index event. Clavien-Dindo classification was adopted for surgical complications.

RESULTS: The cohort included 118 patients (59 PLWHA and 59 control) and had a mean follow-up of 86 [Interquartile range (IQR) 25-75%, 43-111] months. At baseline, PLWHA were younger (45.2 ± 10.71 vs 49.9 ± 10.69 years, p=0.017) and had a male predominance (54% vs 27%, p=0.003). Furthermore, there were a higher prevalence of smokers (54% vs 17%, p<0.001) and history of drug abuse (34% vs 2%, p<0.001) in the study group. Although not statistically significant, PLWHA presented higher pre-operative CEAP classifications. Regarding post-operative outcomes, no differences were found for complications, reinterventions or overall-mortality.

CONCLUSION: To the authors knowledge, this is the first study addressing varicose vein treatment in PLWHA. In summary, PLWHA undergoing varicose vein surgery seem to be younger and have higher CEAP classifications. Nonetheless, short and long-term outcomes seem to be good and similar to a control population. Further studies with larger populations and disease specific outcomes are necessary to confirm such findings.

Table 1 - Demographics

Demographics	HIV + n=59 (%)	HIV n=59 (%)	P - value
Age (years)	**45.2 ± 10.71**	**49.9 ± 10.69**	**0.017**
Male Gender	**32 (54)**	**16 (27)**	**0.003**
Dyslipidemia	24 (41)	18 (31)	NS
Hypertension	11 (19)	18 (31)	NS
Diabetes	4 (7)	9 (15)	NS
Smoker	**32 (54)**	**10 (17)**	**<0.001**
CAD	5 (8)	4 (7)	NS
CKD*	6 (10)	2 (3)	NS
BMI >30	9 (15)	8 (14)	NS
History of Drug Abuse	**20 (34)**	**1 (2)**	**<0.001**
Previous Surgery	6 (10)	11 (19)	NS
History of DVT	1 (2)	1 (2)	NS
Deep Vein Pathology	0 (0)	1 (2)	NS
CEAP Classification			
C2	34 (58)	39 (66)	
C3	9 (15)	12 (20)	NS
C4	1 (2)	1 (2)	
C5	2 (3)	0 (0)	
C6	3 (5)	0 (0)	

*GFR <60mL/min Cockcroft-Gault

Legend: BMI - body mass index; CAD - coronary artery disease; CKD - chronic kidney disease; DVT - deep vein thrombosis; NS- Non-significant

Table 2 - Outcomes

Outcomes	HIV + n=59 (%)	HIV - n=59 (%)	P - value
30-day Urgency Department Visit	3 (5)	5 (8)	NS
Complications*	3 (5)	6 (10)	NS
PREVAIT with Re-operation	5 (8)	8 (14)	NS
Mortality	1 (2)	1 (2)	NS

* Clavien-Dindo ≥1

Legend: NS- Non-significant; PREVAIT - PREsence of Vanices (residual or recurrent) after inTervention

CO 21 Aortobifemoral bypass and endovascular procedures in aortoiliac occlusive disease: a systematic review and metanalysis

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OBJECTIVE: Aortoiliac occlusive disease (AIOD) can be treated using either open surgical repair (OSR) or endovascular repair (ER). The aim of this review was to report limb patency and re-interventions, as well as on risk factors and management.

METHODS: A systematic review was conducted according to the recommendations of the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement.

RESULTS: After a PubMed and Cochrane search, five studies were included. A total of 712 patients (71.2% male) were assessed. OSR group comprised 335 patients (47.1%) and ER group included 377 patients (52.9%). Clinical presentation was chronic limb threatening ischemia (CLTI) in 23.6% and 20.6% of patients in OSR and ER groups, respectively. The number of patients with reported TASC C and D lesions patients were 217 (30.5%) and 446 (62.6%), respectively. TASC D patients were more commonly treated with open surgery (OR 3.05, 95% CI 1.21, 7.68).

Both populations were similar concerning cardiovascular risk factors, but in the ER group patients were older than in OSR group (OR -4.31, 95% CI -6.50, -3.12). Adjunctive femoral endarterectomy was performed in 115 (34.3%) patients in the OSR group and in 97 (25.7%) patients in ER group. Length of stay (LOS) was shorter was 3.9 days for ER and 10.7 days for OSR group (OR 6.44, 95% CI 5.93, 6.96). Reported antiplatelet follow-up regimens for ER patients included dual antiplatelet regimen with aspirin and clopidogrel for six weeks to 24 months, and then aspirin alone. All OSR patients were prescribed with aspirin alone.

Primary patency rates at six years for OSR vs ER ranged from 91-95.5% vs 81.4-83% (OR 2.75, 95% CI 1.75, 4.32) and secondary patency 97-98% vs 85-93% (OR 5.00, 95% CI 1.92, 13.05), respectively. Post-procedural limb thrombosis was reported in 5.7% in OSR group and 13.7% in ER group. In this meta-analysis, there was a higher re-intervention rate in the ER group (OR 0.37, 95% CI 0.15, 0.93).

Mean overall follow-up was between 1-96 months and follow-up strategy comprised clinical evaluation and duplex ultrasound (DUS) at 3, 6, 12 months and annually thereafter. OSR showed a tendency towards higher mortality that did not reach statistical difference (odds ratio 7.31, 95% CI 0.85, 63.07, p = 0.07).

Several studies concluded that female sex, hyperlipidemia and ipsilateral superficial femoral artery disease with iliac artery occlusion were independent risk factors associated with loss of primary patency in the ER group, with no statistically significant independent predictors for loss of primary patency in the OSR group.

CONCLUSIONS: Although OSR still presents a significantly better long term patency than the currently available endovascular strategies for TASC C/D AIOD associated morbidity and delay in return to normal activities are greater than for the endovascular approach. The ER group had a shorter LOS at a cost of a higher re-intervention rate and shorter patency rate. Although it did not reach statistical difference, OSR showed a tendency towards higher mortality, reflecting the post-operative risk in this group of patients. Only randomized controlled trials could validate outcomes between both procedures to define the best treatment option for patients with AIOD.

COMUNICAÇÕES RAPID-PACE

CR 01 Coral reef aorta: literature review and analysis of 49 published cases in the last 20 years

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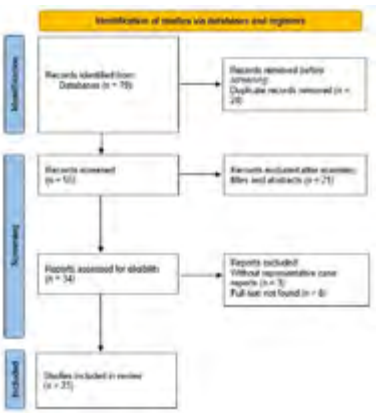
INTRODUCTION: Coral reef aorta (CRA) is a rare atherosclerotic disease characterized by heavily calcified exophytic plaques that grow into the lumen of the suprarenal and juxtarenal aorta. The etiology and pathogenesis of this entity remains unclear. Malperfusion of the intestinal, renal, and lower limbs arteries can occur as a consequence of significant stenosis, which may lead to intermittent claudication, renovascular hypertension, abdominal angina or renal insufficiency. The optimal treatment for CRA has not yet been established.

METHODS: We performed a thorough electronic search of the literature using PubMed and Embase databases. We used the following combination of key words in our search strategy ((coral reef) AND (aorta) AND (vascular surgery* OR treatment*).

After duplicates removal, titles and abstracts' screening and fully reading the remaining articles, we end up with 23 studies to compose our review, with a total of 49 patients. Articles not in English were excluded. We only included articles published in the last 20 years. Information about patients' characteristics, symptoms and type of treatment were extracted. The primary outcomes were improvement of signs and symptoms and postoperative complications.

RESULTS: We studied 49 cases of patients with CRA, 27 (55%) females and 22 (45%) males, with a mean age of 59 years [37-84 years]. The main signs and symptoms encountered were intermittent claudication in 30 (61%) patients, refractory hypertension in 30 (61%) patients, intestinal angina in 15 (31%) patients, renal insufficiency in 13 (27%) patients, heart failure/acute pulmonary edema/peripheral edema in 6 (12%) patients, pain at rest in the lower limbs in 6 (12%) patients, weight loss in 3 (6%) patients, and trophic lesions in the lower limbs in 2 (4%) patients. Of all the 49 patients in the study, 38 (78%) were treated with open surgery (aortic endarterectomy, extra-anatomic bypass graft or both), 8 (16%) with endovascular treatment (balloon angioplasty, stent graft, intravascular lithotripsy, or a combination of these techniques) and 3 (6%) by laparoscopy with aortic endarterectomy and aortobifemoral bypass. The mean follow-up time was 41 months [0-180 months] after open surgery, 6 months [4-6 months] after endovascular treatment, and 23 months [1-38 months] after laparoscopic surgery. Postoperatively, most patients experienced a great relief or resolution of the symptoms, control of hypertension and/or improvement in renal function. Of the patients treated by open surgery, 4 needed reinterventions, 2 for revascularization and 2 for bleeding. Other complications included occlusion of aortic branches, splenic rupture, and brain and myocardial infarction. In the group of patients treated with endovascular procedures or laparoscopic surgery, no postoperative complications were described.

CONCLUSIONS: CRA is a rare condition, but we should be aware of this diagnosis in patients with intermittent claudication, refractory hypertension, renal impairment, or intestinal angina. From what we gathered, both open surgery and endovascular treatment could be a valid therapeutic option. Open surgery seems to be associated with more postoperative complications and need for reintervention. However, there are less published studies about endovascular treatment and they have a significantly shorter mean follow-up time. Treatment strategy should be made by a multidisciplinary team and be specific for each individual patient.



CR 02 Is metformin the future for medical management of abdominal aortic aneurysm?

Celso Nunes, Juliana Sousa, Joana Silva, Vânia Constâncio, Eduardo Silva, Leonor Baldaia, Miguel Silva, Manuel Fonseca

CHUC

INTRODUCTION: The pathophysiologic mechanisms of Aortic Abdominal Aneurysm (AAA) are yet being under-covered. The imbalance of proteolytic pathways, immune/inflammatory response and oxidative stress have been shown to have a deleterious effect on the arterial wall. Paradoxically, diabetes, a known cardiovascular risk factor, might have a protective effect on the incidence, growth rate, and rupture of AAA. Metformin, one of the most prescribed drugs for diabetes have also been linked to having this same protective effect explained by its pleiotropic anti-inflammatory effects on the vasculature. However, some advocate this effect as an association with diabetes itself.

METHODS: We performed an extensive electronic search of the literature using PubMed and Embase databases. The combination of keywords used in our search strategy was the following: (Aortic abdominal aneurysm OR AAA) AND (metformin OR antidiabetic drugs OR biguanides). After removing duplicated articles and fully reading the remaining articles, our focus was established in 10 original articles in order to understand the effect of metformin on the incidence, growth rate, repair-related complications, and mortality of AAA in humans.

RESULTS: With respect to AAA incidence Hsu et al. concluded metformin was associated with a lower risk of AAA formation (OR=0.72). In fact, they suggested a dose-response effect, since smaller odds ratios were observed when the duration of treatment was longer. Five studies were focused on illustrating the association between metformin exposure and the annual growth rate decline of AAA. Generally, all showed that metformin decreased the aneurysm expansion speed. Unosson et al. found a 51% slower growth rate in the metformin group compared with the non-diabetic patients. However, a non-significant reduction of 27%, when compared to only diabetic patients. Itoga et al. reported a 20% decrease and Fujimura et al. linked metformin to a significantly slower AAA expansion. Goledge et al. and Thompson et al. reported similar results. Agniezka et al. in their retrospective study showed that metformin was an independent lowering factor for risk of AAA repair. Although, in terms of the number of complications, no statistically significant difference has been found. Sutton et al. reported a higher risk of perioperative mortality in diabetic patients, but still lower in the metformin group. Besides, non-diabetic patients had the highest rate of AAA surgery. According to Goledge et al. patients with diabetes prescribed metformin had approximately half the incidence of AAA events including aneurysm rupture, related death and need for surgery.

DISCUSSION/CONCLUSION: The prevalence and AAA growth rate are lower in diabetic patients. The studies mentioned above all tried to dissociate this factor from the metformin effect. Yet, synergistic or additive effects of diabetes and metformin are possible confounders in this type of studies. Even so, the results are promising and demanding for randomized clinical trials on non-diabetic patients, which are ongoing. The fact that metformin could be one major factor, not only in lowering the AAA formation but also in lowering the need for surgery and the risk of rupture seems promising to the future of medical treatment of AAA. Since most are discovered at an early stage, there is a window of opportunity to impede the progression of the disease, allowing to reduce the morbimortality of this pathology and its costs.

CR 03 Experiência de um serviço no tratamento de aneurismas verdadeiros dos troncos supra-aórticos

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INTRODUÇÃO: A incidência de aneurismas verdadeiros dos troncos supra-aórticos é muito baixa. Podem apresentar-se como assintomáticos ou por sintomas compressivos, de embolização distal ou, mais raramente, por rotura dos mesmos. As recomendações de diagnóstico e tratamento não são uniformes, pelo que a escolha de tratamento pode ser controversa. O objetivo deste trabalho é descrever a experiência institucional no tratamento de aneurismas verdadeiros dos troncos supra-aórticos num centro terciário de Angiologia e Cirurgia Vascular.

MÉTODOS: Análise retrospetiva de todos os doentes tratados por aneurismas verdadeiros dos troncos supra-aórticos no serviço de Angiologia e Cirurgia Vascular de um Hospital Terciário, durante o período de 1 Janeiro de 2011 a 31 de Dezembro de 2021. A taxa de mortalidade é o endpointprimário e o tempo de internamento em enfermaria ou UCI é o endpoint secundário.

RESULTADOS: Durante um período de 11 anos, um total de 7 doentes foram tratados por aneurismas verdadeiros dos troncos supra-aórticos, dos quais: 4 por aneurismas da artéria carótida interna (ACI) e 3 por aneurismas da artéria subclávia. Nenhum destes doentes apresentava história de trauma anterior. A idade média foi de 58 anos (24-77 anos) e 57% (n=4) eram do sexo feminino. Relativamente à sintomatologia associada: a maioria (n=4) eram assintomáticos, 2 doentes apresentaram-se com história de lipotímias de repetição e 1 doente possuía uma massa cervical lateral pulsátil. O diâmetro máximo dos aneurismas tratados foi em média de 46 mm (21-84mm). Todos os doentes foram tratados de forma eletiva e o tratamento convencional foi o método de tratamento preferido (usado em 5 dos 7 doentes). Os doentes com aneurisma carotídeo (n=4) foram submetidos a: excisão de aneurisma carotídeo e anastomose topo-a-topo da ACI (n=2); transposição carótida externa-interna (n=1) e a interposição da artéria carótida comum-ACI com veia (n=1). Os doentes com aneurismas da artéria subclávia (n=3) foram submetidos a: bypass carótido-carotídeo e TEVAR (n=1); interposição do tronco braquiocefálico- artéria subclávia (n=1) e a embolização com coils de aneurisma da artéria subclávia (n=1). Apenas num dos doentes foram observadas complicações, nomeadamente, endoleak tipo 1b e hematoma do local de acesso. Não foram observados óbitos e os doentes estiveram em média 14 dias internados.

CONCLUSÃO: Apesar de existirem poucos estudos que caracterizem o tratamento de aneurismas verdadeiros das artérias dos troncos supra-aórticos, este tipo de patologia pode estar associado a morbilidade considerável (particularmente os casos sintomáticos), pelo que o seu tratamento embora não esteja padronizado pode prevenir complicações graves.
Palavras-chave: aneurismas verdadeiros; troncos supra-aórticos; cirurgia vascular; morbi-mortalidade.

CR 04 Six-months results of an high-pressure angioplasty balloon for treatment of hemodialysis vascular access stenosis

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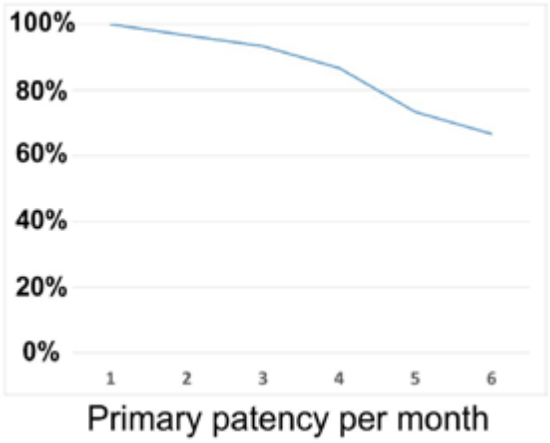
OBJECTIVES: Hemodialysis vascular access stenosis continues to be a predominant factor leading to access failure. We attempted to determine the safety and efficacy of a new high-pressure angioplasty balloon for the treatment of vascular access stenosis.

METHODS: We reviewed all cases of vascular access angioplasty using a new high-pressure balloon between March, 1, 2021, and September 9, 2021, at our group. Procedural details were examined, including technical success, patency rates, and complications within 6 months of intervention.

RESULTS: A total of 67 patients were identified, 39 males and 28 females, with a median age of 74 years (range, 22- 92). Two patients had Gracz AV fistulas, 11 AV grafts, 16 radiocephalic AV fistulas, 12 transposed brachiobasilic AV fistulas, and 26 brachiocephalic AV fistulas. Preintervention fistulography demonstrated inflow, outflow or/and interaneurysmal stenosis in all patients studied. High-pressure balloon angioplasty was selectively performed at the area of stenosis with balloon insufflation times between 120 and 180 seconds. The balloon diameter ranged from 6 mm to 10 mm, with the 7-mm balloon most frequently used (37), followed by the 8-mm (17). Technical success was 90%. Seventeen inflow, 48 outflow and 16 interaneurysmal stenosis were treated. Four patients needed drug eluting stent/stent-graft implantation due to recurrent immediate recoil, and 1 patient needed stent-graft due to vein rupture. Six months primary patency was 67%. Twenty patients required reintervention to maintain AV access patency within the study time period. One patient was submitted to drug eluting stent implantation, stent-grafts were implanted in two other patients. The other 17 patients were submitted to balloon angioplasty alone. Mean follow-up time was 9 months (range, 7-13).

CONCLUSIONS: Our experience with this new high-pressure angioplasty balloon for dialysis access stenosis suggests that it is a safe and feasible option for treating failing vascular access. Six-months primary patency is slightly better than the ones published for plain balloon vascular access angioplasty.



CR 05 Symptomatic carotid stenosis occurred frequently in patients with previously known obstructive lesions

Mickael Henriques, Emanuel Silva, Luís Mendes Pedro, Augusto Ministro

CHULN

Patients with asymptomatic carotid stenosis are at an increased vascular risk, but optimal treatment is controversial. The publication of the Oxford Vascular Study has once again put the spotlight on the best management of asymptomatic carotid disease reopening the discussion over this subject by the current ESVS guidelines. In this study, we aimed to establish if there is an association between the presence of asymptomatic carotid artery stenosis and ipsilateral stroke in patients submitted to surgical/endovascular treatment of significant symptomatic carotid artery stenosis with previous diagnosis for carotid disease. We performed a cross-sectional study based on a retrospective analysis of all the patients who were operated in our centre due to a symptomatic carotid stenosis over 50%. Risk factors and demographic characteristics of the patients and lesions were analysed. Previous diagnosis or follow- up for carotid stenosis was assessed through the search in the patients' electronic records. A total of 89 patients were operated in our population. The mean age of the population was 73 years, from 54 to 92 years (standard deviation 9 years) and 79.8% were male. All cases were studied through doppler ultrasound (DUS) and mean stenosis degree was 85.1% (SD 10.5%). From the population of 89 patients, 19 or 21.3% already had an ipsilateral stenosis before becoming symptomatic, 18 were already followed by a vascular surgeon, 11 had indication for surgery (asymptomatic stenosis over 70%) while 4 were

proposed for surgery. Six patients were followed in vascular surgery for lower limb peripheral arterial disease but had no study for carotid/vertebral disease. One patient had an ipsilateral stenosis detected by a primary care physician but was not referred to vascular surgery.

Ten patients already underwent a carotid endarterectomy, 1 ipsilateral and 9 contralateral to the symptomatic stenosis. The restenosis case was managed through carotid stenting and had no restenosis in the follow-up DUS. Of the other 9 patients with a carotid endarterectomy contralateral to the symptomatic stenosis, 4 had indication for surgery in the follow-up DUS while 2 were proposed for surgery. Most cases were managed through carotid endarterectomy in 97.8%, while only 2 carotid stenting procedures were performed. In conclusion, a significant number of patients operated for symptomatic carotid stenosis had previously documented carotid disease. This work supports the findings of the OxVasc study and the role of surgical treatment of asymptomatic carotid stenosis in prevention of disabling or fatal stroke.

CR 06 Defying the odds – best treatment strategy option for larger than 80mm abdominal aortic aneurysms

Luís Diogo Fernandes, Diogo Silveira, Ana Carolina Semião, João Paulo Peixoto, Marta Machado, Francsico Basílio, Alexandra Canedo

CHVNG/E

INTRODUCTION: Abdominal aortic aneurysm (AAA) diameter is the standard basis for predicting rupture risk, with aneurysms >8cm having reported annual rupture risk of up to 50%. Larger AAA's pose several challenges both during repair and follow-up. Endovascular aortic repair (EVAR) in these cases shows poorer long-term outcomes, more re-interventions and lower freedom from rupture and survival. Open repair (OR) might be more challenging due to unique anatomic features in large AAAs, including inexistent or short necks, adherence to adjacent structures or co-existence of large iliac aneurysms.

METHODS: 10-year retrospective analysis of consecutive patients with larger than 80 mm abdominal aorto-iliac aneurysm repaired either by EVAR or OR in our center between January 2012 and March 2022.

RESULTS: During the study period, 22 patients were treated, 12 by OR and 10 by EVAR (9 aorto-bi-iliac EVAR, 1 aorto-uni-iliac). Mean age was 75 years, and mean aortic diameter was 89 mm. Eight patients (36%) were treated urgently due to symptoms (3 EVAR and 5 OR), 18% with rupture (1 EVAR and 3 OR). Thirty-day mortality in elective cases was 0% and in ruptured cases was 25% (1 case treated by OR in a ruptured AAA with aortocaval fistula complicated with bilateral acute limb ischemia and shock).

On the EVAR group, 6/10 patients developed late endoleaks (2 type Ia, 2 type Ib, 2 type II) and one patient with no identified endoleak but sac growth, 3 of which were previously treated in an urgent setting. Late reintervention rate was 40% (two distal extensions, two proximal cuffs plus double chimneys for renal arteries, one of which had also inferior mesenteric artery embolization). One patient (10%) died at the fifth year post operatively, due to aneurysm related complications. Three others died, at 6 months, 4 and 8 years post operatively, with unidentified cause.

On the open surgery group, two patients had postoperative complications (one stroke with ataxia and one large incisional hernia). Mean duration of intensive care unit (ICU) and hospital stay in patients with large AAA who underwent OR were, respectively, 2.5 and 13.5 days in elective cases and 8.6 and 14.5 days in the urgent cases, higher when compared to non-large (< 8 cm) patients treated by OR in our center. Need for blood transfusion was also higher in this subgroup, as well as compared to the EVAR group. Four patients died during follow-up due to unknown causes, presumably non-aneurysm related.

A limited number of cases for a robust statistical analysis due to the rarity of these large AAAs is a limitation of the study.

CONCLUSION: 30-day mortality wasn´t higher in patients treated for large > 8 cm AAA compared to non-large AAA, either by OR or EVAR, in elective and urgent settings. The complexity of the case reported as the only death associated with OR must be taken into account and might bias conclusions. The rate of late endoleak seems to be higher in this cohort than described in literature for the standard EVAR for smaller aneurysms. When patients were submitted to OR, duration of ICU and hospital stay and transfusion need was higher but there was no need for aneurysm related reinterventions. When treating such large AAA, each case should be individualized, depending on patients' comorbidities, presentation, suitable anatomy and center experience.

CR 07 Infected abdominal aortic endograft: a tertiary center experience and literature review

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INTRODUCTION: Endovascular aneurysm repair (EVAR) has undergone explosive growth over the last 2 decades. EVAR reduces complications and perioperative mortality but also creates new problems, such as aortic endograft infections (AEgIs). The incidence of AEgIs is about 0.3–2% and mortality rates range from 25 to 75% being a life-threatening condition.

The aim of this study was to assess the management of AEgIs in patients submitted to endovascular abdominal aortic aneurysm repair at our tertiary center and integrate findings with current literature.

METHODS: The Management of Aortic Graft Infection Collaboration (MAGIC) criteria were used to define AEgIs. Patients fulfilling these criteria and admitted at our center were included in the study. Clinical history, surgical and peri-operative data, morbidity and mortality were retrospectively assessed. Additionally, a review of literature was conducted in MEDLINE via PubMed using the terms abdominal aortic endograft and infection. The search was restricted to studies performed in humans and published in English or Portuguese within the last 5 years. Results: Four cases of AEgIs were identified; one case developed an early infection, while 3 cases were diagnosed as late infections. Most frequent symptoms at presentation were abdominal/lumbar pain (100%), malaise (75%) and fever (50%) and all had elevated levels of C-reactive protein and erythrocyte sedimentation rate. One patient developed a psoas abscess. All patients had been submitted to additional procedures due to endoleak treatment after index EVAR before the AEgIs diagnosis. One case was managed with endograft explantation (EE) and extra-anatomical bypass (EAB), one case with EE and “in situ” reconstruction (ISR) using a silver coated Dacron graft and one case exclusively with antibiotic therapy. One patient was selected for EE but due to hemodynamic instability during procedure explantation was not feasible. In our cohort mortality rate was 75%. Literature review identified 76 potential relevant articles, but after analysis only 29 studies were related with abdominal aortic endograft infection. Different surgical methods have been reported to treat AEgIs, such as EE and debridement followed by either EAB or ISR using autologous vein, cryopreserved allograft, or antibiotic-soaked prosthetic grafts. The Management Guidelines for Vascular Graft and Endograft Infections reported significantly better outcomes for ISR rather than EAB, however a recently published Nationwide Multicenter Study reported no differences in survival or re-infection rate. In our cohort the patient submitted to EAR was the only case of survival and the patient submitted to ISR died before discharge. EE, debridement, and reconstruction is considered the gold standard treatment although these methods may not always be the best option for all patients. One case reported the administration of a course of antibiotics and percutaneous drainage with good results in a selected patient.

CONCLUSION: AEgIs is a rare complication after EVAR. EE is the gold standard of treatment; however, given the overall high morbidity and mortality rates of this pathology, a tailored approach should always be offered depending on the patient's overall condition. Due to the rarity of AEgIs, centralization of its treatment could contribute to improve surgical outcomes.

CR 08 Preditores de sobrevida e preservação de membro na isquemia aguda

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INTRODUÇÃO: A isquemia aguda de membro está associada a significativa morbimortalidade perioperatória. Com o presente estudo, pretendemos determinar os indicadores laboratoriais associados a aumento de mortalidade e amputação major, após revascularização de membro por isquemia aguda.

MÉTODOS: Apresentamos um estudo retrospectivo, unicêntrico, com inclusão dos doentes submetidos a um procedimento de revascularização, por isquemia aguda de membro superior ou inferior, num hospital terciário, entre Agosto de 2020 e Janeiro de 2021. Foi determinado o nível máximo de creatina cinase (CK) e de mioglobina no sangue venoso e de lactatos no sangue arterial nas 48 horas que se seguiram à admissão do doente. A apresentação clínica, a etiologia, o nível de oclusão, o procedimento cirúrgico e o resultado vascular final foram avaliados. Os endpoints primários foram a sobrevida global e amputação major e o endpoint secundário foi insuficiência renal aguda.

RESULTADOS: Foram incluídos 56 doentes (idade média 70.6 anos, 70% homens, 71% casos de isquemia aguda de membro inferior) neste estudo. À admissão, a gravidade da isquemia segundo a classificação de Rutherford, apresentou correlação estatisticamente significativa com o aumento de CK (p=0.002), de mioglobina (p=0.034) e lactato (p=0.015). Observou-se uma tendência para lesão renal aguda com mioglobinemias superiores (p=0.057). A sobrevida a 1 ano foi inferior nos doentes com elevação de lactato (p<0.001). A taxa de amputação durante o internamento foi superior em doentes com lactatos elevados à admissão (p=0.009). Não se verificou uma associação estatisticamente significativa entra a sobrevida global e a elevação de CK e mioglobina (p=0.378; p=0.300), apesar das curvas Kaplan-Meier sugerirem uma menor sobrevida nos doentes com CK e mioglobina elevados. Apesar das curvas Kaplan-Meier sugerirem uma taxa de amputação major superior nos doentes com elevação de CK e mioglobina, esta associação não foi estatisticamente significativa (p=0.257; p=0.528).

CONCLUSÃO: A isquemia de membro clinicamente mais grave apresenta parâmetros analíticos de rabdomiólise superiores, o que se pode relacionar com a maior incidência de lesão renal aguda após revascularização. No entanto, este estudo não demonstrou uma associação categórica dos parâmetros de rabdomiólise com o pior prognóstico vital

ou de membro. A elevação perioperatória de lactato está associada a menor sobrevida e a taxas de amputação major superiores.

CR 09 Tratamento médico otimizado e a importância da sua adesão na doença carotídea – uma revisão narrativa

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INTRODUÇÃO: O AVC é uma doença muito comum na população europeia e com altas taxas de morbimortalidade, sendo uma das suas principais causas a estenose da artéria carótida interna. Os principais fatores de risco para a estenose carotídea são o tabagismo, hipertensão, hipercolestrolemia, obesidade, diabetes mellitus, sedentarismo, abuso de álcool e uma dieta desadequada. A má adesão às terapêuticas implementadas é uma das principais limitações ao sucesso do tratamento médico.

OBJETIVOS: Definir o atual conceito de tratamento médico otimizado em doentes com estenose carotídea; estudar a adesão terapêutica ao tratamento médico nestes doentes, assim como os fatores que a influenciam e as estratégias que a melhoram; e identificar possíveis necessidades investigacionais nessa área.

MÉTODOS: Foi efetuada uma pesquisa nas bases de dados PubMed e Cochrane, usando a query: ((best medical treatment) OR (tertiary prevention) OR (secondary prevention) OR (prevention)) AND ((adherence) OR (compliance) OR (adhesion)) AND (carotid stenosis). Foi também efetuada uma análise de referências de relevo. Elegeram-se os artigos que abordassem a terapêutica médica otimizada na doença carotídea extracraniana assintomática ou sintomática. Selecionamos os que analisassem a adesão terapêutica e o seu cumprimento. Um total de 31 artigos científicos foram considerados para esta revisão.

RESULTADOS: O tratamento médico na doença carotídea evoluiu nos últimos anos, o que se traduziu em diminuição das taxas de eventos cerebrovasculares. Desta forma, todos os doentes com estenose da artéria carótida beneficiam de tratamento farmacológico com estatina e antiagregante plaquetário, de um bom controlo tensional e glicémico, assim como de um estilo de vida saudável. Isto é particularmente verdade em doentes com história de eventos cerebrovasculares, com maior risco de recorrência. As razões para a fraca adesão terapêutica são normalmente multifatoriais, e podem ser intencionais ou não intencionais. Algumas das razões identificadas para a diminuição da adesão terapêutica neste contexto foram: esquecimento, alterações cognitivas, posologias complexas, falta de um método de monitorização clínico ou laboratorial que mostre a eficácia de alguns tratamentos e a falsa "sensação de segurança" em doentes submetidos a intervenção para estenose carotídea. Condições cardiovasculares crónicas (superior a 6 meses) estão associadas ao declínio progressivo da adesão, nomeadamente quando comparadas com o evento clínico agudo inicial. As técnicas identificadas para otimização da adesão terapêutica nesta patologia foram: o contacto constante com os doentes, a individualização do tratamento, a educação para a doença e para a medicação instituída e a visualização de placas ateroscleróticas pelos doentes nos estudos ecográficos. Outras foram sugeridas.

CONCLUSÃO: Embora não seja uma tarefa simples, é fundamental compreender o que leva os doentes a abandonar o tratamento médico no contexto da patologia carotídea/ AVC, assim como desenvolver mecanismos que potenciem a sua adesão. São fundamentais estudos prospetivos nesta área, nomeadamente em doentes sintomáticos, que avaliem a adesão terapêutica antes e após as intervenções cirúrgicas (stent ou endarterectomia) de forma a avaliar se há algum método com maior impacto em termos de adesão terapêutica médica, particularmente quando comparadas com doentes submetidos a tratamento médico conservador.

CR 10 Multidisciplinary approach to tavr pathway choice

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CHVNG/E

The transfemoral (TF) pathway has become the gold standard for transcatheter aortic valve replacement (TAVR) however, significant peripheral vascular disease are amongst anatomical challenges that render the iliofemoral pathway unfeasible. Up to 15% of patients are ineligible to the TF approach.

Alternative TAVR approaches offer the possibility of valve replacement in patients ineligible to the transfemoral route.

We present three cases of alternative TAVR approaches.

All three patients had severe iliofemoral disease so that the TF approach was deemed inappropriate.

Two patients were submitted to TAVR using the left common carotid artery (CCA) after established patency of both carotid and vertebral arteries using doppler ultrasound. Surgical approach of left CCA was preformed and cerebral perfusion was tested using INVOSTM system after a 3-minute clamping of the left CCA. TAVR was performed using a Medtronic® Evolut R 34mm in one patient and an Edwards ® Evolut Sapien3 26mm in the other. No complications were registered during the procedure and both patients remain asymptomatic at 6-month follow-up.

One other patient was submitted to TAVR using a subclavian access. The decision of this pathway was due to heavily calcified aortic arched that deemed the transcarotid approach unachievable. Due to obesity (which deemed the percutaneous approach impossible), a surgical approach was mad. TAVR was performed using a Medtronic® CoreValve evolut R 34mm. No complications were registered during the procedure.
There are several alternatives to the transfemoral approach: although the first developed, the transapical pathway is associated with a higher risk of complications.

Multiple studies attest the safety of the transcarotid approach, when compared to transfemoral. A thorough study of the carotid arteries is necessary as patients with a greater than 50% stenosis have a higher risk of embolization. A head CTA may be necessary to evaluate the circle of Willis patency to identify patients with the potential risk for cerebral hypoperfusion.

The transaxillary /trans-subclavian is another alternative pathway, although further research is needed regarding its safety. An important issue is the presence of a patent internal mammary artery graft being of the risk of its occlusion due to the sheath in the subclavian artery.

The optimal alternative access site for TAVR has not been elucidated yet, nonetheless, the transcarotid and transaxillary seem safe options with outcomes similar to those observed in transfemoral pathway.

CR 11 Aortitis: report of three cases of a rare life threatening entity

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CHVNG/E

INTRODUCTION: Aortitis is a rare but potentially risky disease. Given the non-specific presentation, a high clinical index of suspicion is necessary to detect the disease.

METHODS: Three patients were admitted to the emergency room (ER) with a contained symptomatic rupture due to suspected vasculitis, which required urgent treatment.
Clinical presentation was similar between patients, all of them referring recurrent lower back pain for several weeks that lead them to ER several times. They were submitted to extensive serologic workup, blood and urine cultures (negative). During hospital stay, patients were kept under broad antibiotics coverage and at the moment of discharge oral antibiotic therapy was prescribed.

Patient A was a 68 year old female with previous dyslipidemia and history of repeated urinary tract infections. She presented with one week evolution of fever and right lower back pain. Initial clinical suspicion was pyelonephritis but CTA scan revealed a retroperitoneal densification, infra-renal ulcer and saccular AAA that increased 1 cm in size in a week (45x55 mm). Patient B was a 66 year old male, with hypertension, dyslipidemia and active smoking. He presented to the ER with severe right hypochondrium pain. CTA showed aortic wall densification and apparent infra-renal aortic pseudoaneurysm (17x6mm). Due to increasing abdominal pain and fever, an endovascular exclusion of the pseudoaneurysm was performed with a 22x22x58 mm endograft preserving renal arteries, in both patients.

Patient C was a 76 year old male who presented to ER with recurrent back left pain and constipation. Medical history included active smoking, malaria and typhoid fever infections, and appendicectomy 30 years before. CTA scan revealed a rapidly increasing in size ulcer and aortic rupture at the level of the celiac trunk (CT). A hybrid off-the-shelf solution was performed with open surgical revascularization of the superior mesenteric and left renal arteries with silver impregnated bifurcated Dacron bypass (14x7 mm), originated from the distal right common iliac artery, followed by endovascular exclusion of the pseudoaneurysm with a stent-graft (28x28x49 mm) that was previously back-table surgeon-modified to perform a fenestration for the right renal artery. Additionally a parallel graft to the CT and right polar renal artery microcoil embolization was performed.

CONCLUSIONS: Aortitis is an inflammation of the aortic wall. The classification includes underlying rheumatologic and infectious diseases. In most cases of bacterial aortitis, a segment of the aortic wall with preexisting pathology (atherosclerotic plaque, aneurysm sac) is seeded by bacteria via vasa vasorum. The underlying aggressive evolution in such short period of time is similar in all three cases, which favors an infectious etiology. We hypothesize there is a relation between the higher rate of abdominal organ-related infections and a predilection to aortitis in the abdominal aorta instead of other locations. Endovascular repair has been adopted for the treatment of some infectious aortic pathologies. Although the stent graft is deployed in an infected field without resection of the infected nidus, it appears to be associated with superior short term survival, without late disadvantages, compared with open surgery. Antibiotic treatment appears to be beneficial for 6-12 months post-operatively, irrespective of the surgical approach, and in some cases lifelong.

CR 12 Acute mesenteric ischemic: what do we have and what can we do better

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INTRODUCTION: Acute mesenteric ischemia (AMI) is generally thought to be a rare disease, but in fact, in patients over 75 years of age it is a more common cause of acute abdomen than other frequent causes such as appendicitis or diverticulitis

Due to the difficulty of diagnosis and the rapid progression, the condition is life-threatening if not identified and treated early, with high associated mortality rate of 60-80 percent. In occlusive AMI, surgical treatment without revascularization is associated with as high as 80% overall mortality

It has been shown that early diagnosis with contrast-enhanced computed tomography and revascularization can reduce the overall mortality in AMI by up to 50%

Interprofessional teams by maintaining a high index of suspicion for this condition and diagnosing and treating it early, can prevent some of the associated mortality and decrease associated morbidity

The aim of our study was to evaluate clinical, laboratory and imagiologic findings at admission and identify variables associated with adverse outcome with the final purpose of supporting treatment decision

METHODS AND MATHERIAL: Retrospective review of a cohort of patients with acute mesenteric ischemia admitted at the emergency department at single tertiary referral center (Centro Hospitalar Vila Nova de Gaia Espinho - CHVNG/E) from 2017 to 2021

Were included only patients with arterial occlusive AMI (caused by a thrombotic or embolic arterial occlusion)

Patients were identified from electronic patient records by conducting a search for the International Classification of Diseases 10 or 9 codes K55011; K55012; K55019; and by case-by-case analysis of patients registered in the general surgery and vascular surgery operating room in the same period

Were analysed demographics variables, medical comorbidities, clinical presentation, radiologic findings, operative and postoperative follow up data

Primary end point was postoperative 30 days and 2 years mortality

Statistical analysis was performed using the SPSS

RESULTS: Table 1,2,3

CONCLUSION: AMI is a life-threatening disorder and is very difficult to diagnose. The disorder is best managed by an interprofessional team that includes a radiologist, general surgeon, vascular surgeon and intensivist.

In our serie, the results show that leukocytosis, creatinine levels, type of revascularization and performing or not laparostomy are significantly different between alive and death groups, at 30 days (p=0.038, p=0.012, p= 0.024, p= 0.018, respectively). The other variables in study doesn't seem to differ significantly between the two groups, at 30-day or 2-years period. [Table 3]

Although we didn´t found this in our study, probably because we have a reduced number of patients, timing-based management protocols that emphasize routine evaluation by a vascular surgeon and early, definitive mesenteric revascularization should be established and widely adopted for all patients with clinically suspected AMI at presentation.

Endovascular treatment has altered the management of AMI, and it may be adopted in selected patients who are not at risk for bowel necrosis. Avoidance of bowel necrosis patients and close monitoring for bowel necrosis are important. In our serie, the total length of stay seems to differ significantly with the type of revascularization (open with median 9.5 (iqr 17.5), endovascular with median 29 (iqr 49.5), p=0.043).

Table 1 - Baseline demographics and clinical presentation of patients with AMI by timing of mesenteric revascularization.

	All (n=48)	
Age* *median (IQR)*	79 (15)	
Sex* *n (%)*		
Female	32	(66.7)
Male	16	(33.3)
Comorbidities *n (%)*		
Auricular fibrillation	19	(44.2)
Cardiovascular risk factors	37	(86.0)
Valvular cardiopaty	13	(30.2)
Ischemic cardiopaty	4	(9.3)
Chronic kidney injury	3	(7.0)
Stroke	6	(14.0)
Peripheral arterial occlusive disease	7	(16.3)
Aortic thrombus	2	(4.7)
Symptoms* *n (%)*		
Abdominal pain	39	(92.9)
Vomit	25	(59.5)
Diarrhea	16	(38.1)
Hematochezia	5	(11.9)
Physical examination findings* *n (%)*		
Signals of peritoneal irritation	6	(13.3)
Laboratorial findings*		
Hemoglobin *median (IQR)*	12.95 (2.9)	
Leucocitosis *median (IQR)*	14000 (9500)	
Creatinine *mean ± SD*	1.248 ± 0.56329	
Lactates *median (IQR)*	2.6 (3.55)	
Angio-CT (artery affected) *n (%)*		
SMA	29	(87.88)
CA	1	(3.03)
SMA+CA	3	(9.09)
Etiology* *n (%)*		
Embolic	23	(47.9)
Trombosis	9	(18.8)
Unknown	16	(33.3)
Time evolution before arrive at emergency department (hours) *median (IQR)*	12 (19)	
Time evolution between arrive at emergency department and treatment (hours) *median (IQR)*	9 (10)	

Table 2 - Operative details and postoperative outcomes for patients with AMI by timing of mesenteric revascularization.

	All (n=48)	
Revascularization* *n (%)*		
Yes	21	(45.6)
No	25	(54.4)
Type of revascularization *n (%)*		
Open surgery	14	(66.7)
Endovascular surgery	7	(33.3)
Explorer laparotomy* *n (%)*		
Yes	38	(86.4)
No	6	(13.6)
Intestinal resection *n (%)*		
No intestinal resection	23	(25)
Intestinal resection and second look	12	(42.9)
Intestinal resection and imediate anastomosis	9	(32.1)
Localization of intestinal resection *n (%)*		
Small intestine	10	(58.8)
Small intestine + Colon	5	(29.4)
Colon	5	(11.8)
Lenght of small intestine resected *median (IQR)*	160	330
ICU length of stay (days) *median (IQR)*	3 (4)	
Total length of stay *median (IQR)*	12 (13)	
Vascular Patency *n (%)*	5	(11.9)
Occlusion first 48h	2	
Occlusion 48h-3M	0	
Occlusion > 3M	1	
30 days mortality* *n (%)*	29	(60.4)
2 years mortality* *n (%)*	30	(66.8)

Table 3 – Bivariate analysis to compare the characteristics of the groups "alive" and "death" at 30 days and 2 years

	All (n=48)		Alive (at 30 days)	Death (at 30 days)	p-value	Alive (at 2 years)	Death (at 2 years)	p-value
Age *median (IQR)*	79 (15)				0.121			0.289
Sex *n (%)*					0.404			1
Female	32	(66.7)						
Male	16	(33.3)						
Analysis								
Hemoglobin *median (IQR)*	12.95 (2.9)				0.501			0.550
Leucocytosis *median (IQR)*	14000 (9500)		12200 (7200)	15260 (12700)	0.028*	12200 (7200)	15260 (12700)	0.041*
Creatinine *mean ± SD*	1.248 ± 0.56329		0.9869 ± 0.43677	1.5218 ± 0.5935	0.012*	0.8475 ± 0.31	1.5218 ± 0.5935	0.005*
Lactates *median (IQR)*	2.6 (3.55)				0.867			0.481
Time evolution before arrive at emergency department (hours) *median (IQR)*	12 (19)				0.273			0.646
Time evolution between arrive at emergency department and treatment (hours) *median (IQR)*	9 (10)				0.550			0.656
Revascularization *n (%)*					0.280			1
Yes	21	(45.6)						
No	25	(54.4)						
Type of Revascularization *n (%)*	2	(4.4)			0.024*			0.588
Open surgery	14	(66.7)	4 (40)	10 (90.9)				
Endovascular surgery	7	(33.3)	6 (60)	1 (9.1)				
Explorer laparotomy *n (%)*					0.018*			0.452
Yes	28	(86.4)	11 (68.8)	27 (96.4)				
No	6	(13.6)	5 (31.4)	1 (3.6)				
Intestinal resection *n (%)*					0.992			0.157
No intestinal resection	23							
Intestinal resection and second look	12	(42.9)						
Intestinal resection and imediate anastomosis	9	(32.1)						
Length of small intestine resected *median (IQR)*	160 (330)				0.288			0.141
ICU length of stay (days) *median (IQR)*	5 (4)				0.972			0.786
Total length of stay *median (IQR)*	11 (13)		16 (24)	2 (6.5)	< 0.001*	16 (17)	3 (8.5)	0.008*

analysis. Survival, major complications, reinterventions, and aortic remodeling were analyzed.

RESULTS: A total of eleven patients were identified. Eight were male, with a mean age of 62,3 years. Eight patients presented with chronic type B aortic dissection, and six patients (55%) had DeBakey type IIIB dissection. Three patients had a history of type A aortic dissection open repair, and one patient had previous abdominal aortic surgery for aneurysmatic disease. Indications for treatment were intact (n=9) and ruptured post-dissection aneurysm (n=2). Mean thoracic aortic diameter was 52,9mm, and false lumen was patent in eight patients, the remainder having partial false lumen thrombosis. Procedures included standard TEVAR (n=7), scalloped TEVAR (n=2), chimney TEVAR (n=1) and TEVAR with parallel graft (n=1). Median clinical and radiological follow-up was 14 months, with 64% survival. Two patients (18%) died during initial admission, and three deaths occurred during follow-up, with two aortic-related. At 30-days, one patient suffered a stroke, and one patient was re-admitted for persistent thoracic pain. Five patients suffered reinterventions, with one patient submitted to distal stent graft extension during initial admission and four patients undergoing reinterventions after initial discharge. Mean time to reintervention was 12 months, most commonly distal stent graft extension.

DISCUSSION: TEVAR is a safe strategy for subacute and chronic type B aortic dissection. However, reinterventions are common, and follow-up of these patients is essential.

CR 13 Thoracic endovascular repair for subacute and chronic type B aortic dissection – single center experience and medium-term follow-up

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INTRODUCTION: TEVAR (thoracic endovascular aortic repair) has emerged as an alternative to open aortic repair in the treatment of subacute and chronic type B aortic dissection, in an effort to improve aortic remodeling, with reported good early outcomes and low morbidity and mortality.

METHODS: This is a single center, retrospective, cohort study. All patients treated in our center with TEVAR for subacute or chronic type B aortic dissection, with or without adjunct procedures, between 2005 and 2021, were included in this

CR 14 Abordagem em dois tempos aos falsos aneurismas infeciosos: adiar ou prevenir um desastre?

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INTRODUÇÃO: A rotura de um falso aneurisma infecioso é uma situação ameaçadora do membro e da vida. Se por um lado é essencial um controlo emergente do quadro, uma estratégia que garanta resultados a longo prazo torna-se fundamental. Este trabalho tem como objetivo relatar a estratégia de abordagem em duas fases adotado pelo nosso centro e respetivos resultados.

MÉTODOS: Foi realizada uma análise retrospetiva dos falsos aneurismas de etiologia infeciosa admitidos de forma emergente por rotura entre Janeiro de 2021 e Janeiro de 2022.

RESULTADOS: Foram admitidos 3 doentes com falso aneurisma roto, dois da artéria femoral comum em doentes toxicómanos e um da artéria ilíaca externa após enxertectomia de rim transplantado complicada com infeção da loca cirúrgica. Em todos os casos foi conseguida uma exclusão do falso aneurisma com endoprótese recoberta com controlo do quadro agudo. Um doente acabou por falecer após descompensação das patologias de base pelo quadro sético. Os restantes foram submetidos a pontagem extra-anatómica e explante da endoprótese num segundo tempo. Num doente foi contruída uma pontagem entre a ilíaca externa e a femoral superficial trans-obturador, que acabou por sobreinfetar com necessidade de exérese 4 meses depois. Não foi realizado nenhum procedimento de revascularização adicional e o doente permaneceu estável sem desenvolver isquemia ameaçadora do membro. O terceiro doente foi submetido a pontagem femoro-femoral cruzada eletiva, que mantém patente aos 4 meses de pós-operatório. Os esquemas de antibiótico foram dirigidos por antibiograma e mantidos por pelo menos 8 semanas.

CONCLUSÕES: Uma abordagem em dois tempos, através da exclusão do falso aneurisma com endoprótese recoberta para posterior revascularização por via extra-anatómica, evitando assim o circuito infetado, pode ser uma alternativa. Esta curta série mostra que é possível um controlo rápido e adequado por via endovascular na fase aguda, como tratamento de ponte para posterior reconstrução vascular.

CR 15 Treatment of access related hand ischemia – all autologous surgery

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INTRODUCTION: Vascular access related hand ischemia is a major and serious complication of vascular access for dialysis.

Distal revascularization and interval ligation (DRIL) is an effective approach to the management of access related ischemia that offers both symptom relief and access salvage.

The surgery can be done using either saphenous vein or PTFE prosthesis. The use of the saphenous vein is associated with less infection rate and longer patency, but requires general anaesthesia and is more invasive.

Hence, it is preferable to use an ipsilateral upper limb vein, which is less invasive and can be done under regional anaesthesia.

We report our experience of treating access related hand ischemia with DRIL, using the ipsilateral basilic vein.

Material e methods: We included 6 patients, 4 male and 2 female, with an average age of 62 years (from 58 to 76). All, but one, were diabetic. All patients had umero-cephalic av fistula and 3 patients had previous radio cephalic fistula. They presented with pain and finger or hand lesions (4 with ulcers and 2 with small necrosis areas) previous to undergoing surgery.

They were studied with ecodopler to confirm the steal phenomena and 3 also underwent angiography.

One patient was operated under general anaesthesia, while the others were operated with Supraclavicular Brachial Plexus Block.

We isolated the umeral artery proximal and distal to the anastomoses and then harvested the necessary length of the basilic vein. Afterwards, we dilated the vein with a saline solution and performed the distal anastomosis first. After the two anastomoses, we clamped distal to the av fistula but proximal to the distal anastomosis of the bypass and confirmed patency. Then, we ligated the artery in that site.

All patients saw their symptoms resolved, but one needed a finger amputation.

CONCLUSIONS: The basilic vein is a suitable conduit for DRIL revascularization whenever present because it has all the advantages of autologous material, allows for surgery under regional anaesthesia and can be harvested with the a single approach. This technique allows the preservation of the fistula and the reversion of ischemic symptoms.

CR 16 Isquemia aguda do membro inferior numa jovem politraumatizada

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INTRODUÇÃO: A isquemia aguda de membro é definida como uma diminuição súbita da perfusão, com ameaça da sua viabilidade. A incidência é de aproximadamente 1,5 casos por 10.000 pessoas/ano. O traumatismo de extremidade (contuso ou penetrante) pode cursar com isquemia aguda, por lesão arterial direta, secção ou dissecção, com trombose e embolização subsequentes. A isquemia aguda de membro pode ser revertida pela revascularização célere, mas todas as outras lesões de órgãos, lesões neurológicas, ósseas e tecidos moles, comprometem o resultado final.

CASO CLÍNICO: Doente do sexo feminino, 19 anos, politraumatizada, admitida na sala de emergência a 7/12/2021 após acidente de viação. Ao exame apresentava esfacelo grave da face anterior da coxa direita. Pulso femoral presente e pulsos poplíteo-distais ausentes. A TC toraco-abdominopélvica demonstrou rotura peritoneal da bexiga, fraturas extensas de ramos isquiopúbicos e trombose da artéria femoral comum direita. Submetida

urgentemente a rafia da bexiga, bypass femoro-poplíteo direito com veia grande safena contralateral invertida e lavagem e encerramento parcial do esfacelo da coxa. Cerca de 4 horas após constatação de oclusão de bypass com re-intervenção: tromboembolectomia e fasciotomias de todos os compartimentos da coxa e perna direitas. Aplicação de Terapia de Pressão Negativa (TPN) com vacuoterapia isolada ou instilação associada. Internamento prolongado quer pela necessidade de algaliação pela laceração vesical, quer pelo alectuamento necessário para consolidação das fracturas de ramos isquiopúbicos. Realizou fisioterapia intensiva e precoce. Necessidade de múltiplos desbridamentos e lavagens das fasciotomias e do esfacelo, no leito e no bloco operatório. Permaneceu internada 6 semanas, com evolução muito favorável. Alta com o membro revascularizado, esfacelo da coxa em granulação, com limitação da dorsiflexão do pé, mantendo TPN e fisioterapia em ambulatório. Aos 4 meses de follow-up, está proposta para enxerto cutâneo da coxa. Caminha autonomamente sem auxiliares de marcha, com pulsos pedioso e tibial posterior.

CONCLUSÃO: A abordagem do doente politraumatizado requer equipas multidisciplinares comprometidas na sua recuperação plena. Neste caso, a intervenção de Cirurgia Vascular, Urologia, Ortopedia, Cirurgia Plástica, Fisiatria, Medicina Intensiva, Psiquiatria, Infecciologia, o apoio de enfermeiros, auxiliares e fisioterapeutas, permitiu não só a viabilidade do membro como, mais importante, a reabilitação funcional da doente.

CR 17 Renal artery disease: endovascular escape for imminent hemodialysis

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INTRODUCTION: Renal artery stenosis is an expression of various type of arterial disease, with potential for associated high morbidity. Atherosclerotic disease is the most common (up to 90%), and appears to affect up to 7% of the elderly population. It is associated with refractory hypertension, and it's increased burden of cardiovascular disease, as well as progressing loss of excretory function and risk of dialysis dependence, with elevated morbidity and healthcare costs. We describe a case of acute on chronic renal disease, associated to atherosclerotic disease of the renal arteries.

CLINICAL CASE DESCRIPTION: An 89 year old male, with heavy cardiovascular disease history and risk factors (arterial hypertension, type 2 diabetes mellitus, hipercholesterolemia, ischemic cardiopathy with previous surgical revascularization and consequent heart failure, and atrial fibrillation), was admitted in our center's Nephrology department in November 19th 2021 for acute on chronic renal failure (KIDGO 3) with rapid increase of serum creatinine in the course of four months (1.51mg/dL in June 2021 to 4.52mg/dL in October 2021). Upon entry, he presented a serum creatinine of 4,61mg/dL with rapid progression to a maximum of 5,77mg/dL, with no dialysis induction criteria. A complete etiologic study was conducted but no significant alterations were found in reno-vesical ultrasound, blood tests and infectious serologies and screenings for auto-immune or endocrinologic disorders were negative. In the thoraco-abdominal angio-CT, osteal

pre-occlusive calcified stenosis of both renal arteries were found, with apparent hypoperfusion of the right kidney. Assuming renovascular cause for the deterioration of renal function, the patient was submitted, on December 07th, to percutaneous (femoral access) diagnostic arteriography, which showed a pre-occlusive stenosis of the origin of the left renal artery (LRA) and occlusive lesion of the ostium of the right renal artery (RRA), with a patent and long principal trunk beyond this occlusion. He was therefore submitted to, over 0.014mm guidewire, angioplasty with bare balloon expandable stent (Hippocampus®) 5x20mm of the LRA and recanalization and angioplasty with bare balloon expandable stent (Hippocampus®) 5x20mm of the RRA, with good angiographic result and very low dose of contrast administrated (85mL). Over the course of hospital stay, serum creatinine stabilized to 4.11 mg/dL, with no complications and no need for dialysis. And over follow-up, a recovery of renal function was observed, with a serum creatinine at four months post-procedure of 2,67mg/dL, and patency of both renal stents.

CONCLUSION: Atherosclerotic lesions of renal arteries may act in synergism with multiple causes of renal failure with serious burden of disease and lifelong need for dialysis. These lesions, however, including complete focal arterial occlusions may be treatable with short and low invasive procedures with potential for marked recovery of renal function.

CR 18 Thromboembolic risk in pregnant women with sars-cov-2 infection – a systematic review

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BACKGROUND: The infection by SARS-CoV-2 is associated to a thromboembolic complications risk theoretically increased. Pregnancy, isolated, is considered a pro-thrombotic state.

OBJECTIVES: This systematic review has as main goal the evaluation of the thromboembolic risk in pregnant women with COVID-19 disease, namely for pulmonary embolism (PE) and deep vein thrombosis (DVT). The secondary goal is the evaluation of the need for thromboprophylaxis in these cases.

METHODS: Three databases - PubMed, Scopus and Web of Science – were searched on October 2021, using the following Mesh terms and keywords: "(covid-19 OR SARS-CoV-2 OR covid) AND (pregnancy) AND (coagulopathy OR blood coagulation disorders OR thrombotic complications OR thromboembolic risk OR venous thromboembolism OR venous thrombosis)". Information about thrombotic complications in pregnancy and thromboprophylaxis was collected, by two independent reviewers.

RESULTS: 12 articles were analyzed, corresponding to 18205 pregnant women with SARS- CoV-2 infection. A total of 85 cases of thromboembolic events were diagnosed (0.47%, 95% CI 0.37-0.58%), of which only 17 reported the use of thromboprophylaxis (20.00%, 95% CI 12.10-30.08%). There were 3 deaths due to thromboembolic complications (3.53%, 95% CI 0.73-9.97%).

CONCLUSION: In pregnant women, the SARS-CoV-2 infection increases the risk of thromboembolic complications. However, the risk is not greater than in the general population. It is recommended thromboprophylaxis with low molecular weight heparin for hospitalized pregnant women, and in groups with moderate to high thromboembolic risk at home self-isolation.

SESSÃO MELHOR POSTER

P01 Fistula aorto-esofágica secundária após tevar: celeridade da abordagem cirúrgica multidisciplinar e suas implicações prognósticas

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INTRODUÇÃO: Uma fístula aorto-esofágica (FAE) é uma condição clínica associada a elevada mortalidade e péssimo prognóstico. Apresenta-se habitualmente com hemorragia digestiva massiva, estando associada a aneurisma da aorta torácica em metade dos casos primários. A FAE secundária após TEVAR é ainda mais rara com frequência estimada em 0,5%-1,7%.

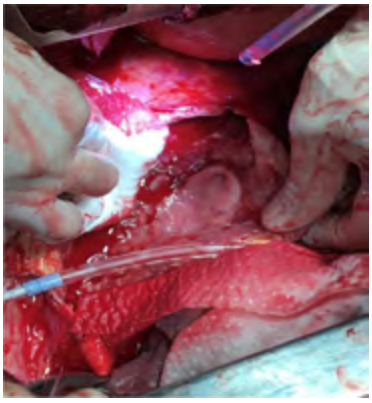
O diagnóstico é usualmente clínico. A identificação de uma hemorragia digestiva massiva, caracterizada pela presença de sangue arterial, deve elevar a sua suspeita e a sua célere exclusão através de estudos endoscópicos. Em último caso pode estar associada à tríade de Chiari, caracterizada por dor torácica, hemorragias sentinela e exsanguinação. Os doentes sintomáticos e hemodinamicamente instáveis devem ser submetidos a intervenção cirúrgica imediata.

CASO CLÍNICO: Doente de 62 anos de idade, fumador, recorreu a urgência por quadro de disfagia para líquidos e sólidos com um mês de evolução. Em angio-TC foi diagnosticado aneurisma sacular da aorta torácica descendente com compressão esofágica, tendo sido submetido a TEVAR, com exclusão do mesmo com sucesso e

resolução do quadro de disfagia. Aproximadamente um mês após a intervenção, recorre novamente ao SU por quadro clínico caracterizado por hematemeses, sem instabilidade hemodinâmica. Em angio-TC não se objectivou evidência de hemorragia activa para o tracto gastrointestinal, contudo a presença de ar dentro do saco aneurismático e dilatação das zonas de selagem proximal e distal do TEVAR levantou a suspeita de infecção protésica concomitante. Após novo episódio de hemorragia digestiva com melenas foi repetida EDA, visualizando-se a endoprótese mas ausência de foco hemorrágico identificável. Em reunião multidisciplinar optou-se, em primeiro tempo operatório pela Cirugia Geral, por desfuncionalização do esófago com agrafagem cervical, gastrostomia de drenagem e jejunostomia de nutrição. Após 2 semanas de antibioterapia procedeu-se ao tratamento definitivo por toracotomia lateral esquerda, com remoção da endoprótese (Fig.1), desbridamento do tecido aórtico infectado e reconstrução in situ da aorta torácica descendente com interposição com prótese de Dacron impregnada com prata e ticlosan (Fig. 2). Foi ainda realizada esofagectomia da zona da fístula (Fig. 2) e esofagogastrostomia termino-terminal complementada com plastia com músculo intercostal. O pós-operatório decorreu sem intercorrências major, contudo manteve necessidade de realização de três dilatações endoscópicas ao nível da região da agrafagem cervical esofágica.

Após quatro anos de follow-up mantém-se assintomático, com boa tolerância alimentar e trânsito gastrointestinal mantido. Em angio-TC de controlo com permeabilidade da revascularização efectuada, sem evidência de infecção ou de novo trajecto fistuloso.

CONCLUSÃO: As fistulas aorto-esofágicas, primárias ou secundárias a TEVAR, são tipicamente fatais e o seu rápido reconhecimento e tratamento definitivo são imperativos, por vezes associado a boa sobrevida. Estudos endoscópicos podem ser úteis na sua localização, contudo devem ser usados para exclusão de outras causas mais frequentes de hemorragia gastrointestinal. O prognóstico habitual é reservado pelo que a intervenção cirúrgica célere é mandatória e exige planeamento multidisciplinar.



P02 Redefining late renal artery revascularization – splenorenal bypass in the treatment of acute renal artery occlusion

Daniel Azevedo Mendes, Rui Machado, Carlos Veterano, Henrique Rocha, João Castro, Andreia Pinelo, Henrique Almeida, Miguel Queirós, Rui de Almeida

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INTRODUCTION: The kidney is a metabolically active organ with terminal circulation, so the rapid development of renal infarction after acute renal artery occlusion is expected. Recent evidence suggests preferentially percutaneous revascularization in fewer than 6 hours. However, significant controversy exists regarding the time of ischemia that the kidney can tolerate. Patients present with different clinical manifestations, making it difficult to categorize the occlusion's pathophysiology and time of evolution by the clinical history alone. Some reports in the literature demonstrate benefits in late renal artery revascularization in patients with acute presentations requiring dialysis, so there is still doubt regarding managing these patients.

CASE REPORT: 64-year-old male with a clinical background of smoking and high blood (HBP) leading to heart failure with reduced ejection fraction was admitted to the emergency department for an oliguric acute kidney injury (AKI). The

patient previously had chronic kidney disease with a serum creatinine of 1.26mg/dL, estimating a glomerular filtration rate of 47ml/min.

At the emergency department, serum creatinine was 6.56mg/dL. Unfavorable evolution demanded the initiation of hemodialysis due to refractory hypervolemia and resistant HBP, which required the titration of multiple antihypertensive drugs. A computed tomography angiography showed aortoiliac occlusion starting below the superior mesenteric artery, conditioning the occlusion of the proximal segment of both renal arteries. The patient did not develop clinical manifestations of ischemia of the lower limbs due to previous aortoiliac obstructive disease. A renal scintigraphy study showed decreased overall renal function more relevant in the left kidney.

The case was discussed multidisciplinary, and right renal artery revascularization was proposed. Due to the patient's high surgical risk, it was decided not to revascularize both kidneys and avoid aortic clamping. A splenorenal retrocaval bypass was done uneventfully, 21 days after the initial presentation. The postoperative period was completed in an intermediate care unit. After surgery, the patient showed marked improvement of diuresis with decreased nitrogen retention parameters, allowing definitive suspension of the dialysis technique in the first week and controlled blood pressure. Serum creatinine dropped to baseline and remained stable at one year of follow-up. Chronic limb-threatening ischemia complaints developed in the left lower limb. The patient underwent an axillobifemoral bypass and is currently asymptomatic.

CONCLUSION: Our case highlights the benefit of late renal artery revascularization in cases of acute occlusion to avoid renal replacement therapy. This dogma is not consensual in vascular surgery. We believe that in this case, collateral arteries allowed perfusion of the renal parenchyma due to previous atherosclerotic disease despite the proximal occlusion of both renal arteries. We consider that aggressive late renal revascularization may benefit selected patients with acute renal artery occlusion who maintain some perfusion and residual tubular function. More extensive studies would be essential to corroborate our observation.

P03 Surgeon-modified stent-graft and iliac-visceral debranching: a hybrid solution for a life threatening contained aortic rupture

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CHVNG/E

INTRODUCTION: Inflammatory aortic disease is a rare and potentially life threatening disease. The etiology of the inflammatory changes is still poorly understood, with some authors advocating an auto-immune response while others postulate an infectious etiology.

CASE REPORT: We are reporting a case of a 76-year-old male patient who presented to the emergency room with fever, left lumbar pain and constipation. Previous medical history included active smoking, malaria and typhoid fever infections and an appendectomy 30 years before. For two weeks the patient came back three times to the emergency with recurrent symptoms. Repeated CTA scans showed a dilated colon with no apparent focal occlusion, probably related to a dysfunctional status and a finding of a fusiform infra-renal AAA (30 mm) with no signs of instability. There was a remarkable finding on imagiologic evaluation that required our special attention: at the level of the celiac trunk it was evident an aortic wall thickening and ulcer (6 mm) on the posterior aortic wall that considerably increased (23x23 mm) in last CTA scan and a appeared to have a contained aortic rupture. Laboratory evaluation revealed elevated sedimentation rate, leukocytosis and neutrophilia and blood and urine cultures were negative. Large spectrum antibiotic coverage (piperacillin/tazobactam plus vancomycin) was initiated.

Due to increasing abdominal pain and hemodynamic instability we planned an urgent hybrid intervention. The bypass to the superior mesenteric artery and left renal artery originated from the distal common right iliac artery. An Intergard Synergy™ graft (14x7 mm, Getinge®) was used for that procedure. We therefore modified a commercially available stent-graft (28x28x49 mm, Medtronicâ). Following back-table deployment of the stent-graft, a fenestration was performed for the right renal artery (RRA) 25 mm from the top of the graft, and its position was reinforced with a sutured microcoil in a semi-oval configuration around the hole to create a radio-opaque mark. Additionally, a chimney to the celiac trunk was performed with a covered balloon-expandable stent (11x79 mm, VBX™, Goreâ) and coil embolization to a polar artery from RRA. The graft was then re-sheathed and the procedure was performed.

Final angiographic control and post-operative CTA showed patency of all visceral revascularizations. At the time this abstract is being written, the patient is still in-hospital, on the 30th post-operative day with a stable renal function and favorable evolution, despite a paralytic ileus still under resolution. A klebsiella pneumoniae carbapenemase was isolated in hemocultures and large spectrum antibiotics remain prescribed.

CONCLUSION: Para-visceral aortic infections are surgically challenging. ESVS guidelines recommend surgical repair, with endovascular repair being an acceptable alternative associated with long-term antibiotics. In this case, several treatment options were contemplated: t-branch stent-graft was ruled-out due to anatomic considerations; three chimney grafts were also excluded given the higher complications rate. Our open surgical approach did not require aortic clamping, thereby decreasing surgical risk. Although data on surgeon-modified stent-grafts remain

limited, retrospective studies have reported encouraging short/midterm results. In urgent cases such as the described one, creative hybrid techniques can be patient-tailored, life-saving options, and are readily available.

P04 Hybrid treatment for a complex bevar type IIIC endoleak – kidney autotransplantation and aortic stent graft relining

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Centro Hospitalar Universitário do Porto

INTRODUCTION: Late endoleaks in the case of FEVAR or BEVAR can be problematic given the difficulty associated with endovascular treatment in an aorta already with complex vascular reconstruction. Since these endoprostheses include multiple modular components, the endoleaks related to branches are more frequent. Target vessel endoleaks arise due to poor material integrity, inadequate sealing in the target vessel, and separation between the bridging stent and the fenestration ring or the directional branch. This last case, recently categorized as type IIIc endoleak, is one of the most common. Endovascular treatment with stent relining is generally satisfactory; however, endovascular alternatives may not be possible when complete separation and misalignment of the modules exist.

CASE REPORT: A 60-year-old man previously submitted to BEVAR presents with a type IIIc endoleak. The patient had a history of multiple vascular risk factors, developed bilateral critical limb ischemia, and was revascularized to both lower limbs at 48 years. The procedure consisted of a right femoral endarterectomy with supraarticular femoropopliteal bypass using the great saphenous vein (GSV) in the right lower limb and a femoral endarterectomy using a GSV patch on the left. Total resolution of the complaints was observed.

A thoracoabdominal aortic aneurysm (Crawford type III classification) was identified. Ten years after lower limb revascularization, the patient underwent treatment because the aneurysm had reached a maximum diameter greater than 6 cm. The aneurysm was excluded with a custom-made branched endoprosthesis, and the patient was discharged on postoperative day five. After about a week, the patient recurred to the emergency department for right lumbar pain. A computed tomography angiography (CTA) revealed occlusion of the right renal artery branch with complete exclusion of the right kidney. Considering the impossibility of recovering functioning parenchyma, conservative treatment was decided. The patient maintained a good evolution with the recovery of serum creatinine to values within the normal range.

Four years after implantation of the endoprosthesis, the presence of an endoleak with the growth of the aneurysmal sac to about 7cm was identified. Imaging findings of CTA showed a complete disintegration between the covered stent of the left renal artery and the directional branch of the aortic endoprosthesis, precluding endovascular relining. After considering multiple alternatives, we decided to carry out a hybrid treatment in two stages. In the first phase, autotransplantation of the left kidney was performed with laparoscopic harvest and implantation of the graft in the left iliac fossa. Subsequently, the aneurysm was excluded with a tubular endoprosthesis deployed immediately below the SMA's ostium, occluding both renal directional branches. CTA at one month of follow-up showed no endoleaks.

CONCLUSION: Increased complications with FEVAR and BEVAR are expected. The extent of aortic disease and the complexity of the procedure are risk factors for the development of late endoleaks. Target vessel endoleaks are usually resolved by an endovascular approach with stent relining. However, such treatment is not possible in certain situations, and good outcomes are possible using hybrid strategies. Kidney autotransplantation may be an excellent solution in selected cases.

P05 Looks like a DVT, walks like a DVT... And it's not a DVT

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CHVNG/E

INTRODUCTION: Deep vein thrombosis (DVT) is one of the main pathologies diagnosed by vascular surgeons in the emergency department (ED). It's fundamental to be aware of its differential diagnosis, as some patients may present will identical symptoms.
Cystic adventitial disease (CAD) is a condition that mainly affects the arterial system but rarely involves the venous system. The current study reports on a case of CAD involving the femoral vein.

CASE REPORT: A 45-year-old female patient comes to the ED due to oedema of the left lower limb for about 5 months. She was anticoagulated with rivaroxaban for a probably misdiagnosed femoral DVT, with no improvement of symptoms. Objectively there was a clear asymmetric swelling of the left lower limb.

Doppler ultrasound (DUS) showed an encapsulated hypoechoic mass protruding to the posteromedial wall of the femoral vein, leading to abnormal blood drainage of the vessel. Calf compression and Valsalva manoeuvres showed a patent vein with a severely constricted lumen. CT-venography confirmed a hypodense and well-defined mass appearing to have a compressive effect on the femoral vein.

Patient was submitted to surgical resection of the mass, in which a cystic structure was identified in continuity with the femoral vein's wall. Reconstruction of the vein wall was done using direct suture without the need of prosthetic material to maintain its integrity. Postoperative histological examination confirmed that the mass was a venous cyst.

Patient was discharged three days after the procedure, asymptomatic, maintaining anticoagulation with rivaroxaban. She started an DUS screening program given the elevated risk of recurrence.

CONCLUSION: Cystic adventitial disease (CAD) is most frequent in men and predominantly located in the popliteal artery. CAD of the venous system is a rare entity with few cases described in literature. The most affected vessel is the femoral vein.

The etiology of this pathology remains unclear, although there are some possible explanations such as repeated microtrauma, connective tissue diseases, or even the implant of synovial or mesenchymal cells of the joint closest to the affected vessel, during embryogenesis.

The diagnosis can be suspected through clinical and imaging findings, however, given its rarity, it's often made during or after surgery.

The first imaging method should probably be doppler ultrasound due to its availability, low cost, and absence of radiation. The DUS typically shows an anechoic mass. CT-venography seems to be a good imaging method for the evaluation of this pathology as it can help in the surgical strategy, and even allow the percutaneous drainage of the lesion.

Given the small number of cases described, the ideal treatment is still unknown, but most authors advocate resection of the cyst and its wall to prevent recurrence (which is higher when minimally invasive treatments are used).

CAD of the venous system is a rare entity, but it should be suspected in patients with symptoms of DVT, and especially when the diagnostic investigation indicates an extrinsic mass. Close follow-up of the patient is necessary to prevent recurrence.

P06 Venous bypass for iliofemoral venous occlusion: could this be an answer for patients with no endovascular solution?

Daniel Azevedo Mendes, Rui Machado, Carlos Veterano, Henrique Rocha, João Castro, Andreia Pinelo, Henrique Almeida, Miguel Queirós, Rui de Almeida

Centro Hospitalar Universitário do Porto

INTRODUCTION: Percutaneous endovenous treatment has been established as the first-line modality for chronic nonmalignant iliocaval venous obstruction (ICVO) due to its low morbidity and suitable medium and long-term results. Conventional surgical procedures are only used as last resort therapy due to their morbidity. However, limited data about open venous iliofemoral reconstruction outcomes exists.

We present two cases of surgical venous bypasses to treat ICVO using ePTFE grafts. Informed consent was obtained from the patient for the use of clinical data.

CASE-SERIES:

Case 1: A 69-year-old male presented to our institution with a post-thrombotic syndrome of the left lower limb manifesting chronic malleolar ulceration. After failed conservative treatment, the patient underwent lower limb phlebography, transluminal venoplasty, and stenting of a total occlusion of the left iliac venous segment. The patient presented a complete resolution of the complaints and the healing of the ulceration. However, stent thrombosis occurred two years later, and ulceration recurred. Endovascular recanalization was unsuccessful. So, a surgical bypass between de common femoral vein and inferior vena cava was constructed using a 10mm ringed ePTFE vascular prosthesis. An arteriovenous fistula (AVF) was done to increase the flow and patency of the bypass. After three months, complete healing of the lesion was observed. Venous bypass remains patent at one year of follow-up.

Case 2: A 63-year-old female was observed for disabling chronic edema of the right lower limb and complaints consistent with venous claudication. The patient had a history of section and ligation of the right common femoral vein to control an iatrogenic lesion during orthopedic surgery. A phlebography revealed occlusion of the common femoral and femoral veins with the permeability and ectasia of the deep femoral vein. The patient underwent venous bypass between the deep femoral vein and the ipsilateral common iliac vein with a 12mm ringed ePTFE vascular prosthesis and an AVF creation. The patient maintained a marked improvement in her complaints. Computed tomography venography (CTV) revealed an ePTFE-iliac vein anastomotic stenosis one year after the procedure. She was treated by percutaneous transluminal venoplasty with a 14mm balloon and placement of a venous stent of the same diameter. She presented the venous bypass patent and no symptoms at one-year follow-up.

CONCLUSION: Although far from conclusive, our experience supports open venous reconstruction as a viable option for patients with benign ICVO with debilitating symptoms not amenable to endovascular treatment. The creation of AVF seems to decrease the risk of thrombosis. However, published data are scarce, and more extensive studies are needed to validate these observations.

P07 Uma disseção muito complicada

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Centro Hospitalar Lisboa Central

INTRODUÇÃO: A disseção aórtica tipo B (DAB) é uma síndrome aórtica aguda que apresenta elevada taxa de mortalidade. Atualmente, na fase aguda, preconiza-se o tratamento médico nos casos de DAB não complicada, ficando a cirurgia reservada para os casos de DAB complicada (rutura, síndrome de má perfusão, dor/hipertensão refratária, expansão rápida ou progressão proximal/distal).

CASO CLÍNICO: Apresentamos o caso de uma mulher de 70 anos, com antecedentes de hipertensão e dislipidémia que recorreu ao serviço de urgência em Novembro de 2021 por quadro de dor abdominal e hematemese. À admissão, apresentava hipotensão, taquicardia e dor à palpação abdominal. A endoscopia digestiva alta não identificou hemorragia ativa nem lesões estruturais. A angio-TC mostrou DAB com origem após a emergência da artéria subclávia esquerda, com extensão até à ilíaca primitiva esquerda. As artérias viscerais, com exceção da artéria renal direita, emergiam do verdadeiro lúmen (VL), que se encontrava colapsado a este nível; a artéria renal direita, apesar de emergir do falso lúmen (FL), mantinha-se permeável. Destacava-se ainda dilatação aneurismática (6 cm) da aorta torácica descendente proximal e volumoso hemotórax esquerdo.

RESULTADOS: Por se tratar de um caso de DAB complicada de falso aneurisma/rotura e de má perfusão visceral, no contexto de colapso do VL, a doente foi submetida a cirurgia urgente: implantação de endoprótese torácica (TEVAR) na aorta torácica descendente, de stent descoberto na aorta toracoabdominal (PETTICOAT) e angioplastia com implantação de stent coberto nas artérias renal direita, ilíacas primitivas ("kissing stent") e ilíaca externa direita. No final da cirurgia foi colocado dreno torácico, com saída imediata de 600cc de conteúdo hemático.

O pós-operatório, na unidade de cuidados intensivos, foi complicado de AVC isquémico do hemisfério direito (plegia do membro superior esquerdo e paresia do membro inferior esquerdo, sem tradução imagiológica), detetado às 48h de pós-operatório, após extubação. Durante o internamento recuperou francamente dos défices motores, tendo alta ao 21° dia pós operatório, após resolução social, sem mais intercorrências.

A angio-TC de controlo aos 2 meses mostrou expansão do verdadeiro lúmen com adequada perfusão das artérias viscerais, exclusão do falso lúmen exceto em zonas focais de realce extraluminal em relação com endoleak tipo II, à custa das artérias intercostais, mantendo derrame pleural residual.

CONCLUSÃO: A DAB complicada tem elevada taxa de mortalidade estando recomendado o tratamento cirúrgico. A cirurgia endovascular apresenta taxas de morbi-mortalidade francamente inferiores à cirurgia aberta, estando recomendada quando possível.

P08 An unusual cause of haematuria - Case report

João Peixoto, Pedro Brandão, Clara Nogueira, Ana Semião, Luís Fernandes, Marta Machado, Francisco Basílio

CHVNG/E

INTRODUCTION: The development of a uretero-arterial fistula (UAF) is a rare and life-threatening condition. Owing to its low prevalence, diagnosis and management remains a challenge for both urologists and vascular surgeons and its high mortality rates (7-23%) may be at least partially attributed to delayed diagnosis.

We present a case of UAF in a patient with previous pelvic surgery and indwelling ureter catheter.

CLINICAL CASE: An 82-year-old male presented to the emergency department (ED) with haemodynamic instability and gross haematuria that started one hour prior to admission.

The patient had a medical history of hypertension, atrial fibrillation, and aortic valve stenosis, and he had been submitted to a radical cystoprostatectomy and cutaneous ureterostomy for a vesical neoplasm 4-month prior to admission.

Analytic study in the ED revealed an acute anaemia of 7.5g/dl and contrast enhanced angiography (CTA) revealed an ureteral fistula between the stented left ureter and the common iliac artery.

Patient was taken to the angiography suit and a balloon expandable stent-graft (GORE® VIABAHN® VBX – 11mm diameter and 59mm in lenght) was deployed.

Following the procedure, the haematuria resolved, and the patient had an uneventful post-operative stay. He was discharged two- weeks after admission, following a course of large spectrum antibiotic therapy. Patient remained asymptomatic at 3 month follow up.

DISCUSSION: Uretero-arterial fistula is an uncommon condition but with an increasing prevalence, at least in part due to improvement in pelvic cancer managment.

The main risk factors for the development of an UAF are chronic ureteral stenting, abdominal/ pelvic surgery, pelvic radiotherapy, and iliac artery aneurysms. The main symptom (and sometimes the only one) is gross haematuria which can be intermittent or persistent and up to 21% of patients will present with haemodynamic instability.

Diagnosis is challenging, requiring a high clinical suspicion.

Both CTA and invasive angiography seem adequate imaging methods but the latter has advantage of a possible invasive treatment.

Surgical intervention in patients with UAF is often difficult due to hemodynamic instability and hostile abdomen from prior surgery and/or radiotherapy.

Endovascular treatment is an effective and less invasive modality in controlling the arterial bleeding however open surgical treatment is still required for patients with local sepsis, previously failed endovascular treatment, or infected stent-grafts. Endovascular treatment could be used as a "bridge" to definitive treatment for unstable patients.

Despite high primary technical success rates, many patients will require open conversion due to recurrent bleeding, stent-graft infections, or other infectious complications (such as abscess formation).

CONCLUSION: UAF should be included in the differential diagnosis of patients with unexplained haematuria who have a history of chronic ureteral stenting, pelvic surgery, and radiotherapy.

Furthermore, it could be reasonable to perform immediately a diagnostic angiography in the operating room/angiosuite in patients with risk factors and convincing medical history.

Intervene without definitive imaging evidence in patients possessing several risk factors and convincing medical history. Endovascular treatment with stent-grafts has become the mainstay in the management of UAF as it provides an alternative to open surgery, with lower morbidity rates.

P09 Mycotic aortic aneurysms: A ticking time-bomb!

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INTRODUCTION: Mycotic or primary infected aortic aneurysms (1.3% incidence) are caused by septic emboli to the vasa vasorum, by haematogenous spread during bacteraemia or by direct extension of an adjacent infection leading to an infectious degeneration of the arterial wall and aneurysm formation.

OBJECTIVES: To describe a clinical case of a complicated mycotic aortic aneurysm.

METHODS: Based in clinic report.

RESULTS-CASE REPORT: A male, 69-year-old patient, with medical background of diabetes, hypertension and a bladder carcinoma (resectioned 5 years ago, complicated at the time with an E.coli septicaemia), presented at the ER with generalised malaise, asthenia, anorexia, abdominal pain, diarrhea and fever, with 1 week of evolution.

At clinical examination on admission, the patient presented poor general condition, fever (T 39ºC), normotensive, and abdominal examination showed no abnormalities.

Laboratory results showed an stable haemoglobin (Hb) of 13 g/dL, leukocytosis (19850/UI) and neutrophilia (90%), PCR 350.

CT-angiography showed an 3,5 cm juxtarenal AAA, saccular, with peri and intra-aortic gas, strongly suggestive of an mycotic AAA.

Hospitalization was indicated and a septic and immunologic screening was perfomed. The patient started a broad-spectrum antibiotic with meropenem and vancomycin and clinical, laboratory and hemodynamic surveillance.

Blood and urine cultures showed na E.Coli infection, and directed antibiotic was started.

After 10 days os hospitalization, the patient was haemodinamic stable, presented no fever or abdominal pain, however he kept high inflammatory parameters, so we performed an revaluation angio CT that showed a daunting increase of 4 cm of the AAA (7,5 cm) with signs of contained ruture .

An emergency intervention was indicated and the patient underwent an thoracophrenolaparotomy and aorto-aortic interposition with bovine pericardium patch. After 24h of surgery the patient died of septic shock.

CONCLUSION: MAA is a rare and threatening disease with rapid progression and high mortality. Even with broad-spectrum antibiotic and rapid surgical response, the tragic outcome is often the unavoidable result.

P10 Parallel grafting technique for a complex zone 6 aortic pseudoaneurysm treatment

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Centro Hospitalar Universitário do Porto

INTRODUCTION: Endovascular reconstruction of the thoracoabdominal aorta is highly complex due to the need to preserve the main visceral branches. This complexity increases in cases of previous aortic intervention and urgent situations with rupture. Meticulous and detailed surgical planning is essential to obtain the best results. Endovascular treatment with fenestrated endoprostheses allows for customized and minimally invasive therapy with suitable

medium and long-term outcomes. However, this treatment is impossible in urgent situations.

CASE REPORT: A 44-year-old male, born in Guinea Bissau, presents to the emergency department with epigastric pain radiating to the dorsum. The patient had a history of large vessel vasculitis secondary to Bechet's disease (HLA B51 allele positivity). Approximately ten years ago, the patient was admitted to the hospital with left flank pain associated with fever. A computed tomography angiography (CTA) demonstrated the presence of a pseudoaneurysm involving the left common and external iliac arteries and another aortic paraceliac pseudoaneurysm. A positron emission tomography (PET) scan revealed fludeoxyglucose uptake at the level of these vessels. The patient was urgently treated with an aneurysmectomy and a bypass from the left common iliac artery to the left common femoral artery using an 8mm ringed ePTFE prosthesis. An infection was excluded, and immunosuppression was started. The aortic pseudoaneurysm was excluded with a 28mm thoracic endoprosthesis that extended to the superior mesenteric artery (SMA) ostium for an adequate landing zone occluding the ostium of the celiac trunk. Due to collateralization from the SMA, the patient did not present visceral ischemic symptoms.

The patient maintained close surveillance with serial CTA and PET scan in the following years. Two years before the present episode, the PTE scan showed uptake at the thoracic endoprosthesis distal segment. Endovascular treatment with a fenestrated endoprosthesis was planned.

Still, he developed epigastric pain with dorsal radiation that motivated him to come to the emergency department. An urgent CTA demonstrated significant growth of the pseudoaneurysm with approximately 10 cm in greatest diameter. He underwent acute exclusion of the zone 6 pseudoaneurysm with a parallel grafting technique using a 31x100mm GORE® TAG® thoracic endoprosthesis (W. L. Gore and Associates Inc, Flagstaff, Ariz) with a periscope graft for the right renal artery (7x100mm) and a chimney graft for the SMA (10x100mm) in a sandwich configuration. The grafts used were Viabahn® self-expandable covered stents (W. L. Gore and Associates Inc, Flagstaff, Ariz). We attempted to perform another chimney to the left renal artery but were unsuccessful, and the left kidney was excluded. A crossed right-to-left iliofemoral bypass using an 8mm ringed ePTFE prosthesis was done to correct a dissection of the left iliac arteries. Postoperative CTA confirmed the exclusion of the pseudoaneurysm and permeable reconstructions. No inflammatory activity was visible in the PET scan.

CONCLUSION: The pathology of the thoracoabdominal aorta is highly complex, requiring experience and detailed planning. The complexity increases in urgent cases, and in these situations, "off-the-shelf" solutions can be fundamental to the treatment and saving the patient's life.

P11 Infeção de prótese aórtica – Explantação de EVAR

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Centro Hospitalar e Universitário de Coimbra

Sexo masculino, 62 anos, com antecedentes de AAA infra-renal, submetido a EVAR Medtronic Endurant II bifurcado com fixação supra-renal em 2018, com diagnóstico de endoleak tipo II com crescimento do saco e necessidade de embolização do saco em 2021. De outros antecedentes, destaca-se hipertensão, cardiopatia isquémica, dislipidemia e SAOS. Recorreu ao SU, 3 meses após embolização do saco, por dor abdominal peri-umbilical com irradiação dorsal, perda ponderal de 13kg em 3 meses, desconforto abdominal pós-prandial e noção de febre no domicílio. Ao exame objetivo, doente pálido, sudorético, hemodinamicamente estável e apirético, com massa abdominal dolorosa à palpação e pulsos femorais palpáveis bilateralmente. Realizou angio-TC AP (figuras 1 e 2) que mostrou endoleak tipo II a partir de artéria lombar com saco aneurismático de 90mm (crescimento de 10mm em 3 meses); e colheu estudo analítico que revelou elevação da PCR (18.03mg/dL [<0.50]), sem leucocitose (leucócitos 8.9x10^9/L) e anemia microcítica hipocrómica (Hg 10.8g/dL [12.0-15.6]). Foi internado sob antibioterapia com Metronidazol, Linezolide e Meropenem. Do estudo analítico realizado durante o internamento, destaca-se procalcitonina negativa e VS aumentada (81mm/h [1-20]). Por suspeita de infeção protésica, foi submetido a cirurgia em dois tempos.

Em 1° tempo, foi submetido a bypass axilo-bifemoral, seguido de explantação da prótese aórtica, após 3 dias. Na segunda intervenção, identificou-se o saco aneurismático com aderências à raiz do mesentério e 1ª ansa de delgado (Figura 3), com saída de abundante conteúdo purulento após a sua secção, enviado para estudo microbiológico. Realizou-se rafia dos óstios das artérias lombares por hemorragia ativa; excisão da prótese aórtica com auxílio de seringa 20cc e alicate; laqueação do coto aórtico e das artérias ilíacas comuns; excisão de parede de saco aneurismático (enviada para exame microbiológico e estudo anátomo-patológico); lavagem da cavidade abdominal; e plastia da face anterior do coto aórtico com encerramento de grande omento. Foi administrado Azul de Metileno com exclusão de fístula aorto-entérica. Por constatação de ausência de pulso na artéria ilíaca externa esquerda, realizou-se também trombectomia femoral esquerda e do bypass femoro-femoral direito-esquerdo. No pós-operatório, iniciou quadro de febre (máximo 39°C) que resolveu em dois dias, e leucocitose que atingiu o máximo ao 3° dia pós-operatório (leucócitos 20.9x10^9/L), com diminuição progressiva. Todo o estudo microbiológico (incluindo hemoculturas, urocultura, microbiologia do pús do saco aneurismático e microbiologia da parede do saco aneurismático) foi negativo. A histologia da parede do saco aneurismático revelou tecido inflamatório com superfície externa com angiogénese e infiltrado inflamatório polimorfo. Cumpriu 6 dias de Metronidazol e 16 dias de Linezolide e Meropenem e teve alta medicado com

Ciprofloxacina 750mg durante 6 meses, e Linezolide 600mg oral durante 1 mês seguido de Trimetoprim/Sulfametoxazol 800mg+160mg durante 5 meses. Infeção de prótese aórtica é uma situação infrequente, mas ameaçadora de vida. Ainda não há consenso em relação à melhor abordagem terapêutica e esta deve ser decidida para cada paciente individualmente tendo em conta o contexto clínico e comorbilidades. A antibioterapia de largo espectro de longa duração associada a explantação do EVAR (com reconstrução in situ ou bypass extra-anatómico) constituem a primeira linha de tratamento.

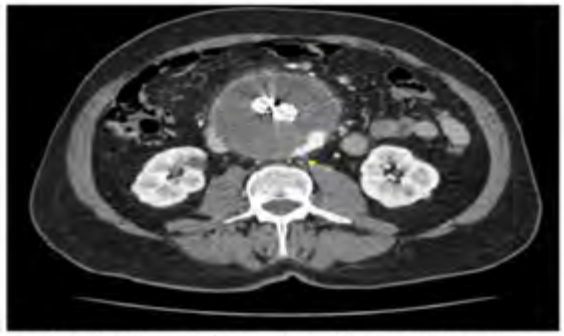

Figura 1 – Angio-TC AP mostra endofuga tipo II a partir de artéria lombar (seta) na vertente posterior do saco aneurismático (corte axial)

Figura 2 – Angio-TC AP mostra endofuga tipo II a partir de artéria lombar na vertente posterior do saco aneurismático (corte sagital)

P12 Transcarotid artery revascularization – initial experience of a tertiary center

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Centro Hospitalar Universitário São João

INTRODUCTION: Transcarotid artery revascularization (TCAR) has emerged in the last decade as an alternative to both carotid artery endarterectomy (CEA) and transfemoral stenting (TfCAS). In the benchmark ROADSTER trial, a 1.4% rate of stroke at 30 days was observed. TCAR has shown superiority over CAS in terms of transient ischemic accident (TIA)/stroke/death in the Society for Vascular Surgery Vascular Quality Initiative TCAR Surveillance Project. In high-risk for surgery patients, TCAR might prove a more suitable option than classic CAS.In this study, the initial experience of a tertiary center with TCAR is reported.

INTERVENTION TECHNIQUE: We hereby report three case reports of patients undergoing TCAR, as these were considered at high risk for CEA. All patients received dual antiplatelet agents (aspirin 100mg and clopidogrel 300mg) on the night before intervention. Procedures were undertaken with the patient under regional anesthesia through a cervical block, with selective use of sedation. Neurological function monitoring was done with a post-clamping clinical examination, complemented by near-infrared spectroscopy (INVOSTM - Medtronic).

A longitudinal cervical incision was performed to access the common carotid artery, which was clamped after 80U/Kg heparin administration. Angiography was performed to confirm the location of the stenosis and an Emboshield NAV6TM Embolic Protection System (Abbott ®) was deployed distally in the internal carotid artery (ICA). No flow inversion was utilized. A 6*8*40mm tapered Xact stent (Abbott ®) was then deployed across the lesion and post-dilated. Completion angiography demonstrated good positioning of the stent and no remaining lesions.

PRE-OP HISTORY

CASE 1: An 80-year-old patient was admitted to the emergency department with a history of left upper limb paresis due to a stroke in the right carotid territory. The patient had a medical history of right conventional CEA with primary closure in 2010 due to a symptomatic >70% carotid stenosis. Diagnostic workup revealed a 90% right ICA stenosis. In the presence of a symptomatic internal carotid restenosis, the decision was to perform TCAR.

CASE 2: A 60-year-old patient was observed in the outpatient clinic. The patient had been previously submitted to a right-sided patched carotid endarterectomy due to a symptomatic stenosis. At the one-year follow-up, a 80-89% early restenosis was detected. The rapid progression of restenosis led to the decision to perform TCAR.

CASE 3: A 69-year-old patient was observed in an outpatient setting due to a 80% right ICA stenosis detected no duplex ultrasound. The patient had a history of a stroke in the right carotid territory 6 months prior. A preoperative observation by the otolaryngology team revealed a left vocal cord palsy, hence the patient was considered high-risk for CEA, which prompted the decision to perform TCAR.

FOLLOW-UP: All patients had an uneventful postoperative recovery and were discharged on dual antiplatelet therapy for a minimum of one month. After one year of follow up, no restenosis have occurred.

CONCLUSION: TCAR may be a safe option for carotid revascularization in patients considered high-risk for CEA.

FIGURES

Figure 1. Deploying the Embolic Protection System in the distal internal carotid artery

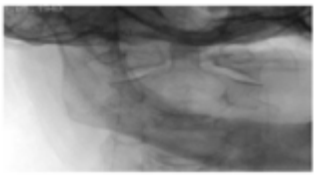

Figure 2. Angiography demonstrating restenosis at the origin of the internal carotid artery

Figure 3. Post-stenting angiography

P13 Type IIIB: An unexpected type of endoleak

Eduardo Silva, Celso Nunes, Leonor Baldaia, Miguel Castro, Vânia Constâncio Oliveira, Joana Silva, Luís Antunes, Manuel Fonseca

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INTRODUCTION: As endovascular aneurysm repair (EVAR) becomes the treatment of choice for abdominal aneurysms, we should be aware of its short and long-term complications. Endoleaks are among the most frequent and known complications following this procedure, making up for almost 30% of complications after EVAR.

CASE REPORT: An 85-year-old male with history of aortoiliac artery aneurysm, extending from the aortic bifurcation to the right iliac artery, submitted to endovascular repair in 2003 with a GORE® EXCLUDER® AAA Endoprosthesis with branch extensions to the external iliac arteries, presented at the emergency department with acute abdominal pain, hypotension and loss of consciousness.

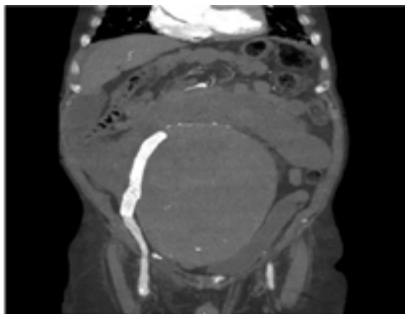
He had been treated for a suspected type II (coil embolization of collaterals and CT-guided thrombin and glue injection of the aneurysmatic sac) and type IIIa endoleak (relining of the connection between the right iliac branch and its extension) throughout 2009 and 2010, none of which seemed to successfully treat the cause as the aneurysm sac showed progressive growth. The patient refused open surgery and any further endovascular treatments, keeping annual follow-up.

At admission a CT angiography was performed showing aneurysm (187 x 132 mm) rupture without a visible site of bleeding. Due to the clinical history, a type II endoleak was assumed as the cause and an open approach was taken.

A REBOA technique through left femoral artery was done with balloon inflation at the descending thoracic aorta to obtain hemodynamic control, then the aneurysm sac was opened through a midline laparotomy. After emptying the aneurysm sac, a type IIIb endoleak was identified due to a fabric tear on the right iliac extension of the stent graft.

Direct suture of the stent graft was attempted without success, thus relining of the lesion with a MEDTRONIC® Endurant™ II stent graft was performed through the right femoral artery repairing the endoleak.

CONCLUSION: Type IIIb endoleaks are considered uncommon and underdiagnosed due to fabric defects being either too small or leaking intermittently. They can mimic other types of endoleaks and may cause aneurysm sac growth and rupture, thus type IIIb endoleaks should be considered if previous treatments for other endoleaks are insufficient or ineffective.



P14 Lumbar sympathectomy: how did our practice change in the last 20 years? – Case series

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INTRODUCTION: The use of lumbar sympathectomy for peripheral arterial disease remained as one of the only surgical treatments for this condition in the first half of the 20th century. The development of the first revascularization techniques, which are the gold standard in vascular practice, has left lumbar sympathectomy, in the modern-day era, as a procedure for selected cases of arterial disease, as well as for plantar hyperhidrosis and complex regional pain syndrome.

The goal of this article is to assess the indications as well as the clinical changes in our institution's practice in the last two decades regarding the use of lumbar sympathectomy.

METHODS: Retrospective analysis of a single-center experience of patients that were submitted to lumbar sympathectomy in our department between January 2002 and December 2021. Patient demographics, diagnostic, procedural volume and clinical outcomes were analyzed throughout the years, using the data available in our institutional records.

RESULTS: A total of 23 lumbar sympathectomies were performed in 22 patients between 2002 and 2021. Eighteen males (81,8%) and four females (18,2%), with a mean age of 61,9 years (SD 14,7) at the time of surgery. Sixteen procedures (69,6%) were performed for peripheral arterial disease of which 13 for stage IV and 3 for stage III disease (Fontaine's classification); six for patients with Buerger's disease (26,1%) all of which had foot or leg ulcers and one surgery (4,3%) for plantar hyperhidrosis. Angiographic studies showed concomitant extensive below the knee lesions in nineteen cases (82,6%). The most common indication for lumbar sympathectomy were patients that weren't suitable for arterial revascularization.

Six cases (21,8%) required amputation, four (17,4%) didn't show any signs of clinical improvement (3 with non-healing ulcers and one with resting pain), five (21,7%) patients died and six (26,1%) lost follow-up. Only 2 cases (8,7%), both with stage III peripheral arterial disease, showed some improvement, yet maintaining severe claudication (stage IIb).

A yearly analysis of the volume of lumbar sympathectomies performed at our institution throughout the years showed that 14 surgeries (60,9%) were performed between 2002-2011 and nine (39,1%) between 2012-2021. It should be noted that 3 were done in 2012 alone and in the last 5 years only one lumbar sympathectomy was performed for a patient with Buerger's disease.

CONCLUSIONS: A change in practice has been seen in the last couple of decades, due to the lack of evidence regarding the benefits of lumbar sympathectomy, especially in patients with chronic limb threatening ischemia. Also, the advances in endovascular surgery and the results achieved through below the knee bypasses have given new opportunities for patients that weren't previously considered as suitable candidates for arterial revascularization. Our institutional practices reflect these changes, reserving sympathectomy to selected cases.

P15 ADÃO E EVA(S)

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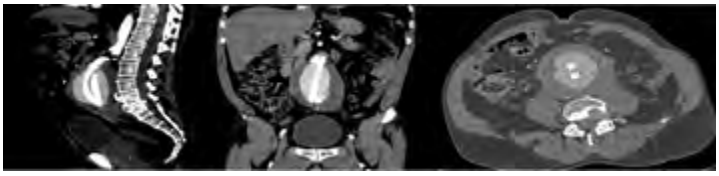
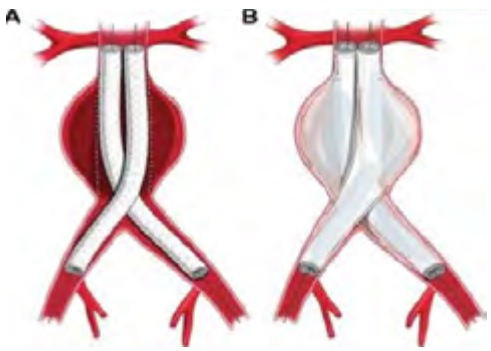
INTRODUÇÃO: Em 1990 Parodi realizou o 1º EVAR, o que constituiu uma revolução, um marco histórico no tratamento do AAA. Todavia, nas décadas seguintes foram constatadas algumas complicações, nomeadamente endoleaks, migrações, crescimento do saco e rotura aneurismática. O Endovascular Aneurysm Sealing System (EVAS) foi desenhado de modo conceptualmente distinto do EVAR, prometendo colmatar as suas limitações, através da

selagem e obliteração do lúmen do aneurisma. A Endologix desenvolveu o dispositivo Nellix®, implantado pela primeira vez em 2012, acolhido pela comunidade científica com grande entusiasmo, porque parecia muito promissor.

CASO CLÍNICO: Homem de 70 anos, submetido a EVAS na Alemanha em 2017 por AAA, sem seguimento desde 2018. Seguido na consulta de Cirurgia Vascular do nosso hospital a partir de 2021, tendo sido pedido angioTC que revelou saco aneurismático de 10 cm, com migração da endoprótese e endoleak tipo Ia de grande volume. Foi submetido a explantação do dispositivo Nellix® e correcção do aneurisma, com interposição de enxerto aorto bi-ilíaco. A cirurgia foi laboriosa, mas decorreu sem complicações. Pós-operatório sem complicações.

CONCLUSÃO: Os resultados a curto prazo do EVAS foram favoráveis, mas a longo prazo mostraram-se desastrosos e levaram à retirada do produto do mercado. A falência terapêutica global do EVAS foi observada numa taxa alarmante de 33,2%, sendo o mecanismo de falha mais comum a migração da endoprótese associada a endoleak tipo IA, com expansão do saco aneurismático. Segundo a Sociedade Europeia de Cirurgia Vascular, atualmente, novas técnicas como EVAS não são recomendadas na prática clínica. O EVAR continua atualmente a ser a técnica de eleição de tratamento endovascular do aneurisma da aorta abdominal.





P16 Embolia paradoxal como causa de isquemia aguda de membro superior

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Hospital do Divino Espírito Santo de Ponta Delgada

INTRODUÇÃO: A isquemia aguda do membro superior representa um quinto das isquemias agudas de membro. A embolia paradoxal é definida pela embolia de trombo originário no sistema venoso para a circulação arterial através de um shunt. Constitui menos de 2% de todas as causas de embolia arterial.

CASO CLÍNICO: Doente 45 anos, género feminino, com antecedentes de hipotiroidismo, obesidade, paratiroidectomia inferior por adenoma da paratiroide e anexectomia por cistadenoma benigno do ovário recorreu ao serviço de urgência por dispneia súbita, dor, poiquilotermia e perda de força no membro superior esquerdo. Ao exame objetivo encontrava-se polipneica com tiragem e com cianose do membro, sem pulso radial e umeral. Na gasimetria arterial apresentava hipoxemia e hipocápnia com saturação de O2 de 70% necessitando de oxigénio a 6L/min. No ecodoppler verificava-se ausência de fluxos na artéria umeral e a jusante nas artérias radial e cubital e no território venoso dos membros inferiores não apresentava trombose venosa, profunda ou superficial. Em angio-TC tórax confirmou-se tromboembolismo pulmonar (TEP) bilateral e a oclusão da artéria axilar (Fig.1). A doente foi hipocoagulada com heparina de baixo peso molecular e submetida a tromboembolectomia por abordagem da artéria umeral com angiografia de controlo com recuperação de pulso radial e cubital. Realizou a investigação etiológica da embolia arterial com Ecocardiograma transtorácico e transesofágico que identificou um forâmen oval patente (FOP) (Fig.2). Teve alta hipocoagulada com rivaroxabano (20mg uma vez/dia). Em ambulatório foi realizada investigação de trombofilias (Síndrome dos anticorpos antifosfolípidos, mutação do Fator V de Leiden, do gene da protrombina e pesquisa da deficiência da antitrombina III, proteína C e S) com resultado negativo. Tendo em conta evento esporádico de sobrecarga aurículo-ventricular direita associado ao TEP não recebeu indicação para encerramento do forâmen oval.

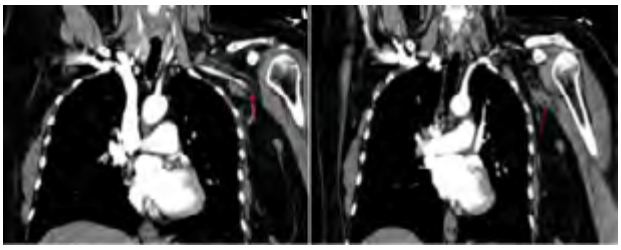
DISCUSSÃO: O defeito intracardíaco mais associado à embolia paradoxal é o foramen oval patente (FOP). Dependendo do território arterial atingido, a embolia paradoxal pode manifestar-se com um acidente vascular cerebral isquémico, um enfarte agudo do miocárdio, isquemia mesentérica aguda, enfarte renal ou isquemia de membro.

Em condições fisiológicas, o gradiente de pressão entre as aurículas encerra passivamente o FOP. Contudo situações como o TEP, a manobra de Valsalva ou a insuficiência da válvula tricúspide, condicionam um shunt direito-esquerdo que permite a embolização paradoxal. O diagnóstico do

defeito cardíaco poderá ser realizado por ecocardiograma transtorácico ou transesofágico.

O encerramento do FOP, apesar de ser um procedimento seguro e eficaz, não é consensual devendo a estratégia ser individualizada. Relativamente à isquemia ameaçadora de membro as opções terapêuticas passam pela anticoagulação e/ou embolectomia cirúrgica ou trombólise. Estudos demonstraram maiores complicações decorrentes da estratégia de anticoagulação e trombólise do que da embolectomia cirúrgica em situações de embolia paradoxal.

CONCLUSÃO: A embolia paradoxal é um fenómeno raro mas que deverá ser suspeitado na presença de TEV e de embolia arterial simultâneos, uma vez que poderá afetar o prognóstico dos doentes. Para além do tratamento dos eventos embólicos, a investigação da fonte embólica é particularmente relevante para a individualização do tratamento e prevenção da recorrência.



P17 "Gato por lebre"

Luis Filipe Amorim Queiroz de Faria[1], Sandrina Figueiredo Braga[2], João Correia Simões[2], João Cunha Salvador[3], Bárbara Costa[4], Rui Matos Cerqueira[5], João Mendes[6], Celso Carrilho[2], Inês Antunes[2], Pedro Pinto Sousa[2], Amílcar Mesquita[2]

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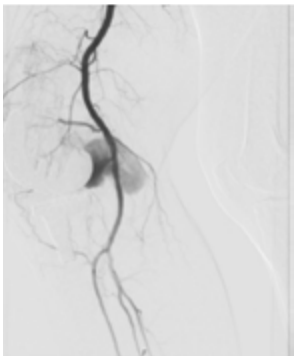
INTRODUÇÃO: As complicações vasculares após artroplastia do joelho (PTJ) são raras, mas podem ameaçar um membro viável. O pseudoaneurisma da artéria poplítea pode ocorrer em 0.03 a 0.5% das PTJ, secundariamente a trauma arterial intra-operatório. O exame físico é bastante sugestivo, revelando uma massa pulsátil e expansível na fossa poplítea, com frémito e sopro. Todavia, geralmente o diagnóstico é acidental, aquando do despiste de trombose venosa profunda (TVP), entidade frequente no pós-operatório de cirurgia ortopédica. O recurso a exames radiológicos, tais como eco-doppler, angioTC ou angiografia, possui um papel importante para planeamento terapêutico.

CASO CLÍNICO: Mulher, 71 anos, recorreu ao SU por dor e edema da perna direita, ao 7º dia de pós-operatório de PTJ. Ao exame físico, apresentava pulsos pedioso e tibial posterior bilateralmente e simétricos. Com o intuito de despiste de TVP, foi pedido um eco-Doppler, que excluiu esta hipótese diagnóstica e descreveu pseudo-aneurisma lobulado contido pelos músculos gastrocnémios, no plano dos côndilos femorais, medindo 39 x 33 x 23 mm, com origem na artéria poplítea.Realizou ainda angiografia para se proceder ao planeamento cirúrgico. Foi submetida a correção cirúrgica de falso aneurisma poplíteo por abordagem posterior. Intra-operatoriamente, procedeu-se à remoção de trombo e constatou-se orifício irregular na face anterior da artéria poplítea em contacto com PTJ, o qual foi encerrado com patch de veia pequena safena direita.

CONCLUSÃO: O diagnóstico atempado do pseudoaneurisma poplíteo é importante para impedir a ameaça vascular, síndrome compartimental e défices neurológicos irreversíveis devido à compressão. A correção cirúrgica convencional é a abordagem preferencial, pois permite a correção segura e definitiva da lesão e a descompressão, com alívio sintomático.



P18 Native aortic contained rupture following aortobifemoral bypass: uncommon complication, inventive solution

Ana Carolina Semião, Clara Nogueira, João Peixoto, Luís Fernandes, Marta Machado, Francisco Basílio, Alexandra Canedo

CHVNG/E

INTRODUCTION: Non-anastomotic pseudoaneurysms are uncommon complications of prosthetic grafts and potentially life threatening conditions. Open surgical repair carries significant morbidity and mortality. We describe a case of a patient successfully treated with an endovascular approach.

CASE REPORT: DWe report a case of a 77 year old male patient who had a history of an aortobifemoral bypass procedure 15 years before and complicated with a non-anastomotic contained rupture in the native distal aorta. Previous remarkable medical history included hypertension, dyslipidemia, CABG and former smoking.
A year before, he had a hospital admission in intensive care unit, due to a gram positive sepsis from cholecystitis treated conservatively.

Ten months later, he presented to the emergency with complaints of back pain and constipation. CTA revealed a ruptured pseudoaneurysm and PET-CT scan showed enhanced captation of 18F-FDG-PET (SUVmax 18.6) in the distal aorta and proximal left common iliac artery, suggesting active graft infection. Given the patients' age, co-morbidities, persistent elevated inflammatory parameters and fever, we decided to perform an endovascular procedure as a temporary "bridge technique". It consisted of deployment of an iliac extension endograft (25x82 mm, Medtronic®) which was deployed proximally at the native infra-renal aorta and distally at the Dacron body graft of previous aortobifemoral bypass (femoral surgical cutdown), followed by pseudoaneurysm embolization with microcoils (brachial surgical cutdown). The procedure was uneventful and the patient was kept under oral antimicrobial therapy at the moment of discharge. Follow-up CTA at 1 month revealed patency of the endograft and aortobifemoral bypass with successful rupture exclusion and clinical resolution of symptoms.

CONCLUSIONS: Non-anastomotic pseudoaneurysms in the native aorta may result from iatrogenic injuries imposed by cross-clamping,thromboendarterectomy, aortic wall ischemia from interrupted lumbar arteries or low grade infection. We described a non-anastomotic pseudoaneurysm found 16 years after the primary procedure, in a patient with recent history of gram positive sepsis. During this admission, blood cultures remained negative, which according to literature are positive only in 35% of cases, but PET-CT scan was in favor of a graft infection. An endovascular strategy was chosen to avoid a more invasive approach in a patient who was already physiologically and nutritionally deconditioned. ESVS guidelines recommend that in the emergency setting of active bleeding complicating abdominal aortic graft infection with/without aorto-enteric fistula, treatment with an endograft should be considered, as a temporary measure or even as a definitive solution in selected cases. In the meanwhile, oral antibiotics will be kept indefinitely.

P19 Região retroperitoneal – um espaço exíguo de grande complexidade e inúmeras variações

Bárbara Costa[1], João Correia Simões[2], Sandrina Figueiredo Braga[2], João Mendes[3], Luís Faria[4], Rui Cerqueira[5], Celso Carrilho[2], Inês Antunes[2], Pedro Pinto Sousa[2], Amílcar Mesquita[2]

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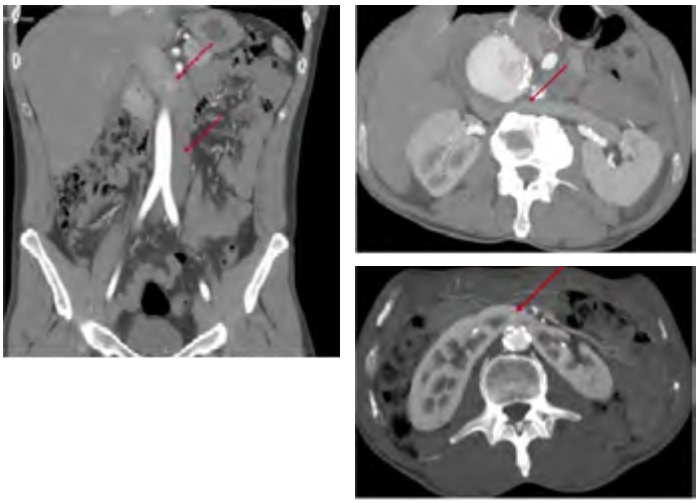
INTRODUÇÃO: O espaço retroperitoneal é sede de inúmeras variações anatómicas descritas na literatura, nomeadamente anomalias do sistema vascular e urinário. Por serem geralmente assintomáticas, torna-se fulcral o seu reconhecimento imagiológico prévio a qualquer intervenção cirúrgica que invada este espaço. O objetivo é estudar este local, permitindo um melhor planeamento cirúrgico e evitando a ocorrência de lesões iatrogénicas.

CASO 1: Doente do sexo masculino, 35 anos, submetido a estudo electrofisiológico por Cardiologia, com punção da veia femoral comum direita. A progressão do guia em trajeto à esquerda da coluna vertebral e término a nível da Aurícula Direita, fez levantar a hipótese diagnóstica de uma Veia Cava Inferior (VCI) esquerda. O diagnóstico foi confirmado por angio-TC, que descreveu uma VCI esquerda, sem outras anomalias associadas.

CASO 2: Doente do sexo masculino, 71 anos, submetido a cirurgia eletiva para correção de Aneurisma da Aorta Abdominal (AAA) de 7cm de diâmetro. A análise cuidada da angioTC pré-operatória permitiu reconhecer a presença de veia renal esquerda retro-aórtica. Durante a intervenção cirúrgica procedeu-se a dissecção e referenciação cautelosa do colo aneurismático, sem laceração acidental desta veia.

CASO 3: Doente do sexo masculino, 56 anos, submetido a Bypass Aorto-bifemoral por Isquemia Grau III do membro inferior esquerdo. A Angio-TC relatava a presença de rins em ferradura, tipicamente fundidos no polo inferior, pelo que sem interferência na dissecção da aorta infra-renal para o inflow do bypass, mas que poderia ser problemática numa situação de AAA.

CONCLUSÃO: O diagnóstico de anomalias retroperitoneais deve ser pré-operatório e é essencial que os cirurgiões que abordam este espaço conheçam não só a sua anatomia normal, como as variações anatómicas mais frequentes. Desta forma, a cirurgia decorre tranquilamente e em segurança.



P20 Rupture of superficial femoral artery true aneurysm: case report

João Diogo Jorge de Castro, Sérgio Teixeira, Henrique Almeida, Ivone Silva, Daniel Mendes, Carlos Veterano, Henrique Rocha, Andreia Pinelo, Miguel Queirós, Maria do Sameiro Caetano Pereira, Rui Almeida

CHUPorto

INTRODUCTION: True superficial femoral artery aneurysms (TSFAA) are rare and are usually seen in elderly people and males. Several causes for TSFAAs such as atherosclerosis, infection, arteritis, connective tissue disorders, trauma and chemotherapy have been described. In two-thirds of the patients the TSFAA is not evident at physical examination unless they growth and a palpable mass is noticed. However, they can complicate with thrombosis, distal embolization and rupture.

We present a case of rupture TSFAA in a 74 years-old male that started with an expandable painful mass in the left groin and its treatment.

CASE REPORT: A 74 years-old male with prior medical history of atrial fibrillation, hypertensive cardiac failure, hypertension, type 2 diabetes, stage 3 chronic kidney disease and obesity, came to emergency department due to pain in the left groin 3 days before with an increasing mass.

The patient referred that he had a palpable mass in that location but 3 days before we woke at night with pain and a growing mass at the left groin.

At evaluation, a pulsatile mass at the left groin was noticed. The doppler ultrasound showed a superficial femoral artery (SFA) aneurysm with a false aneurysm due to rupture.

The patient did not have any surgery, punction or trauma in that symptomatic region.

An angioCT was requested and showed a saccular aneurysm at the posterior wall of the common femoral artery (CFA) and a fusiform aneurysm with 28mm at the left SFA with an anterior pseudoaneurism with 35mm suggesting a contained rupture (Image 1). No other concomitants aneurysms were found in the angioCT.

The patient was prompted prepared to surgery. A longitudinal incision was performed at the upper tight. CFA, Profunda femoral artery (PFA) and SFA proximal and distal control to aneurysm was achieved. Next, a careful dissection on the SFA aneurysm and the false aneurysm created by rupture was performed. Exclusion of CFA (to exclude another aneurysm at the posterior wall) was done. An interposition between external iliac artery and SFA with PFA reimplantation was performed with an 8mm ringed prosthetic graft (see image 2).

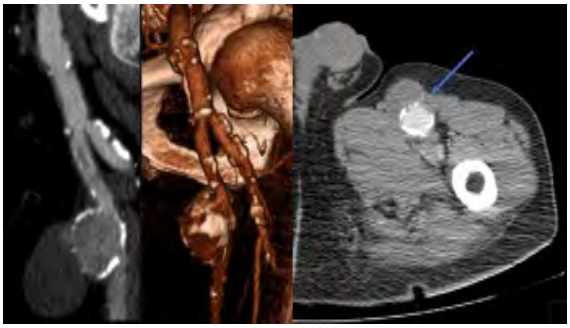
The microbiologic samples were sterile.

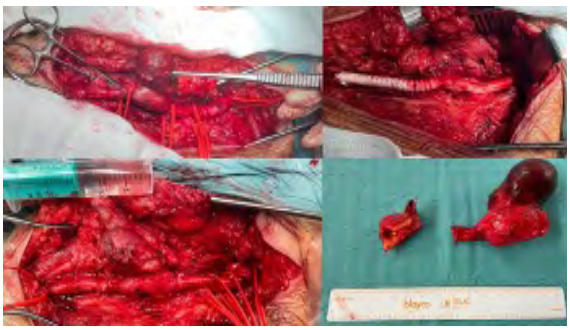
At 5th post-operative day, the patient was discharged without complications.

CONCLUSIONS: SFA aneurysms comprise approximately 15% of all femoral artery aneurysms. An early diagnosis is needed to avoid complications and comorbidities. CTA is the most commonly employed diagnostic study, which can determine the size and location of the aneurysm and aid in operative planning.

In our case report, the rupture of the SFAA was the first presentation of atherosclerotic disease and an urgent treatment was needed to avoid critical blood loss and limb loss.

Despite endovascular techniques, the open surgery with aneurysmal excision and graft interposition remains the gold-standard due to higher graft patency.





P21 Double-barrel technique for iliocava bifurcation reconstruction in a patient with phlegmasia cerulea dolens due to venous stent jailing

João Diogo Jorge de Castro, Carlos Pereira, Daniel Mendes, Carlos Veterano, Henrique Rocha, Andreia Pinelo, Henrique Almeida, Miguel Queirós, Maria Sameiro Caetano Pereira, Rui Almeida

CHUPorto

INTRODUCTION: Phlegmasia cerulea dolens (PCD) is an uncommon presentation of deep vein thrombosis. It produces an obstruction to venous outflow and presents a high mortality risk related with gangrene, limb loss and systemic affectation.

For these reasons the diagnosis must be made early in the course of the process for treatment effectiveness.

It can occur in patients with a hypercoaguability state but also due to mechanical obstruction.

We present a case of a 66 years-old female patient with a PCD in the right left lower limb and previous medical history of venous stent in the left lower limb.

CASE REPORT: A 66 years-old patient arrived at the emergency department with complaints of right lower limb oedema and pain with less than 24h. Previous medical history included May-Turner Syndrome treated with angioplasty and venous stenting (16x100mm + 14x100mm optimed®) seven months before and a covid-19 infection in the last 15 days.

At presentation a significant oedema was noticed in the right limb with altered skin perfusion and cold right foot.

At ultrasound evaluation a femoro-popliteal thrombus was noticed in the right lower limb.

An AngioCT was requested and it showed a deep vein thrombosis from right popliteal vein to right vena cava. The left lower limb deep vein system was patent. (Image 1).

From a popliteal venous access, a Cragg-McNamara catheter was placed at left common iliac vein and started a catheter directed thrombolysis (CDT) with 1mg/hour alteplase infusion (Image 2).

In the next day, an angiographic control was made and the right lower limb was patent.

So, to maintain the venous outflow in the right lower limb a double barrel technique was performed to reconstruct the iliocava bifurcation and treat the jailing created by the previous stent.

From the right side a sinus venous 14x80mm stent was released at the same time as a sinus venous 16x80mm stent from the left side (Image 3).

The completion angiography showed a patent deep venous system to the vena cava.

In the following days, the pain disappeared and oedema improved significantly.

CONCLUSION: PCD is a limb threatening condition and needs urgent treatment.

In addition to treat it with hipocoagulation and CDT, there is the need to correct the cause.

This case demonstrates not only the advantages of venous stenting but also the complications it can lead to and how we could treat it.

P22 FA: fibrilação auricular ou falso aneurisma?

João Diogo Jorge de Castro, Sérgio Teixeira, Duarte Rego, Rui Machado, Arlindo Matos, Carlos Veiga, Daniel Mendes, Carlos Veterano, Henrique Rocha, Andreia Pinelo, Henrique Almeida, Miguel Queirós, Maria Sameiro Caetano Pereira, Rui Almeida

CHUPorto

INTRODUÇÃO: Um falso aneurisma aórtico pode ter várias apresentações sendo que uma delas pode dever-se à compressão de estruturas adjacentes pelo efeito de massa. Este trabalho apresenta um caso de um falso aneurisma da aorta torácica descendente cuja manifestação inicial foi fibrilação auricular.

CASO CLÍNICO: Doente do sexo masculino com 83 anos de idade recorre ao serviço de urgência por palpitações e dor no dorso após realizar esforço.

Como antecedentes médicos apresentava dislipidemia, hipertensão arterial, tuberculose pulmonar aos 22 anos, hiperplasia benigna da próstata e artrose de anca.

Durante o estudo por electrocardiograma objetivou-se fibrilação auricular persistente que se filiou numa provável cardiopatía hipertensiva.

O doente ficou com indicação para seguimento em consulta de cardiologia onde se requisitou ecocardiograma com objetivo de estratificar e clarificar etiologia de fibrilação auricular.

Durante o ecocardiograma objetivou-se a presença de compressão extrínseca sobre a aurícula esquerda.

De forma a esclarecer a etiologia da compressão extrínseca realizou angioTAC torácico que demonstrou volumoso aneurisma da aorta torácica descendente, na proximidade da transição toraco-abdominal, com morfologia sacular excêntrica, com 11,2cm de extensão longitudinal, 8cm de diâmetro antero-posterior e 11.3cm de maior diâmetro transverso, com trombo marginal envolvente (Imagem 1).

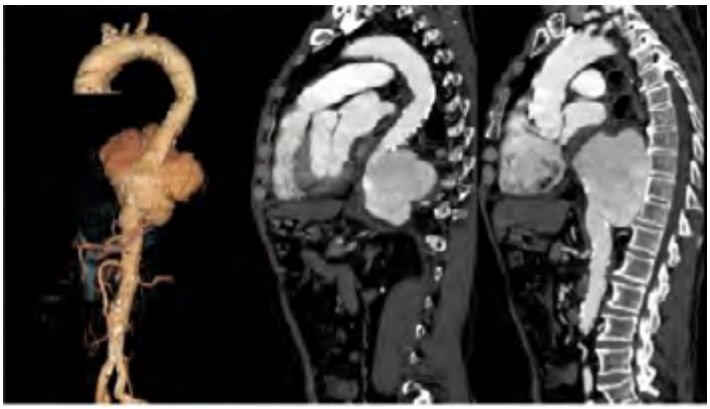
O doente foi prontamente indicado para cirurgia.

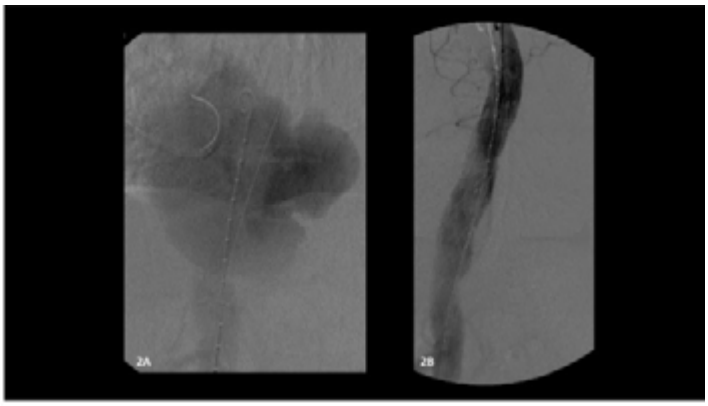
Por via femoral direita procedeu-se a uma angiografia diagnóstica que demonstrou volumoso falso aneurisma (Imagem 2A). De seguida realizou-se a exclusão do falso aneurisma com endoprotese Medtronic® Valiant 30x30x150 + 28x28x100mm. Angiografia de controlo a demonstrar total exclusão de falso aneurisma (Imagem 2B).

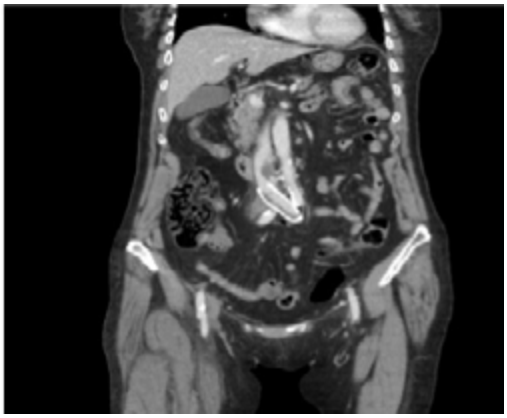
No pós-operatorio o doente evolui de forma satisfatória, com exclusão total de falso aneurisma sem endoleaks

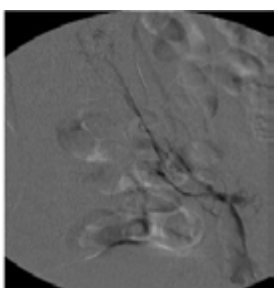
(Imagem 3) tendo tido alta sem complicações.

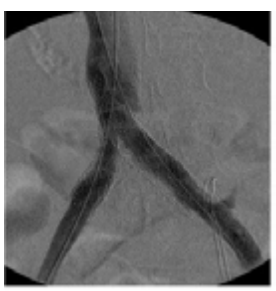
CONCLUSÃO: Os falso aneurismas aórticos podem ter apresentações inusuais e por isso a sua deteção precoce é vital para obter um tratamento sem complicações e evitar a sua rotura. Este caso demonstra que um achado inusual deve levantar a suspeita e necessidade de estudos adicionais para que condições como esta não passem desapercebidas.











P23 Tumor retroperitoneal – um desfecho inesperado

Luis Orelhas, Professor José Guilherme Tralhão, Emanuel Furtado, Ricardo Martins, Ricardo Vale Pereira, Júlio Constantino, Mário Moreira, João Gama

CHUC

INTRODUÇÃO: Tumores Retroperitoneais Primários são uma entidade clínica rara, sendo os mais comuns os Liposarcomas, fazendo diagnóstico diferencial com linfomas, sarcomas e tumores de células germinativas extragonadais.

O Leiomiossarcoma da Veia Cava Inferior (VCI) é um tumor primário vascular extremamente raro, com mau prognóstico. Atualmente, o único tratamento potencialmente curativo destes tumores passa por uma abordagem cirúrgica, individualizada para cada doente, dependendo da dimensão e das estruturas invadidas.

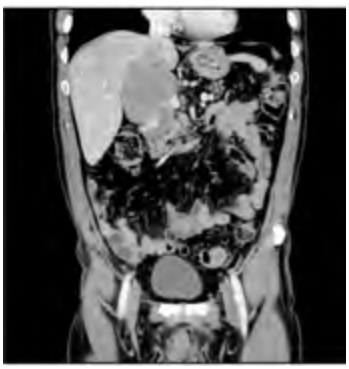
MÉTODOS E MATERIAIS: Doente do sexo masculino, 67 anos, assintomático com achado de massa abdominal em íntima relação com VCI após realização de ecografia abdominal em contexto de trauma. RM Abdominal mostrou lesão tumoral centrada à parede da VCI medindo 9,3 x 9,3 x 12 cm (AP x T x L) com extensão ao longo de 10 cm da parede posterior da VCI e crescimento póstero-lateral direito, sem invasão aparente de vasos renais, embora condicionando estenose por compressão – principal hipótese diagnóstica: Leiomiossarcoma da VCI. Achados suportados por TC toraco-abdomino-pélvica e sem evidência de metástases à distância. Discussão de caso clínico em reunião de decisão terapêutica multidisciplinar, tendo sido decidida abordagem cirúrgica para resseção da massa tumoral.

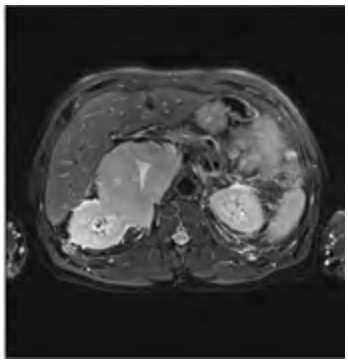
RESULTADOS: Durante a intervenção, constatou-se invasão tumoral da artéria e veia renal direitas e da veia renal esquerda. Face aos achados, optou-se por realização de Ressecção da VCI + Nefrectomia direita + Lobectomia do caudado + Suprarrenalectomia direita em bloco com posterior Interposição de prótese de Dacron e reimplante da veia renal esquerda, sem intercorrências imediatas e com alta ao 6º dia pós-operatório com Tinzaparina.

Na consulta de seguimento aos 30 dias pós-operatório apresentou-se assintomático, com boa recuperação, e sem sinais de oclusão da prótese de Dacron ou veias ilíacas ao EcoDoppler abdominal – transição para Rivaroxabano. Resultado de estudo anatomo-patológico da peça operatória: Linfoma B Difuso de Grandes Células. Encaminhamento para consulta de Hemato-Oncologia para avaliação e orientação.

CONCLUSÃO: Apesar do inesperado diagnóstico final devido às características imagiológicas do tumor, a resseção cirúrgica complexa e multivisceral necessária em tumores raros, como os Sarcomas Retroperitoneais, oferece a melhor probabilidade de cura. A experiência em centros de referência, nomeadamente em Transplantação Hepática e Cirurgia Vascular, e a abordagem por equipas multidisciplinares

permite a resseção de tumores complexos, de outra forma considerados irressecáveis.





P24 Abordagem de trauma carotídeo iatrogénico por cateterização venosa central com dispositivo de encerramento mynx control

Mafalda Correia, Antonio Gonzalez, Maria José Ferreira

Hospital Garcia de Orta

INTRODUÇÃO: A cateterização venosa central acarreta alguns riscos nomeadamente o de punção ou colocação intra-arterial do cateter (0.1-0.5% dos casos). As complicações associadas à colocação intra-arterial do cateter venoso central (CVC) são hematoma, hemotórax, acidente vascular cerebral ou lesão neurológica e podem ocorrer em 30% dos casos. O risco de AVC aumenta com o tempo de cateterização intra-arterial sendo o diagnóstico, por isso, uma prioridade. A abordagem desta situação passa pela retirada do cateter e compressão manual ou por cirurgia convencional ou endovascular.

CASO CLÍNICO: Apresenta-se o caso de uma doente de 78 anos, do sexo feminino, com antecedentes de insuficiência cardíaca, cardiopatia isquémica, doença pulmonar obstrutiva crónica, hipertensão, fibrilação auricular, diabetes mellitus, portadora de próteses valvular aórtica e mitral. A doente encontrava-se internada por uma agudização da insuficiência cardíaca, sob suporte de ventilação não invasiva, e foi submetida à colocação de um CVC jugular direito. Posteriormente à colocação do CVC, a doente inicia um quadro de prostração e hemiparesia esquerda transitórias. Após colheita de sangue pelo CVC e análise gasométrica, é realizado o diagnóstico de colocação de CVC intra-arterial, nomeadamente na artéria carótida comum direita. A doente encontrava-se anticoagulada sob varfine e apresentava um INR de 4. Após realização de *ecodoppler,* confirmou-se a posição intra-carotídea do CVC. Sob anestesia local, a doente foi submetida à remoção do CVC sobre um fio guia e à colocação de um introdutor arterial de 6 *french*. Posteriormente, foi utilizado um dispositivo *MYNX CONTROL* para encerramento arterial, sob controlo com *ecodoppler*. A doente manteve-se assintomática do ponto de vista neurológico durante e após o procedimento e sem hemorragia ou hematoma relacionados com o acesso. Foi realizado *ecodoppler* carotídeo após o procedimento que confirmou a patência do eixo carotídeo.

CONCLUSÃO: A abordagem endovascular das lesões iatrogénicas da carótida aquando da cateterização venosa central apresenta-se como um método minimamente invasivo, com um elevado sucesso técnico e raras complicações que evita ainda a necessidade de anestesia geral. Está descrita a utilização de vários dispositivos de encerramento arterial na abordagem destas lesões, no entanto, e até então, apenas se tem conhecimento de um caso publicado na literatura utilizando o *MYNX CONTROL*. Neste caso, o encerramento arterial com *MYNX CONTROL*. revelou-se uma abordagem eficaz e segura.

P25 Uma causa rara de edema unilateral do membro inferior

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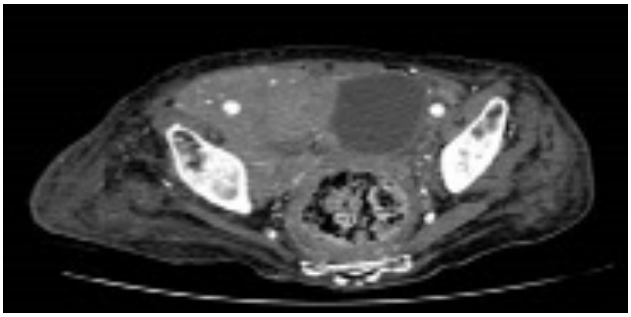
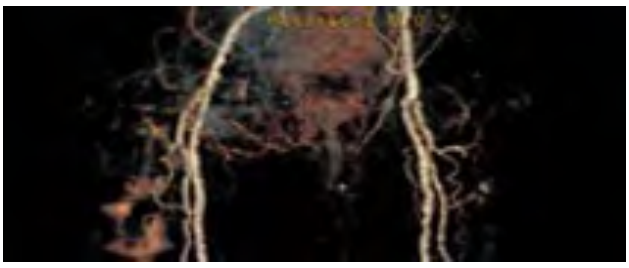
INTRODUÇÃO: O edema do membro inferior é um desafio diagnóstico com impacto significativo na qualidade de vida do doente, podendo ser o resultado de múltiplas etiologias incluindo patologia local ou sistémica. Apesar da causa mais frequente de edema unilateral do membro inferior em doentes com idade superior a 50 anos ser a insuficiência venosa, a etiologia é frequentemente multifatorial e inclui celulite, linfedema, rutura muscular, síndrome pós-trombótica, compressão extrínseca...

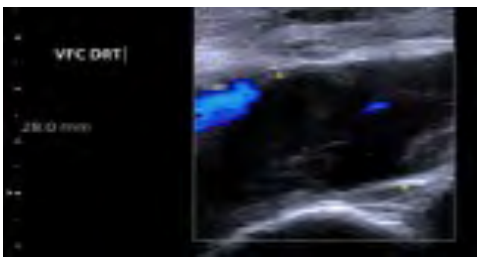
CASO CLÍNICO: Apresenta-se o caso de um doente de 92 anos, do género masculino, com antecedentes pessoais de hipertensão arterial, dislipidémia, parcialmente dependente nas atividades de vida diária. Recorreu ao serviço de urgência por edema do membro inferior direito

com 3 dias de evolução. Ao exame objetivo, apresentava edema do membro até à raiz do mesmo e uma tumefação inguinal direita de consistência dura, pé direito quente, com motilidade preservada, e pulsos pedioso e tibial posterior palpáveis. A avaliação por Ecodoppler revelou uma massa de limites bem definidos com aparente vascularização no seu interior e em íntimo contacto com o eixo femoral. Para esclarecimento diagnóstico, o doente realizou uma angioTC que evidenciou uma volumosa massa na fossa ilíaca e região inguinal direitas, de realce heterogéneo e contornos lobulados, com dimensões de 16 x 1.4 x 9 cm, que se prolongava até às cadeias ganglionares aorto-ilíacas, traduzindo um eventual conglomerado adenopático. Esta massa condicionava estenose da veia ilíaca externa sem condicionar trombose venosa profunda. Após biópsia da lesão, foi realizado o diagnóstico de linfoma difuso de grandes células B com índice proliferativo elevado.

CONCLUSÃO: O edema unilateral de membro inferior pode ser a apresentação inicial de um linfoma difuso de grandes células B, apesar de ser uma manifestação rara. Assim, no doente que se apresenta com edema do membro inferior, a realização de uma história clínica e exame físico completos reveste-se de particular importância na investigação etiológica do edema, uma vez que existem causas raras e que podem mimetizar outras mais frequentes como a trombose venosa profunda.







P26 Aneurisma da artéria umeral pós-traumático: um caso clínico

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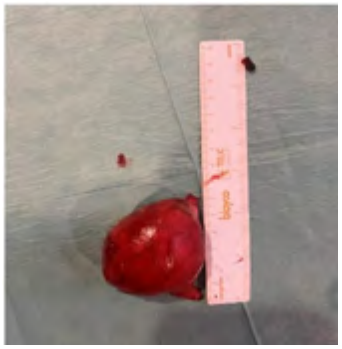
A patologia aneurismática da artéria umeral como complicação do uso prolongado de canadianas é uma manifestação clínica rara. Na maioria das vezes tem um carácter assintomático. Pode manifestar-se pela presença de uma massa pulsátil no cavado axilar ou por manifestações tromboembólicas à distância.

Relatamos um caso de um paciente de 72 anos que deambulava com auxílio de uma canadiana que apoiava na região úmero-axilar esquerda há cerca de 30 anos, com aneurisma da artéria umeral já identificado previamente, e que foi admitido com um quadro de isquemia aguda do membro superior esquerdo.

Admitiu-se estar perante um quadro de trombose aguda do aneurisma umeral e, neste sentido, realizou-se trombectomia proximal e distal e aneurismectomia com interposição com veia cefálica invertida homolateral. Excelente evolução clínica no pós-operatório, com recuperação do quadro isquémico do membro. Apresenta-se este caso dado a sua raridade.



P27 Embolização *transealing* de artéria lombar para o tratamento de *endoleak* tipo 2 após EVAR

Helena Fidalgo, Ricardo Correia, Tiago Ribeiro, Joana Cardoso, Adriana Figueiredo, Carolina Tavares, Daniela Gonçalves, Maria Emilia Ferreira

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INTRODUÇÃO: O *endoleak* tipo 2 (ELT2) é uma complicação frequente após o tratamento endovascular do aneurisma da aorta (EVAR). A correção está indicada na presença de crescimento do saco aneurismático, sendo a abordagem *transealing* uma das técnicas descritas para o efeito.

MATERIAIS E MÉTODOS/RESULTADOS: Doente do sexo masculino de 78 anos, com antecedentes de aneurisma da aorta infra-renal de 52 mm, foi submetido em 2016 a EVAR aorto bi-ilíaco com endoprotese bifurcada. O angioTC realizado em 2018 relevou crescimento do saco aneurismático (74mm) e *endoleak* tipo 1b através do ramo direito do EVAR. O doente foi submetido a extensão da selagem para a artéria iliaca externa direita com ramo ilíaco e embolização da artéria hipogástrica direita. O angioTC realizado em 2021 relevou crescimento do saco aneurismático (90mm), ELT2 de artéria lombar esquerda, selagem curta de artéria ilíaca comum esquerda, sem *endoleak* tipo 1b. Foi submetido a embolização de artéria lombar e IBD esquerda: por acesso femoral esquerdo foi realizada embolização de artéria lombar com coils, através de cateterização *transealing* pela zona de selagem do ramo esquerdo do EVAR. A cateterização da artéria lombar foi caracterizada pela difícil manipulação dos dispositivos no saco aneurismático parcialmente trombosado. O procedimento foi concluído com uma endoprotese bifurcada ilíaca para preservação da artéria hipogástrica esquerda. A angiografia final confirmou boa selagem e permeabilidade da endoprótese, sem *endoleaks*. O pós-operatório decorreu sem complicações. O angioTC, após 1 semana, revelou permeabilidade das endopróteses e ausência de *endoleaks*.

CONCLUSÃO: A embolização por abordagem *transealing* é uma técnica segura e eficaz no tratamento de ELT2 após EVAR. No caso descrito, o maior tempo de *follow up* será determinante para avaliar o sucesso clínico do procedimento.

P28 O gigante silencioso: aneurisma da artéria umeral em transplantado renal – caso clínico

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INTRODUÇÃO: Os aneurismas verdadeiros das artérias do membro superior são entidades raras, representando menos de 1% de todos os aneurismas. Apresentamos o caso clinico de um doente que desenvolveu um volumoso aneurisma da artéria umeral vários anos após transplante renal.

CASO CLÍNICO: Sexo masculino, 57 anos, submetido a transplante renal de dador vivo em 2004. Previamente dialisado por FAV radio-radial cefálica e úmero-cefálica no membro superior esquerdo, ambas laqueadas. Desenvolvimento de volumoso aneurisma da artéria umeral ipsilateral, com 50x58mm e 150mm de eixo longitudinal, clinicamente assintomático. O doente foi submetido a exclusão do aneurisma e pontagem úmero-umeral topo-a-topo com prótese de ePTFE aramada de 8mm através de 3 incisões, sem intercorrências.

DISCUSSÃO: Apesar de raros, existe uma crescente associação entre o desenvolvimento de aneurismas da artéria umeral e os antecedentes de acesso vascular ipsilateral para hemodiálise em recetores de transplante renal. As alterações hemodinâmicas causadas pela presença de uma fistula arterio-venosa e a terapêutica imunossupressora prolongada têm sido os mecanismos propostos para degenerescência aneurismática da parede arterial. Desconhece-se a verdadeira prevalência dos aneurismas da artéria umeral nesta população e muitos são diagnosticados apenas após a ocorrência de complicações. Apesar de não existirem diretrizes específicas recomenda-se o tratamento mesmo quando assintomáticos pelo elevado risco de rotura e embolização. Assim, o rastreio de aneurismas da artéria umeral em recetores de transplante renal com história prévia de acesso vascular poderá ser uma estratégia adequada para uma melhor compreensão da patologia e prevenção de complicações.

P29 Comparison of open versus endovascular reconstruction for TASK-II D aortoiliac occlusive disease

Domingues-Monteiro D, Luís Afonso Gamas, António Pereira Neves, Leandro Nóbrega, Filipa Jácome, Tiago Moura, João Rocha Neves, Oliveira-Pinto J, Armando Mansilha

Centro Hospitalar Universitário de São João

AIMS: The aim of the study was to evaluate the safety, efficacy and compare both open vs. endovascular surgery for the treatment of TASC-II D aortoiliac lesions.

METHODS: 105 patients were divided into two groups: open repair (66 patients) and endovascular treatment (ET) (69 patients) for symptomatic TASC II D AIODs between January 2013 to February 2021 were consecutively and prospectively reviewed. Baseline characteristics, preoperative and postoperative imaging, and operation procedure reports were reviewed and analyzed. Patency after revascularization was assessed by duplex ultrasound and ankle brachial index. Survival analysis was used to evaluate the relevance between risk factors, surgical technique, and patency.

RESULTS: Median follow-up was 79 months (CI 95% 61.2-96.8). Open repair was associated with a higher technical success rate (95.5% vs. 73.7%, p=0.01). 30-days major adverse cardiovascular (MACE) and limb (MALE) events rate were not different between both groups (7.7% vs 7.7%, p>0,99 and 11.3 vs 20.5%, p=0.225, respectively).

Log-rank survival analysis showed no significant differences regarding MALE events between open and endovascular approach at 60 months (hazard ratio, HR 1.30 95% CI 0-56-3.06, p=0.54).

CONCLUSION: Open and endovascular techniques reveal to be safe and effective for complex AIOD.

Open repair revealed an higher technical success rate. However, there are no significant differences in terms of primary patency, secondary patency and MALE between these two techniques.

P30 Surgical correction of a marfan syndrome right subclavian aneurysm with right vertebral artery reimplantation: a case report

Domingues-Monteiro D, Luís Afonso Gamas, António Pereira Neves, Leandro Nóbrega, Filipa Jácome, Tiago Moura, João Rocha Neves, Oliveira-Pinto J, Armando Mansilha

Centro Hospitalar Universitário de São João

INTRODUCTION: Marfan syndrome has been associated with thoracoabdominal aneurysms and dissections.

Vascular manifestations of Marfan syndrome involve aortic root dilation, progressive root and ascending aortic aneurysmal degeneration, and potentially aortic dissection of variable extent. Because most patients are asymptomatic, treatment is aimed at preventing rupture. Aneurysms of the subclavian artery are a rare manifestation in patients with Marfan syndrome.

Secondary interventions are common in this genetic disorder, with 20% of reoperations at 5 years from the index operation, reinforcing need for regular follow-up.

CASE REPORT: A 48 years old male with the diagnosis of Marfan's Syndrome, followed as outpatient for a previous valve Sparing Aortic Root Replacement (David Procedure), presented a right subclavian dissection with aneurysmal degeneration (23mm x 19mm). The patient was asymptomatic. However, the aneurysm has been growing for the last three years. Perioperative physical examination revealed present carotid and radial pulses. The patient was submitted to an elective procedure, which consisted in an aneurismectomy and a reinforced 8mm interposition graft, with reimplantation of the right vertebral artery via supraclavicular and subclavicular incisions, as well as right cervical approach, without resecting the clavicle. The distal anastomosis was performed to the right axillar artery. The patient was discharged 5 days after surgery without neurological deficits. The 1-month postoperative duplex ultrasound (DUS) revealed exclusion of aneurysm and dissection flaps, without further stenosis of the performed anastomosis. The postoperative course was uneventful.

CONCLUSION: Marfan syndrome may be associated with cardiovascular complications, dominated by proximalaortic disorders. Complex and repeated interventions are often necessary in these patients. Strict followup is paramount

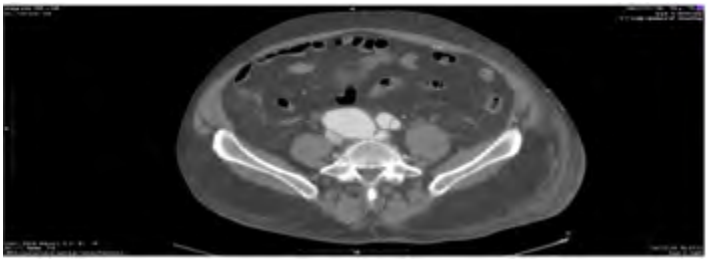
to assure procedure durability and to anticipate potential complications.

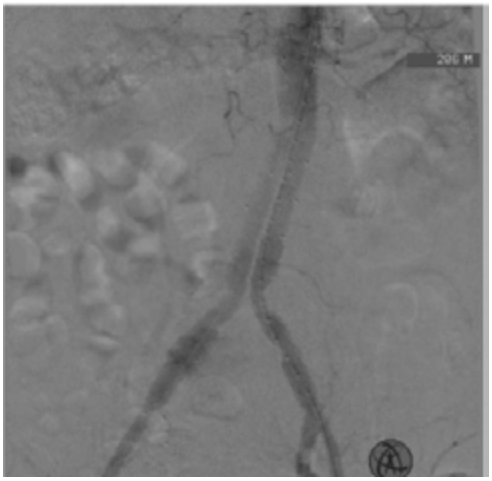
P31 An uncommon rupture of an aortoiliac aneurysm

Celso Nunes, Pedro Lima, Juliana Sousa, Ricardo Pereira, Eduardo Silva, Joana Silva, Vânia Constâncio, Leonor Baldaia, Miguel Silva

CHUC

Ilio-iliac arteriovenous fistula (AVF) is an uncommon complication that occurs in 1% of all common iliac artery aneurysms. A variety of symptoms appear depending on the size and location of the AVF, making the correct diagnosis quite difficult, around 37–52% of cases before surgery. We present a case of 73-year-old male admitted to our hospital with nocturnal paroxysmal dyspnea and left leg edema with three days of evolution. Periumbilical pulsatile mass was palpated, and distal pulses were present on both lower limbs. Past medical history revealed ischemic cardiopathy, type 2 diabetes, chronic renal disease, and hypertension. He had an implantable cardioverter-defibrillator and was anticoagulated with warfine. To rule out venous thromboembolism a venous ecodöppler was made which showed that the deep venous system was clear of thrombus and compressible, but a retrograde pulsatile flow was noted in the left common femoral vein. Thoracoabdominal computer tomography revealed bilateral small pleural effusions but no pulmonary embolism. It was also noted an aortic abdominal aneurysm and a right common iliac aneurysm with a maximum diameter of 56 and 44mm, respectively. The early appearance of contrast in the dilated left common indicated the presence of an ilio-iliac AVF. Blood test showed a hemoglobin of 12.9g/dL, creatinine 2.5 mg/dL and troponins and D-dimers not elevated. The patient underwent elective surgery and it was implanted a bifurcated endoprosthesis with previous embolization of the right internal iliac artery. After the procedure, the leg edema and dyspnea resolved in a few days and the patient was discharged on postoperative day 5. One year after, the control CT revealed an occlusion of the right branch but with no ischemic symptoms. No endoleaks were present. McAuley et al. in their review of case reports identified a triad consistently present and associated with AVF: high-output cardiac failure, pulsatile abdominal mass accompanied by a thrill and a bruit and lower limb ischemia or leg edema due to venous engorgement. These signs are not always present and usually point out other differential diagnoses such as pulmonary embolism or new onset of cardiac failure. Even so, in order to reduce morbidity and mortality is fundamental to establish the diagnosis in the preoperative phase which can be done by a combination of imaging modalities, such as contrast-enhanced CT and abdominal ultrasonography. In terms of treatment, either open repair and endovascular approach are documented. Compared with open repair, the endovascular approach has the advantage of being less invasive and minimizing the blood loss and air embolism risk. However, randomized controlled trials are required to better understand the endovascular outcomes, since this approach also carries the risk of type 2 endoleak due to venous bleeding into the aneurysm sac. We report a successful endovascular treatment of an AVF associated with a ruptured aortoiliac aneurysm. A careful physical examination should be done in order to raise clinical suspicion, since a definitive diagnosis is difficult, due to subjective signs and symptoms. The combination of different imaging modalities makes it possible to identify the fistula before the surgical planning, thus reducing the mortality.





P32 Aortic endarterectomy - a forgotten treatment?

António Pereira-Neves, Lara Dias, Diogo Domingues-Monteiro, Luís Duarte-Gamas, Alfredo Cerqueira, José Oliveira-Pinto, Armando Mansilha

CHUSJ

INTRODUCTION: Aortic endarterectomy is a rare procedure in modern vascular surgery. It was largely replaced by both bypass grafting and endovascular techniques, including due to it's technical difficulty. Nonetheless, it has proved efficacious in localized lesions limited to distal aorta or proximal common iliac arteries, with feasible and durable results. Patients that potentially benefit more from this intervention, besides the lesion characteristics above

detailed, are those younger patients or those with small vessels which are less than ideal for both endovascular therapy and aortobifemoral grafting. It also provides the inherent advantages of not needing a prosthetic graft.

Here we present a case of successful treatment with aortic endarterectomy.

CASE REPORT: A 62-year-old female patient was followed in the vascular outpatient clinic due to symptomatic peripheral artery disease (PAD). Further comorbidities included dyslipidaemia, hypertension, diabetes, smoking and severe obstructive sleep apnoea. Despite best medical treatment, besides smoking cessation, there was worsening of PAD symptoms with progression to limiting intermittent claudication (Rutherford grade 3). On clinical examination, femoral pulses were diminished, and no distal pulses were palpable, contrary to first outpatient records. Pre-operative ankle-brachial index was 0,69 (right lower limb) and 0,71 (left lower limb).

She underwent pre-operative computed tomography angiography (CTA) which revealed a focal, hypodense, sub-occlusive lesion in the infra-renal abdominal aorta (Figure 1).

An aortic endarterectomy was proposed, and after explanation of risks and potential complications, the patient accepted intervention. She was then submitted to thrombo-endarterectomy of infra-renal abdominal aorta with Dacron patch closure though a xipho-pubic anterior approach (Figure 2).

In the post-operative period there was a need for oxygen therapy, which eventually resolved. At 1-year outpatient visit, the patient maintains palpable distal pulses bilaterally. Additionally, she quit smoking.

CONCLUSION: Aortic endarterectomy remains a reliable solution for aortic atherosclerotic disease, with durable results in highly selected patients and lesions.

P33 Isquemia aguda como complicação tardia de fratura femoral proximal

Leandro Nóbrega, Joel Sousa, Diogo Monteiro, Filipa Jácome, José Almeida Lopes, Pedro Paz Dias, José Oliveira-Pinto, Armando Mansilha

CHUSJ

INTRODUÇÃO: As lesões traumáticas arteriais representam uma emergência vascular com uma incidência decrescente. Podem manifestar-se sob a forma de hemorragia ou isquemia do membro afetado, habitualmente num curto espaço de tempo após o trauma. A apresentação tardia representa um fenómeno raro. A O tratamento destas lesões é habitualmente cirúrgico e varia conforme o tipo e local de lesão, podendo envolver cirurgia aberta ou uma intervenção endovascular.

MÉTODOS: Os autores apresentam um caso de isquemia aguda do membro inferior como complicação tardia de uma fratura do fémur proximal.

RESULTADOS: Doente de 85 anos do sexo feminino autónoma e com antecedentes de uma fratura femoral trocantéria do membro inferior direito oito meses antes, recorreu ao serviço de urgência com um quadro de arrefecimento e parestesias do membro inferior direito com dois dias de evolução. Ao exame objetivo apresentava apenas pulso femoral direito palpável, sem défice motor evidente. Realizou eco-doppler arterial dos membros inferiores que revelou oclusão da artéria femoral superficial na sua região proximal. No angio-TC vislumbrou-se oclusão longa da artéria femoral superficial desde a sua origem mas com repermeabilização distal, apresentando também fragmento ósseo com efeito compressivo sobre a artéria femoral superficial na sua origem. Adicionalmente apresentava hematoma lobulado com cerca de 70 mm no compartimento dos adutores e doença oclusiva dos eixos distais do membro inferior direito. A doente foi submetida a remoção do fragmento ósseo, trombectomia femoro-distal e correção de pseudoaneurisma da artéria femoral superficial com enxerto de interposição com veia grande safena invertida ipsilateral. O pós-operatório foi complicado com infeção da ferida cirúrgica com necessidade de antibioterapia endovenosa durante cerca de 60 dias. A doente teve alta sem outras intercorrências e não apresentou complicações durante o follow-up de quatro meses.

CONCLUSÃO: O traumatismo arterial representa uma atividade decrescente na atividade diária dos departamentos de cirurgia vascular europeus, sendo a manifestação do quadro isquémico traumático tardio representa um fenómeno de ainda maior raridade. Contudo, a sua deteção e correção atempada são de vital importância. O caso apresentado representa um fenómeno raro de isquemia arterial tardia após trauma, salientando a importância de um estudo etiológico completo e intervenção atempada para resolução completa do quadro.

P34 Pulseless pink hand – um quadro isquémico desconfortável

Leandro Nóbrega, Alfredo Cerqueira, Filipa Jácome, Diogo Monteiro, Tiago Moura, José Oliveira-Pinto, Armando Mansilha

CHUSJ

INTRODUÇÃO: As fraturas supracondilares do úmero em idade pediátrica são das lesões traumáticas vasculares mais frequentes nesta faixa etária e podem estar associadas a lesão da artéria braquial em até 10% dos casos. A apresentação clínica pode ser assintomática ou manifestar-se sob sinais de isquemia grave, manifestando-se sob pulseless pink hand

(PPH). No caso do trauma fechado, alguns autores defendem uma atitude expectante enquanto outros defendem exploração cirúrgica de forma a evitar complicações a longo prazo.

MÉTODOS: Os autores apresentam um caso uma isquemia aguda do membro superior numa criança após trauma fechado por queda.

RESULTADOS: Criança com 11 anos recorreu ao serviço de urgência de ortopedia após queda de cerca de 1,5 metros de altura associada a deformidade angular do membro superior esquerdo, sem défices neurovasculares associados. Realizou radiografia que revelou uma fratura supracondilar do úmero, tendo realizado redução da fratura no serviço de urgência. Após ter realizado a cirurgia de fixação, foi avaliada por Cirurgia Vascular por apresentar ligeiro arrefecimento da mão associado a ausência dos pulsos distais do membro superior esquerdo. A doente apresentava pulso braquial palpável ao nível do terço médio do braço, não apresentando pulso radial ou cubital. À fluxometria doppler apresentava ausência de sinal a partir da artéria braquial próximo da prega do cotovelo, que foi confirmado com eco-doppler arterial dos membros superiores. O angio-TC revelou oclusão da artéria braquial imediatamente proximal à prega do cotovelo, com repermeabilização distal ao nível da bifurcação. Foi realizada exploração cirúrgica da artéria braquial ao nível da prega do cotovelo em que se constatou aprisionamento da adventícia da artéria braquial no traço de fratura associado a colapso da artéria a este nível. Foi realizada libertação arterial cirúrgica, com necessidade de nova redução e fixação por parte de Ortopedia. Após a libertação da artéria, constatou-se recuperação lenta e progressiva de pulso radial e cubital assim como ausência de lesão evidente da artéria braquial. A doente teve alta com pulso radial palpável e sem sinais de má perfusão da mão esquerda.

CONCLUSÃO: A presença de quadros de isquemia não diagnosticados ou não tratados atempadamente em doentes pediátricos podem ter graves consequências como contractura de Volkmann ou amputação, com impacto significativo na qualidade de vida. O caso descrito é um exemplo paradigmático como uma apresentação relativamente inocente pode estar associado a um quadro grave com necessidade de exploração cirúrgica urgente para evitar futuras complicações.

P35 Superior vena cava syndrome – a simple solution for a quick recovery

Leandro Nóbrega, José Oliveira-Pinto, Joel Sousa, José Almeida Lopes, Joana Ferreira, Paulo Barreto, Daniel Brandão, Armando Mansilha

CUF PORTO

INTRODUCTION: Superior vena cava syndrome (SVCS) encompasses a variety of symptoms that arise from obstruction of the superior vena cava and/or the brachiocephalic veins. This may occur through compression, tumor invasion or thrombosis and can be secondary to both benign and malignant etiologies. Nowadays, the most common causes are malignant tumors and placement of medical devices. Management may initially be done with conservative measures, but incapacitating symptoms usually require intervention. Endovascular intervention is the first line invasive therapy in this setting, allowing for a rapid symptom relief.

METHODS: We herein report a case of a patient with a superior vena cava syndrome treated by an endovascular procedure.

RESULTS: A 61 years-old female patient, with a past medical history positive for a left hemicolectomy six years ago due to an adenocarcinoma (stage pT3aN1aMx) with adjuvant chemotherapy through an implanted port (port-a-cath) placed in the right subclavian vein, presented with a right upper extremity deep vein thrombosis six months after surgery. She was placed on low molecular weight heparin (therapeutic dosage) during six months (throughout this period the implanted port was no longer needed and was removed). One year ago, she was observed due to a worsening feeling of fullness in the head, orthopnea, and headache, now with a very significant impact in her quality of life. Physical examination revealed prominent chest wall collateral veins in addition to a neck and face edema. A CT angiography was subsequently performed revealing a total occlusion of the superior vena cava and of both brachiocephalic veins. As the patient was very symptomatic, an endovascular procedure was purposed. Under general anesthesia, a 4F sheath was placed in the right internal jugular vein. After having crossed the occlusion, the 0,035" glidewire (stiff, straight tip) was then snared from a right common femoral vein access (10F sheath) to get a through-and-through guidewire. Subsequently, a sequential PTA of the occlusion was performed from the right common femoral vein access. Finally, a dedicated self-expandable stent (Medtronic® Abre™ 16*80 mm) was successfully deployed in the superior vena cava and the right brachiocephalic vein. The post-operative period was uneventful and the patient was discharged under tinzaparin 14000U per day during 30 days, followed by rivaroxaban 20 mg per day. During follow-up, the symptoms disappeared and the physical signs became much less evident. A CT angiography was completed three months after the procedure showing a wide opened stent with residual thrombus. Nine months after the procedure the patient remains asymptomatic and with no complications regarding the anticoagulation.

CONCLUSION: The presence of SVCS may lead to incapacitating symptoms and can even require urgent treatment. Endovascular treatment provides a safe

and effective solution for these patients with quick symptom relieve and a low rate of complications. Life-long anticoagulation and surveillance is paramount to minimize thrombotic complications.

P36 Which came first: ischemic colitis or abdominal aortic aneurysm repair?

Luís Diogo Fernandes[1], Diogo Silveira[2], Carolina Semião[2], João Paulo Peixoto[2], Marta Machado[2], Francisco Basílio[2], Alexandra Canedo[2]

CHUSJ

INTRODUCTION: Abdominal aortic aneurysms are usually asymptomatic, however, they can present with symptoms in different pathophysiological ways, such as rupture, compressive syndromes, thrombosis or lower limb embolization. Ischemic colitis related to AAA is well described and is almost always a consequence of the treatment because of occlusion of the inferior mesenteric artery (IMA) and/or iliac arteries, either after open surgery or endovascular repair, but almost never as a form of presentation of an AAA.

CASE PRESENTATION: 65-year-old male previously healthy patient with several episodes of diffuse abdominal pain and hematochezia. Colonoscopy revealed descendent and sigmoid colon extensive colitis with ulcerations. Patient initiated IV antibiotics (a 3rd generation cefalosporin and metronidazol) with clinical improvement and hospital discharge after a week. Histologic analysis of colon biopsies revealed a pattern of colitis of ischemic nature. Due to the relapse of symptoms an angio-CT was performed and a 65 x 85 mm diameter infra-renal, angulated neck, AAA was diagnosed: both the IMA (of large caliber) and internal iliac arteries patent and the AAA had significant anterior mural thrombus molding the ostium of the IMA. Other causes for ischemic colitis were excluded such as diabetes, chronic renal disease, vasconstrictors, constipation-inducing medications or hypoalbuminemia. Inflammatory colitis such as ulcerative colitis and Crohn disease were also excluded. After a second cycle of IV antibiotics and administration of low molecular weight heparin the patient was transferred to our Vascular Surgery Department and the AAA was repaired by open surgery with median laparotomy due to the fitness of the patient, the ability to directly observe the large intestine and to re-implant the IMA if necessary. An aorto-bi-iliac interposition graft was performed and the IMA was ligated due to the presence of a retrograde pulse. Postoperative course was uneventful and the patient was discharged after one week. On follow-up the patient remained asymptomatic without relapse of abdominal pain, diarrhoea or intestinal blood loss**.**

CONCLUSION: To our knowledge, this is the first report of ischemic colitis as a presentation of an AAA which we believe was caused by microembolization of the extensive anterior thrombus through the branches of a large IMA. The clinical and laboratory exclusion of other causes of ischemic colitis and inflammatory colitis, as well as the absence of recurrence of abdominal symptoms after AAA repair supports our theory. Although rare, we recommend that vascular surgeons and clinicians consider the diagnosis of a symptomatic AAA as a possible cause for ischemic colitis.

P37 Tratamento cirurgico urgente de pseudoaneurisma em bypass periférico com veia grande safena

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INTRODUÇÃO: O enxerto habitualmente preferido para um bypass periférico é o autólogo com veia grande safena (VGS). O aneurisma venoso deste enxerto é uma complicação rara (incidência estimada em 1%). Habitualmente estes aneurismas de enxertos venosos são do tipo fusiforme.

CASO CLÍNICO: Homem de 59 anos recorre ao Serviço de Urgência por apresentar tumefação pulsátil na face medial da coxa direita com 2 semanas de evolução e crescimento nos últimos 3 dias. Fora submetido previamente a enxerto de interposição tubular com prótese de dacron por aneurisma da aorta abdominal há 3 anos e bypass femoro-tibial posterior com VGS para exclusão de aneurisma poplíteo trombosado há 6 anos (trajeto subcutâneo). À admissão não apresentava outros sinais ou sintomas de relevo, nomeadamente dor ou sofrimento cutâneo.

Conjugando as imagens de eco-Doppler e angio-TC realizadas à admissão, pôde-se concluir tratar de uma dilatação aneurismática sacular/ falso aneurisma na vertente medial do bypass femoro-tibial, ao nível do terço distal da coxa, com cerca de 4*4,5cm, com trombo mural circunferencial. O bypass encontrava-se permeável. Pela rápida evolução com expansão do aneurisma e desenvolvimento de sofrimento cutâneo o doente foi proposto para correção cirúrgica urgente.

O doente foi submetido a aneurismectomia e interposição de enxerto com VGS contra-lateral. Não foram registadas intercorrências. O estudo microbiológico foi positivo para Staphylococcus capitis multissensível, pelo que se optou por manter antibioterapia oral. O estudo anatomo-patológico foi compatível com falso aneurisma. O doente teve alta ao 4º dia pós-operatório encontrando-se assintomático e com bypass permeável.

DISCUSSÃO E CONCLUSÃO: A formação de pseudoaneurimas em bypass por enxertos tende a manifestar-se habitualmente vários anos após a cirurgia. As principais manifestações clínicas do pseudoaneurisma são uma tumefação pulsátil

que pode levar a ulceração da pele, rotura, trombose ou embolização distal.

As principais causas descritas para a formação destes aneurismas são: degeneração por alterações ateroscleróticas, estenoses pós-dilatação ou infeções de baixo grau.

O tratamento destes aneurismas deve ser célere dado o seu risco de expansão. Podemos proceder à sua reparação através de cirurgia aberta (por interposição de enxerto autólogo ou protésico) ou por tratamentos menos invasivos (injeção de trombina, embolização com coils, compressão eco-guiada ou através de stents cobertos).

O sofrimento cutâneo severo e dor incontrolável, verificadas neste caso clínico, motivaram a cirurgia aberta urgente. Na presença de um pseudoaneurisma o bypass inicial pode ser preservado através de uma interposição autóloga ou prostética. Neste caso optou-se por uma reparação com VGS contralateral dada a maior taxa de permeabilidade, assim como pelo risco associado de infeção.

P38 Fistula arteriovenosa como diagnóstico diferencial de hiperpigmentação dos membros inferiores

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INTRODUÇÃO: As fístulas arteriovenosas (FAV) surgem de forma congénita, espontânea ou adquirida. As FAV congénitas e espontâneas são raras, constituindo as adquiridas de etiologia pós-traumática as mais frequentes. As FAV poderão desenvolver sinais de hipertensão venosa, insuficiência arterial e insuficiência cardíaca. Apresenta-se o caso de uma doente com sinais de doença venosa crónica (DVC) proposta para cirurgia cujo ecodoppler pré-operatório identificou uma FAV.

CASO CLÍNICO: Mulher 63 anos, com antecedentes de artrite reumatoide, HTA, dislipidémia, fratura maleolar esquerda viciosamente consolidada (2017- submetida a osteossíntese com placa) foi observada em consulta de Cirurgia Vascular por sintomas de edema, dor, calor, eritema e hiperpigmentação no membro inferior esquerdo (MIE). Ao exame objetivo com sinais de DVC CEAP 4b (fig. 1). No ecodoppler apresentava insuficiência de perfurante de Cockett e FAV com fluxos arteriais de perfurante com extensão à safena interna. Assim foi submetida a arteriografia do MIE onde se identificou duas comunicações com preenchimento venoso rápido (Fig. 2). Foi submetida a embolização com coils TORNADO® com bom resultado final (Fig. 3). Teve alta no primeiro dia após a intervenção sem intercorrências, medicada com venotrópicos e com meias de compressão grau III (30-40mmHg). Na consulta de reavaliação apresentava estabilização da evolução da hiperpigmentação e resolução do calor, dor e eritema e em ecodoppler fluxos contínuos na VGS com marcada redução do componente arterial.

DISCUSSÃO: As FAV de origem congénita podem não ser sintomáticas numa fase inicial da vida tornando-se apenas sintomáticas na vida adulta com o aumento do fluxo. As de origem espontânea são também raras e a sua etiologia permanece desconhecida, devendo por isso ser excluídas outras causas adquiridas como traumatismos, cirurgias ou aneurismas antes do seu diagnóstico definitivo. As FAV podem ser estadiadas pela classificação de Schobinger.

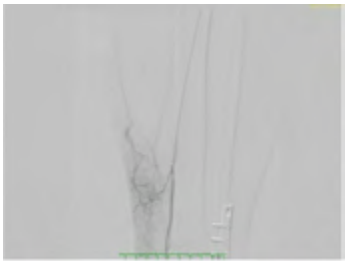
O *gold-standard* de diagnóstico é por angiografia contudo poderá também ser realizado por ecodoppler, angio-TC e angio-RM. O ecodoppler poderá revelar dilatação do lúmen e fluxos de alta velocidade com onda tipo arterial. Na angio-TC e angio-RM identifica-se contrastação venosa precoce na fase arterial.

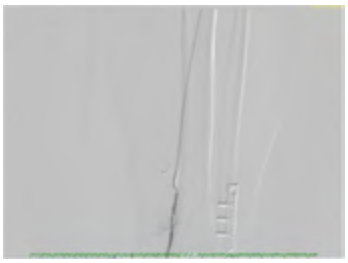
A abordagem conservadora é uma opção para as FAV com sintomas ligeiros e sem complicações. A intervenção cirúrgica (convencional/endovascular) é indicada se a FAV condicionar instabilidade hemodinâmica, se não regredir em duas semanas se etiologia for traumática e para as FAV congénitas com sequelas.

A intervenção poderá ser realizada por cirurgia convencional – ressecção/exclusão da FAV com ou sem reconstrução vascular - ou por via endovascular, através da embolização por coils, plugs ou cola de cianocrilato, ou por exclusão com stent coberto. Habitualmente o tratamento endovascular é o preferido, preterindo a cirúrgica convencional apenas para os casos de insucesso endovascular dado o maior risco de morbimortalidade.

No caso descrito a decisão de tratamento baseou-se na ausência de melhoria sintomática com uma terapêutica conservadora prévia com meias de compressão.

CONCLUSÃO: As FAV deverão ser consideradas no diagnóstico diferencial de várias patologias que produzam sintomas de hipertensão venosa, como a dor e hiperpigmentação. A intervenção nem sempre é necessária contudo quando indicada, a opção endovascular é preferencial sendo planeada de acordo com a localização e características da FAV.





P39 Úlcera de estase crónica: o que há de novo?

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Centro Hospitalar Tondela Viseu

INTRODUÇÃO: Desde cedo aprendemos o aforismo de que quaisquer lesões tróficas com solução de continuidade cutânea com >2 anos de evolução, sob tratamento médico otimizado, têm baixa potencialidade cicatricial. A procura de novos apósitos/ terapêuticas que invertam o curso desfavorável nestes casos é uma constante. Foi aprovado recentemente um novo produto – Debrichem© - de aplicação tópica, única, capaz de "transformar" uma úlcera crónica, estacionaria numa úlcera aguda com potencial de granulação e epitelização. Trata-se de um acido desbridante que induz a desidratação do leito ulceroso e destruição do biofilme, sem lesar o tecido são circundante. É assim criado um ambiente suscetível de cicatrizar sob efeito dos apósitos habitualmente utilizados na prática clínica diária.

MATERIAIS E MÉTODOS: Os autores apresentam o quadro clínico de um doente, sexo masculino, 71 anos, com antecedentes de TVP (trombose venosa profunda) ilíaca direita e TEP (tromboembolia pulmonar) em 2000 e 2001, respectivamente, com consequente implantação de filtro na veia cava inferior (em instituição estrangeira), que se torna permanente. Retorna a Portugal em 2013, registando-se novos episódios de TVP nos membros inferiores e surgimento de úlceras de estase, bilaterais, dolorosas, envolvendo a hipoderme, recidivantes sob contenção elástica e abertas desde 2019. Realiza pensos com variados apósitos e aplicação secundaria de ligaduras coesivas com redução do tamanho das úlceras até um ponto estacionário, mas sempre com necessidade de analgesia crónica.

RESULTADOS: O doente foi submetido à aplicação de Debrichem© em dez/2021, mantendo depois os cuidados de penso com ligaduras coesivas (dupla) sobre Prontosan © e hidrofibra, semanal, durante 1 mês, substituindo-se estes últimos por betametazona e carvão activado desde então. A úlcera do membro inferior esquerdo encerra em março/2022 e a úlcera da perna direita apresenta dimensões reduzidas, com tecido de granulação central e epitelização periférica. Deixou de tomar analgésicos < 1mês após a aplicação do produto.

CONCLUSÕES: A úlcera de perna é o maior consumidor de recursos de penso em ambulatório no nosso sistema de saúde, com elevados custos económicos e de qualidade de vida dos doentes. Mesmo com a otimização de cuidados através da aplicação de protocolos terapêuticos adequados, há um número elevado de doentes que evoluem desfavoravelmente para um estadio de úlcera crónica, dolorosa e incapacitante. Os resultados preliminares com a aplicação de Debrichem© são promissores e a manterem-se, este é um produto que se poderá afirmar como 2ª linha terapêutica em úlceras crónicas e resistentes aos tratamentos convencionais.

P40 Complications after fogarty catheter embolectomy – peroneal pseudoaneurysm and arteriovenous fistula

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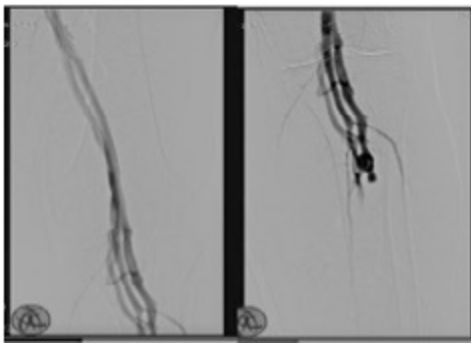
INTRODUCTION: Fogarty catheter embolectomy is a safe and effective treatment of acute limb ischemia. However, complications can ensue, including pseudoaneurysms and arteriovenous fistulas (AVF). Peroneal artery AVF and pseudoaneurysms are rare and the majority are due to trauma. Failure to diagnose this pathology may lead to massive hemorrhage or limb ischemia. We report the case of an elderly woman presenting with limb ischemia due to a peroneal high-flow AVF immediately after apparently uncomplicated embolectomy.

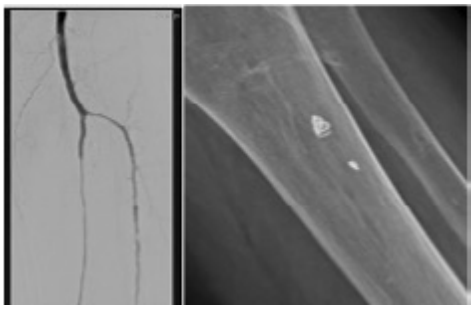
CASE REPORT: 88-year-old woman with atrial fibrillation presented to the hospital with acute onset left lower limb pain and paresthesias. She was under anticoagulation, however, she had suspended 1 week before. She presented with a cold, pale, pulseless left lower limb with sensory deficits. On the right side all pulses were palpable. Ultrasound revealed acute thrombus on the left femoral bifurcation. Acute embolic limb ischemia was diagnosed, and under general anesthesia, right femoral embolectomy with Fogarty catheters 3 and 4 without apparent complications was performed. In the immediate postoperative period, she developed excruciating leg pain, cyanosis, edema and neurologic deficits, including paralysis. Ultrasound revealed normal triphasic arterial popliteal waveforms, however with arterialized venous flow in the popliteal and femoral veins, suggesting an underlying AVF. Considering that, reintervention was deemed necessary. Angiography revealed a proximal peroneal pseudoaneurysm and high-flow peroneal AVF, with rapid filling of the popliteal and femoral veins, without tibioperoneal arterial opacification (figure 1). Embolization with 3 and 4mm Tornado® coils in the proximal and distal neck was unsuccessful (Figure 2). Then, a 3x26mm balloon-expandable covered coronary stent (Papyros SOS®) was implanted with the proximal end in the tibioperoneal trunk and the distal end in the proximal posterior tibial (PT) artery, covering peroneal ostium. Final angiography revealed peroneal pseudoaneurysm and AVF exclusion with brisk antegrade flow through the anterior tibial (AT) and PT arteries (Figure 3). Her postoperative period and follow-up was uneventfull.

DISCUSSION: Peroneal artery AVF and pseudoaneurysms are uncommon and rarely present together. They can

be a result of Fogarty catheter embolectomy. Treatment options include coil embolization, thrombin injection or covered stents. Sac embolization or proximal and distal neck embolization with coils has been successfully reported. While ischemia is a risk, it is unlikely when flow from non-diseased AT and PT arteries is present. When sacrificing the vessel is not an option, peroneal AVF may be treated with stentgrafts. There are at successful reports of coronary stentgrafts use in the peroneal artery to exclude AVF while maintaining vessel patency. In our case, unsuccessful coils neck embolization made antegrade peroneal catheterization not feasible, so we selectively stented the tibioperoneal trunk and proximal posterior tibial artery, thereby excluding the peroneal artery from antegrade circulation.

Most femoral embolectomies are still performed "blind". Many times, the catheter will tend to pass down the peroneal artery as this has the straightest course from the popliteal artery. Care must be taken not to overinflate the balloon in the peroneal artery, as this may disrupt the arterial wall and result in serious complications.





P41 Aortoenteric fistula recurrence as a very rare clinical entity – there would be a better strategy for primary treatment?

Marta Machado, Carolina Semiao, Joao Peixoto, Luís Fernandes, Francisco Basílio, Diogo Silveira, Paulo Barreto, Pedro Brandão, Alexandra Canedo

CHVNGE

INTRODUCTION: A secondary aortoenteric fistula (AEF) is an abnormal connection between the aorta and gastrointestinal tract inpatients with history of an aortic surgery, including open repair surgery or endovascular treatment. It has been suggested that AEF arises due to either continuous physical stimulation or prosthesis infection.

Although AEFs are rare (incidence rate varies between 1.6 to 4%) they are life-threatening and have a high mortality rate (between 24 to 45.8%).

METHODS: Here we present a case of secondary AEF recurrence with different treatment strategies.

RESULTS:

CLINICAL CASE: A 64-year-old man with a history of an endovascular aneurysm repair (EVAR) was hospitalized after performing a control CTA at 6 months with evidence of diffuse densification of fat around the abdominal aorta but without organized fluid collections capable of drainage (Figure 1 A). He had also been submitted two months after the EVAR to thrombectomy of the left branch of EVAR and stent placement due to thrombosis with acute limb ischemia. He had no other relevant medical history. Endoscopy confirmed an AEF (Figure 1B) and the patient was submitted to open surgery with partial aneurysmectomy, aneurysmal sac lavage with rifampicin and segmental duodenal resection with direct closure and interposition omentoplasty. The patient was discharged asymptomatic with levofloxacin and clindamycin. One month and one year control CTAs revealed no sign of infection or AEF and antibiotics were maintained for 12 months.

Two years and 5 months after the first diagnosis of AEF, the patient presented in the emergency department with fever and a history of recurrent urinary tract infections in the last year, practically monthly. He denied abdominal pain and visible blood loss. He underwent septic screening and an abdominopelvic CTA which showed an aorto-biliacal endoprosthesis permeable but with a diffuse densification of fat around the abdominal aorta and presence of periprosthetic gas and endoscopy revealed an aortoenteric fistula with exposure of aortic endograft (Figure 1 C, D).

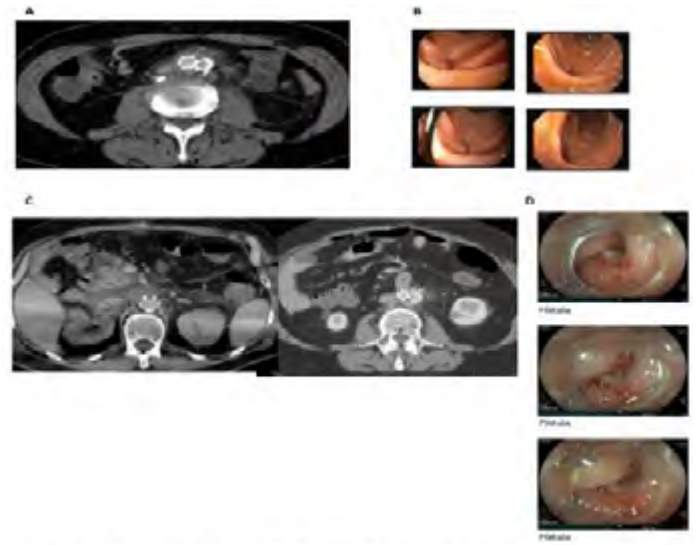
The patient underwent primary duodenal closure, partial endoprosthesis explantation (Figure 2) and in situ reconstruction with aorto-bi-iliac silver-impregnated Dacron interposition graft and interposition omentoplasty. The surgery duration was 7h, estimated blood loss of 2.5L and was transfused 4 units of red cells and 1g tranexamic acid.

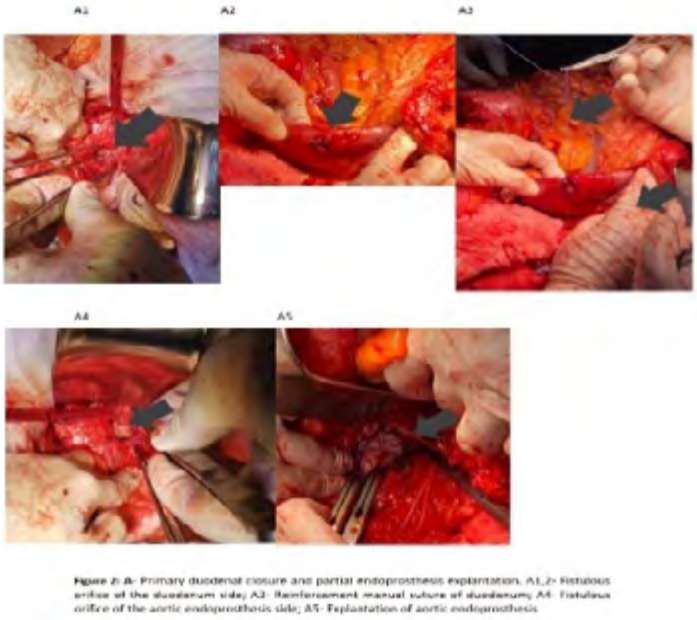
The length of stay was 42 days at intensive care unit, 21 days at vascular surgery ward and 51 days at musculoskeletal rehabilitation center, from where he was discharged home totally asymptomatic and autonomous for activities of daily living. One month CT control showed no complications.

CONCLUSIONS: As we saw in this case, although relapse of AEF is very rare, this possibility should not be excluded, and patients with clinical suspicion should be studied with CTA and endoscopy.

An initial strategy of non-explantation of the prosthesis, although less aggressive, may not be enough to solve the underlying problem, particularly in patients in whom a prolonged survival is expected after correction of the

fistula. Therefore, in young and fit patients endoprosthesis explantation may be considered as the primary treatment. Finally, it is necessary to follow up these patients throughout their lives due to the risk of relapse of infection and AEF.





P42 Visceral artery aneurysms and arcuate ligament syndrome- the same or different pathology?

Marta Machado, Carolina Semiao, Joao Peixoto, Luís Fernandes, Francisco Basílio, Ricardo Gouveia, Vítor Martins, Pedro Brandão, Alexandra Canedo

CHVNGE

INTRODUCTION: Visceral artery aneurysms (VAAs) are rare with reported incidence rates of 0.01% to 0.2%. Hepatic and splenic artery aneurysms are the most common, with pancreatoduodenal artery aneurysms (PDAAs) accounting for only 2%-3.5% of all visceral aneurysms.

Treatment of hepatic aneurysms is recommended if symptomatic, >2 cm in diameter or growth rate >0.5 cm/year. PDAAs´ treatment is currently recommended in all cases regardless of the size.

As VAAs may develop secondary to stenosis of celiac trunk (due to atherosclerotic disease or median arcuate ligament (MAL) syndrome), in patients with VAAs and celiac stenosis/occlusion, simultaneous celiac artery release or revascularization are themes of debate.

CLINICAL CASE 1: A 50 -year-old woman, only with a refractory arterial hypertension in study, was accidentally diagnosed in CTA with right renal artery stenosis with suspected of muscular fibrodysplasia, a stenosis of celiac axis associated with MAL syndrome and a PDAA with a diameter of 1.4 cm (Figure 1 A,B).

The patient first underwent balloon angioplasty of the right renal artery stenosis and in second time resection of the PDAA with reimplantation of pancreatoduodenal artery in superior mesenteric artery (Figure 1 C,D).

The patient is currently asymptomatic, with controlled blood pressure, and is going to do a control CTA at 1 year after surgery.

CLINICAL CASE 2: A 49-year-old woman was accidentally diagnosed with a visceral aneurism during ultrasound follow-up of a hepatic nodule. After questionary, the patient referred complains of an uncharacteristic epigastric pain. Angiography and CT-angiography revealed celiac artery occlusion probably secondary to MAL syndrome and confirmed an aneurysm of the common hepatic artery with 4 cm of diameter originated from the superior mesenteric artery (Figure 2 A, B).

The aneurysm was resected with reimplantation of common hepatic artery in superior mesenteric artery (Figure 2 C-F).

3 months after the operation, patient maintains epigastric pain and the follow-up CT revealed patent anastomosis but a global ectasia of the common hepatic artery with maximum diameter of 6 mm (Figure 2 G).

CONCLUSION: In the setting of celiac artery stenosis/occlusion some authors theorized that PDAA develop due to compensatory increased blood flow through the superior mesenteric artery and pancreaticoduodenal arteries. According to the literature, 50%-80% of PDAAs are associated with CA compression by MAL. In our second case, as there is a vascular congenital anomaly (common hepatic artery originating from SMA) the common hepatic artery aneurysm can behave as a PDAA.

Illuminaty et al in their multicenter study with 57 patients with PDAA and MAL syndrome showed that both open and endovascular treatment for PDAA yield excellent post-operative results but with few midterm recanalization's after PDAA embolization. In our serie, due to the patients age (and desire for definitive repair) and aneurysm anatomy, the

patients were selected for open repair.

Illuminati et al also treated all MAL syndromes simultaneously with celiac release (if only celiac stenosis) or revascularization (if celiac occlusion), with excellent results. In our serie, particularly in case 2, due to persistent epigastric pain complaints and development of diffuse comon hepatic artery ectasia on early follow-up CT scan, a reintervention may be considered.

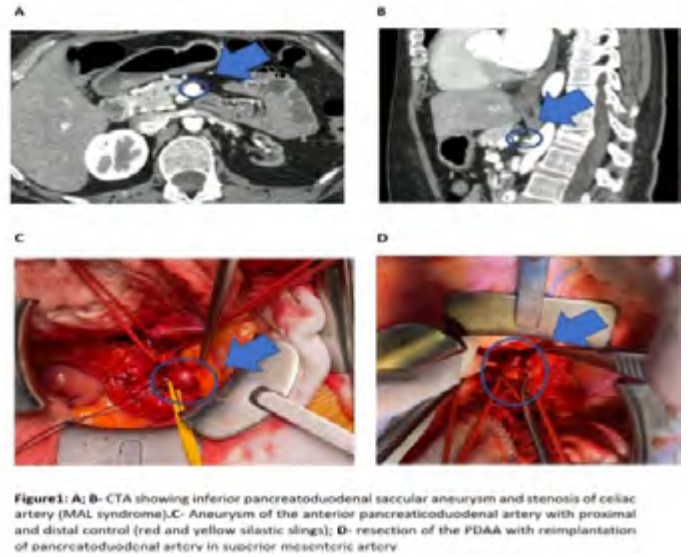
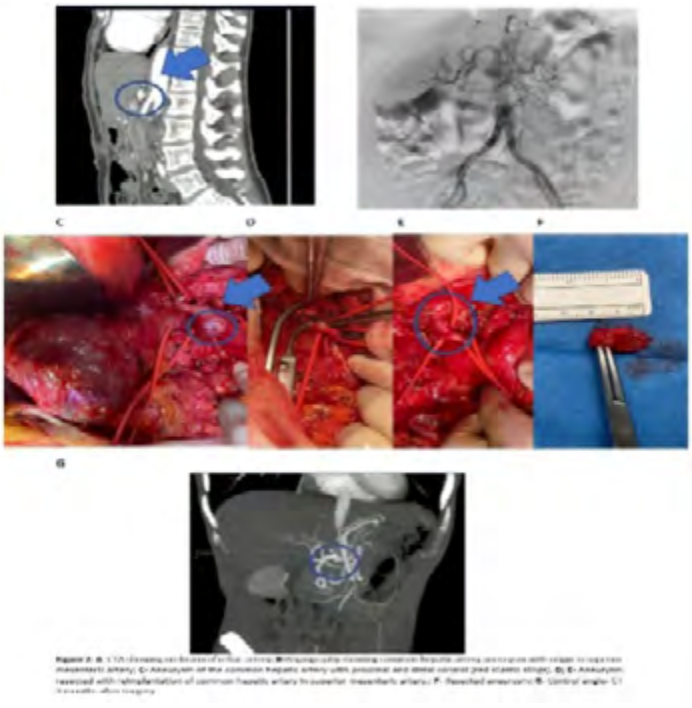


Figure1: A; B- CTA showing inferior pancreatoduodenal saccular aneurysm and stenosis of celiac artery (MAL syndrome).C- Aneurysm of the anterior pancreaticoduodenal artery with proximal and distal control (red and yellow silastic slings); D- resection of the PDAA with reimplantation of pancreatoduodenal artery in superior mesenteric artery



P43 Percutaneous direct sac puncture with onyx embolization: an alternative treatment of type ii endoleaks

Marta Machado, Carolina Semiao, João Peixoto, Luís Fernandes, Francisco Basílio, Pedro Brandão, Alexandra Canedo

CHVNGE

INTRODUCTION: Type II endoleaks (T2Es) are the most common endoleaks, occurring in 9%–30% endovascular abdominal aortic aneurysm (AAA) repair (EVAR).

They occur from retrograde collateral blood flow into the aneurysm sac, typically from a lumbar artery or the inferior mesenteric artery. T2Es often have a benign course with spontaneous resolution or without sac enlargement.

To treat T2Es associated with sac enlargement many strategies have been used to prevent conversion to open repair, including laparoscopic clipping or embolization using plugs, coils or more recently liquid embolic agents.

CLINICAL CASE: A 84 years old man, undergone an EVAR 4 years ago in Brazil. He came to our medical consultation to maintain follow-up of EVAR, and in the angio-CT there was a suspicion of an endoleak tipe Ib with sac enlargement.

The patient was submitted to an angiography which revealed a type II endoleak through the lumbar artery and inferior mesenteric artery (Figure 1).

He underwent embolization of the aneurysmal sac with 4 mL onyx by percutaneous translumbar puncture of the aneurysmal sac, without retrograde filling of the nutritive arteries. (Figure 2)

Immediate control angio-CT revealed a thrombosed infrarenal AAA without endoleaks (Figure 3).

DISCUSSION: The principle of T2E embolization treatment is to obliterate the shunt/communication between inflow and outflow vessels. This can be achieved by embolizing the arteries (ie, lumbar, IMA) and/or the connection (nidus) between them.

Compared to trans arterial embolization, direct sac puncture is associated with shorter fluoroscopy and procedure durations, conferring multiple potential advantages, including decreased sedation time and improved patient comfort.

The trans lumbar approach may be useful for accessing posterolateral endoleaks, but it can be difficult to access endoleaks anterior to the stent graft and to cannulate lumbar artery origins, which face away from the catheter. Furthermore, prone positioning can be poorly tolerated in elderly patients.

Finally, ethylene vinyl alcohol copolymer (Onyx) has emerged as a novel liquid embolization agent that provides a minimally invasive option to treat both inflow and outflow of T2ELs and/or nidus in a single setting. Outcomes of Onyx treatment of T2ELs after EVAR are not well characterized. A retrospective cohort of 68 embolization procedures reported a 91% success rate after Onyx embolization, compared to 23%

after embolization with non-Onyx agents. This is likely related to using liquid embolic, which occlude the communicating channels within the sac. Unlike glue, Onyx does not break off and embolize distally. However, Onyx's cost can be a problem, and its density causes artifact-limiting assessment on follow-up CT.

CONCLUSION: Percutaneous direct sac puncture and embolization with onyx should be thought as an alternative way for accessing T2Es, depending on endoleak and patient´s characteristics.

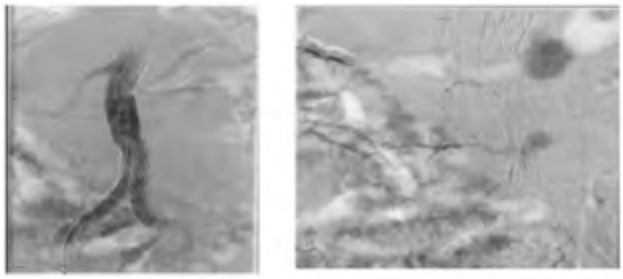


Figure 1: Angiography revealing endoleak type II

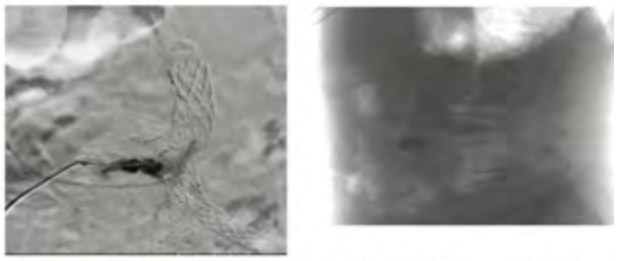
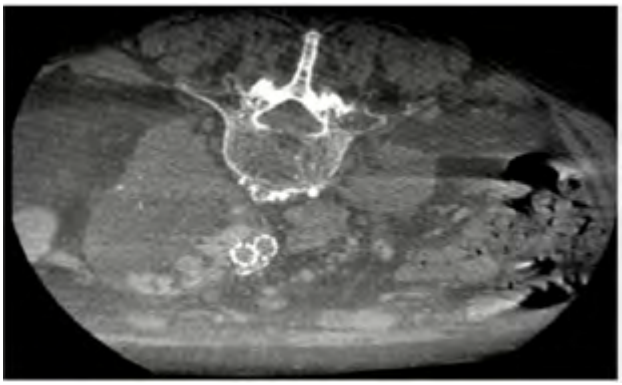


Figure 2: Visualization of endoleak by direct puncture of niddus and after embolization with onyx



P44 Brachio-radial bypass in a failing radiocephalic fistula due to absent braquial artery – an uncommon solution for access salvage

Lara Dias[1], Pedro Henrique Almeida[1], Jorge Costa-Lima[1], José Oliveira-Pinto[2], Armando Mansilha[2]

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INTRODUCTION: Vascular access is of utmost importance in hemodialysis patients with end-stage renal disease. Autologous access, using an arteriovenous fistula (AVF), is considered the optimal access in these patients, due to improved patency and lower complication rate when compared with other forms of access.1, 2
However, AVF failure is high, with recent meta-analysis reporting failure between 23% and 36%, mainly due to thrombosis and maturation failure.3, 4 Various surgical and endovascular techniques have been developed to improve patency of AVF.
We report the case of a failing radiocephalic AVF due to deficient arterial inflow, treated with brachio-radial bypass.

CASE REPORT The patient is an 84-year-old male with stage 5 chronic renal disease, type 2 diabetes and hypertension. His AV access history included a brachiocephalic fistula in upper right arm, in 2016, which thrombosed, and a functioning radiocephalic fistula in the left arm, in 2019.

The patient was evaluated in outpatient clinic due to failure in maturing of the AVF. A stenosis in the cephalic vein was diagnosed, and the patient underwent balloon angioplasty with good angiographic result.

In follow-up visit, the AVF maintained low flow, calculated in 200ml/min in the radial artery, while brachial artery flow was 500mL/min. Pulse was palpable in both brachial and radial artery, although weaker in the later. In doppler ultrasound, brachial artery was not visualized, and flow acceleration was noted. The patient was then proposed to surgical revision of the AVF.

Intra-operative findings included absent brachial artery in cubital fossa, with extensive

collateralization. A tortuous artery was noted, arising from brachial artery in the middle portion of the biceps, after which the brachial artery reduced in size, until no longer visualized. This tortuous artery joined the radial artery in the proximal forearm.

Great saphenous vein was collected from distal lower left limb and a brachio-radial bypass was constructed. In the end of intervention, radial pulse improved, as well as AVF thrill. At one-month follow-up, flow in the radial artery has improved to 450mL/min, with a cephalic vein of 5mm, and brachio-radial bypass is functioning.

DISCUSSION: Follow-up after AVF surgery is essential in the detection of maturation failure and orientation for early treatment, improving primary patency of these AVFs. While most culprit lesions are venous stenosis, deficient arterial inflow, such as in this case, may be a cause of AVF failure. Arterial variations of upper limb are uncommon, but may occur in up to one in five patients.5 When questioned, the patient referred a history of trauma in the left arm in childhood, for which no medical help was sought, which may explain the absence of brachial artery and the extensive collateralization seen. However, it may also be congenital in nature. Due to the crescent number of vascular accesses being performed,

pre-operative and post-operative imaging, specially with non-invasive imaging such as doppler ultrasound, is essential in identifying vascular variants that may condition the success of the AVF.

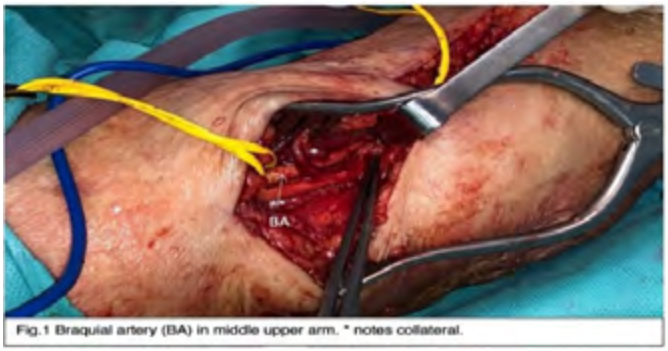

Fig.1 Braquial artery (BA) in middle upper arm. * notes collateral.


g.2 Brachio-radial bypass.

P45 Concomitant mesenteric arterial embolism and bilateral lower limb ischemia – case report

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INTRODUCTION: Acute mesenteric ischemia is a rare condition with high morbidity and mortality. After laparotomy, mortality can be as high as 44%. Early diagnosis and intervention is essential to restore mesenteric blood flow and prevent bowel necrosis.

Systemic embolic events, while less frequent than cerebral embolism, are well recognized in patients with atrial fibrillation, and are associated with considerable mortality. Concomitant embolic events are infrequently reported and worsen the prognosis. We report a case of concomitant mesenteric arterial embolism and bilateral lower limb ischemia in a patient with atrial fibrillation

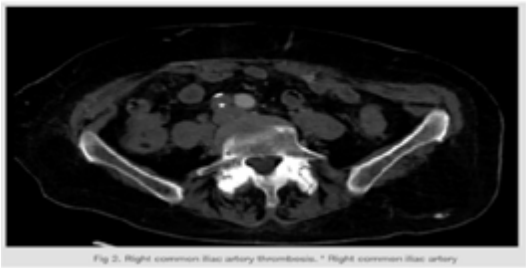
CASE REPORT: The patient is an 86-year-old woman with past medical history relevant for atrial fibrillation and heart failure. She was anticoagulated with apixaban; however she had stopped taking any chronic medication for several months.
She presented to the emergency department with non-specific complaints of anorexia, sporadic abdominal pain, weight loss and nausea with months of evolution. She also reported melena and hematochezia in the previous two weeks. When questioned, she referred lower limb pain. Examination was only relevant for lower abdominal discomfort. Laboratory investigations were relevant for leukocytosis and elevated creatine kinase.

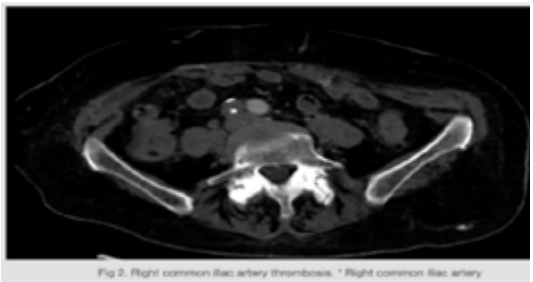
Abdominal CT-scan revealed splenic infarcts, aortic thrombus, right common iliac artery occlusion and superior mesenteric artery (SMA) thrombosis, and no clear signs of intestinal transmural necrosis (Fig.1-3).

The patient was then submitted to emergent bilateral femoral embolectomy and superior mesenteric artery embolectomy by laparotomy. No bowel necrosis was observed.

Post-operative course was complicated by suspicion of bowel necrosis needing an emergent laparotomy, resulting in colecistectomy for an ischemic gallbladder. Due to progressive worsening clinical condition, the patient died 21 days after the initial procedure.

DISCUSSION: Multiple, concomitant embolic events in atrial fibrillation patients are rare, but should be considered in patients with non-specific complaints, especially if not under anticoagulation. Timely diagnosis is of utmost importance not only for prompt intervention but also for initiation or reestablishment of anticoagulation. However, morbidity and mortality remains high.





P46 Popliteal artery injury due to traumatic knee dislocation after total knee arthroplasty

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INTRODUCTION: Popliteal artery injury is a potential complication after traumatic knee dislocation. Recent studies report amputation rates due to traumatic popliteal artery injury ranging from 13 to 20%. Blunt injury has also been associated with increased risk of amputation and poor functional outcomes. We report a case of popliteal artery injury due to knee dislocation in a patient with previous knee arthroplasty.

CASE REPORT: The patient is an 86-year-old woman with past medical history relevant for hypothyroidism and bilateral total knee arthroplasty twelve years prior. She had presented six years prior with left knee arthroplasty dislocation which resulted in popliteal artery injury, and a popliteal bypass was made using a great saphenous vein conduct. One year prior she had a traumatic right knee dislocation due to a fall, which was reduced with no complications.

The patient presented to a local hospital after a fall, and a diagnosis of posterior knee dislocation was made (Fig.1). Closed reduction was performed successfully. However, due to ischemic signs in the right foot, the patient was transferred to our hospital for evaluation by vascular surgery.

At arrival at our emergency department there were no palpable pulses in the right foot, with associated motor and sensory deficit. Doppler signals were absent in the right foot, while pedal pulse was palpable on the left foot. Due to worsening hemodynamic instability, the patient was transferred to the emergency operating room.

A popliteal-popliteal bypass, by medial approach, was performed using a PTFE graft, as well as right leg fasciotomies. Perfusion of right foot improved by the end of intervention.

The patient was transferred to an intensive care unit. Post-operative course was complicated with hemodynamic instability, with need for aminergic support, as well as rhabdomyolysis and acute renal failure. Intensive care unit stay was prolonged due to ventilator associated pneumonia, difficult ventilator weaning, as well as ischemic colitis. The right lower limb remained well perfused, with palpable pedal pulse. After 30 days, the patient was transferred to orthopedics department for treatment of right knee instability.

DISCUSSION: Knee dislocation after total knee arthroplasty is a rare complication but can pose serious complications such as vascular and nervous injury. The POPSAVEIT score has been proposed as a method to stratify patients with popliteal artery injury with high risk of amputation, and include systolic blood pressure <90mmHg, associated orthopedic injury and lack of preoperative pedal doppler signals (Table 1). In our case, the patient scored 3 points, which indicated a high risk of amputation.

In conclusion, popliteal artery traumatic injury, while rare, has considerable morbidity and risk of amputation. Careful vascular examination is essential in detecting complications and their timely repair.

Fig.1 Initial plain radiograph, demonstrating posterior dislocation of right knee

POPSAVEIT score	
Points	Risk factors
1	Systolic blood pressure <90mmHg
2	Associated orthopedic injury
2	Lack of preoperative pedal doppler signals
1	Lack of palpable preoperative pedal pulses, if doppler unavailable

Table.1 POPSAVEIT score

P47 Cerab (covered endovascular repair of aortic bifurcation) – a case full of difficulties with a hand-full of solutions

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INTRODUCTION: Limb threatening ischemia is one of the most common presentations of vascular patients in our daily practice, and requires knowledge, mastery of multiple techniques and a whole lot of imagination. Aorto-iliac occlusive disease, and aortic thrombosis, are classically considered as first approachable with open surgery, but with the advent of endovascular surgery and the aging and growing comorbidities of patients, newer techniques have been developed. CERAB has been described as a more anatomical endovascular reconstruction in patients with TASC II C and D lesions. We present a case of a patient with

an aortic thrombosis and poor surgical risk, submitted to a hybrid revascularization surgery.

CLINICAL CASE DESCRIPTION: A 62 year old male presented initially, in 2020, in our outpatient clinic with history of limiting claudication with recent progression to rest pain in both legs. Angio-CT showed an infra-renal aortic thrombosis, with patent infra-inguinal arterial axis. Pre-operative study also uncovered COPD, a pulmonary mass and ischemic heart disease with right coronary artery occlusion. In this setting, an axilo-bifemoral bypass was constructed, with satisfactory revascularization. One year later, the patient presents with grade III (Leriche-Fontaine) bilateral ischemia, occlusion of the bypass and inflammatory signs over the right inguinal. Imaging reevaluation also showed juxta-renal progression of thrombus. In October 2021, he was proposed for CERAB with renal chimneys and removal of the previous bypass, but the procedure was complicated by impossibility of recanalization of the right common iliac artery and it's iatrogenic rupture. The onsite solution consisted of extending stents only to the left iliac axis, renal chimneys (all B-Graft® stents), resection of the former bypass and reconstruction of a femoro-femoral bypass, with intra and post-operatory stability, good revascularization outcome and recovery of distal pulse. One month later, he was re-admitted for acute kidney insufficiency (AKI), with occlusion of the right renal chimney and complete kidney ischemia, with laboratory AKIN 3 (sCr 0.9>2,87mg/dL) AKI, but total normalization of kidney function was observed in few days, and with no clinical signs of lower limb ischemia or de novo occlusions, which he maintained at four months post-revascularization.

CONCLUSION: Endovascular surgery in lower extremity chronic arterial disease is a world in expansion and it's applications are rapidly evolving. It allows for imaginative solutions and lower surgical risk procedures, for high risk patients, with growing evidence of good short and medium-term outcomes.

P48 Dissecção da aorta durante tratamento com inibidores da tirosina quinase: uma possível complicação que não pode ser esquecida.

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CHLC

INTRODUÇÃO: A inibição da angiogênese através da via do fator de crescimento endotelial vascular (VEGF) é um dos possíveis alvos dos inibidores da tirosina cinase (TKI's), um grupo de fármacos revolucionário e fundamental no tratamento de várias neoplasias. Doentes tratados com antiangiogênicos desenvolvem frequentemente hipertensão arterial, e fadiga, diarreia, edema periférico ou dislipidemia são outros efeitos adversos comuns. No entanto, a associação entre este grupo de fármacos e disseção da aorta tem sido reportada nos últimos anos, inclusive em doentes sem fatores de risco predisponentes antes ou durante o tratamento.

CASO CLÍNICO: É apresentado um caso clínico de um homem de 67 anos com o diagnóstico de Carcinoma Papilar da Tiroide, previamente submetido a tiroidectomia total, esvaziamento ganglionar e terapêutica com iodo radioativo. Por progressão da doença a nível ósseo e pulmonar, foi iniciado Lenvatinib com boa resposta. Como efeitos adversos, o doente referiu queixas de mal-estar, desenvolveu trombocitopenia e hipertensão arterial, sendo tratado com Enalapril com um bom controlo tensional. Porém, o tratamento foi interrompido ao fim de 5 meses após achado de dissecção da aorta tipo B de Stanford em TC de controlo. Após avaliação do doente, e dado se tratar de uma disseção assintomática e não complicada de degeneração aneurismática ou mal perfusão de órgão, ficou com indicação para controlo rigoroso da tensão arterial e reavaliação imagiológica seriada.

DISCUSSÃO: Os casos publicados sugerem uma relação causal entre o efeito inibitório da angiogênese dos TKI's e a disseção da aorta relatada durante o tratamento com este grupo de fármacos. No entanto, os mecanismos patológicos e moleculares subjacentes permanecem indefinidos, não sendo claro se a tensão arterial elevada tem papel na sua patogénese, já que são relatados casos de dissecção em doentes sem hipertensão prévia ou durante o tratamento com os TKI's.

CONCLUSÃO: Com o crescente uso destas terapias, é fundamental a supervisão e controlo rigoroso dos seus efeitos adversos, inclusive estar consciente desta possível complicação e dos sinais de alarme associados.

P49 Going all the way around: type ii endoleak with sac enlargement

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CHVNG/E

INTRODUCTION: Approximately 20% who underwent EVAR develop type II endoleak (T2EL). Typical T2EL arises from a lumbar artery or the inferior mesenteric artery (IMA). Despite consensus on the management of type I and type III EL, there is still a lot of controversy regarding T2EL, mainly due benign course most of this have. One of the most consensual factors to treat a T2EL is aneurysm growth beyond 10 mm in the

absence of a type I or III EL. There are many approaches to this, including transarterial, translumbar, transcaval and surgical approaches. Transarterial coil embolization is performed by accessing the middle colic artery via the SMA, providing retrograde access to the proximal IMA through the arc of Riolan or marginal mesenteric artery. Also, access between the aneurysm sac and the endoprosthesis might be possible allowing direct sac access. Alternatively, direct antegrade access to the IMA can be achieved from within the aneurysm sac by several methods: translumbar puncture of the AAA sac (frequently using CT or fluoroscopic guidance), which is the most popular route for antegrade access to branch vessels, but also, transcaval access to the AAA sac has been described. Surgical approaches such as laparoscopic ligation of the IMA have also been used but require proximal control of the vessel and advanced laparoscopic skills.

CASE PRESENTATION: We present two patients treated to a T2EL from the IMA. The first, an 85-year-old male, primarily treated for a 55mm asymptomatic AAA 5 years before. On the final aortography a T2EL from the IMA was already present. During follow up he had a slow but steady sac enlargement, with led to reintervention. The second, an 85-year-old female, primarily treated to a 100mm symptomatic AAA 2 years before. Technical success was achieved on the primary procedure, but, later, a type Ia endoleak dictated several reinterventions. Later, despite no type I or type III endoleaks were present, sac enlargement due to a T2EL also from the IMA dictated another reintervention. We utilised left brachial access in one patient and common femoral access in the other. Catheterization of the superior mesenteric artery (SMA) was achieved conventionally, and after sheath a catheter placement, microcatheter and microguidewire were advanced through the Riolan arch into the IMA. One patient has its IMA embolized with a combination of liquid agent (Onyx) and detachable coils. On the other patient pushable coils were used. On both cases technical success was achieved with resolution of the T2EL. Post procedure course was uneventful. CT-scan was ordered 1 month post procedure and T2EL resolution was sustained.

CONCLUSION: T2EL after EVAR are common but often of no clinical significance. However, in the presence of aneurysm growth, secondary interventions are indicated. Although complex, transarterial embolization of an IMA responsible for a T2EL via the Riolan arch is safe, feasible and effective.

P50 Tratamento endovascular nas complicações vasculares da Doença de Beçhet

Tiago Magalhães, Dr. Ruy Fernandes e Fernandes, Dr. Ryan Gouveia e Melo, Dr. Pedro Garrido, Dra. Marta Rodrigues, Dra. Mariana Moutinho, Dr. Luís Silvestre, Prof. Doutor Luís Mendes Pedro

Centro Hospitalar Lisboa Norte

INTRODUÇÃO: A doença de Beçhet (DB) é uma vasculite com atingimento multissistémico, caracterizada pela presença de ulceras orais e genitais, envolvimento ocular e cutâneo.

As manifestações vascular estão presentes entre 7 – 38% dos casos, senda estas as que estão associadas a maior taxas de mortalidade da doença. Podem ser manifestar como doença oclusiva, aneurismática ou como complicações de procedimentos vascular como falsos aneurismas.

APRESENTAÇÃO DE CASOS: Apresentamos 2 casos clínicos, uma mulher de 27 anos e um homem de 38 anos, com manifestações vasculares graves e o seu resultado cirúrgico.

A primeira doente do sexo feminino foi diagnosticada um aneurisma sacular da aorta visceral com 6cm. Tendo em conta as manifestações extravasculares (úlceras genitais, orais, uveíte e atrtite) foi diagnosticada com síndrome de Behçet, e, por este motivo, após controlo sistémico da doença com imunossupressão, foi submetida reparação endovascular do seu aneurisma com uma endoprótese fenestrada "custom-made" com uma fenestração para o tronco celíaco e um scallop para a artéria mesentérica superior. O aneurisma ficou excluído com sucesso, no entanto desenvolveu passado 3 semanas um falso aneurisma do acesso femoral cirúrgico direito. Por este motivo foi submetida a reparação com patch de veia safena interna. Atulamente encontra-se no terceiro ano de follow-up, sem complicações e com colapso quase total do aneurisma.

O segundo doente foi encaminhado após interposição femoral realizado noutro hospital por aneurisma há 6 meses, apresentando-se com falso aneurisma anastomótico proximal. Foi submetido a reparação endovascular com stent coberto auto-expansível. Apresentava concomitantemente um aneurisma da artéria hipogástrica que foi tratado em diferido (após controlo sistémico da doença) com embolização com coils e cobertura com stent coberto. Passado 2 semanas apresentou rotura da anastomose distal da interposição com necessidade de nova intervenção endovascular com exclusão com stent coberto expansível por balão. Atualmente o doente tem 4 anos de follow-up, sem complicações major, com necessidade apenas de relining to stent distal por compressão externa.

CONCLUSÃO: Na abordagem das manifestações vasculares da DB é preciso ter em conta diversos fatores, tais como a localização, a região anatómica, a atividade sistémica da doença ou a experiencia individual. No entanto, uma aborgagem endovascular, segundo a nossa experiência e o que vem descrito na literatura, parece demonstrar vantagem sobre a cirurgia aberta, diminuindo o trauma vascular e anastomótico e com isso diminuir as complicações e aumentar as taxas de sucesso terapêutico.

P51 Arterial phase contrast-enhanced lesion in the mesentery: a diagnostic challenge of an incidental finding

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Centro Hospitalar Universitário do Porto

INTRODUCTION: Lesions with contrast uptake in the arterial phase, with a density like the abdominal aorta, are highly suggestive of having a vascular nature. If there is dependence on an arterial branch, it is most likely to be a mesenteric arterial aneurysm, although these lesions are quite rare. Solid hyper-vascularized lesions present contrast uptake in the arterial phase, but usually to a lesser extent than in the arteries. Hence, differential diagnosis is generally not difficult.

CASE REPORT: A 74-year-old autonomous man was diagnosed with an adenocarcinoma of the prostate during the investigation of lower urinary tract symptoms. Subsequently, he performed a staging abdominopelvic computed tomography (CT) that revealed a 2cm epigastric arterial phase contrast-enhanced lesion in continuous communication with a segmental branch of the superior mesenteric artery inferring the diagnosis of a mesenteric arterial aneurysm. The patient did not have abdominal symptoms. The CT findings showed a bright and rapid contrast-enhancement lesion and, in the sequence without contrast, the density was similar to the vessels.

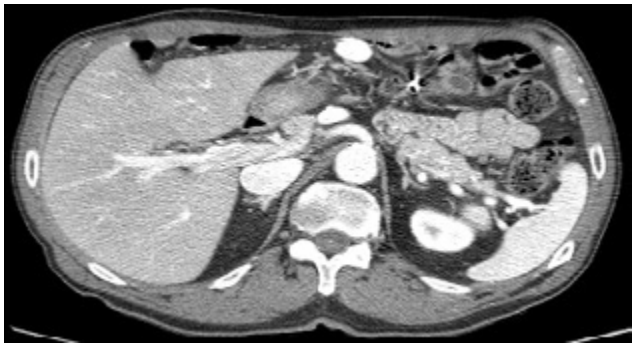
Thus, an ultrasound was suggested to clarify the lesion better. The fact that it was a vascular lesion prevented a biopsy. Two different operators performed the ultrasound; however, it was impossible to visualize the lesion due to the interposition of abdominal gas. Considering that the lesion needed further clarification, the case was discussed with vascular surgery. The patient was proposed to undergo an invasive angiography and eventual resection surgery.

Angiography was performed via the right common femoral artery with selective catheterization of the superior mesenteric artery. Contrast filling was observed in a spherical structure depending on a segmental branch of the superior mesenteric artery. Considering the dimensions of the lesion, treatment would be indicated in the case of a mesenteric pseudoaneurysm. We decided not to embolize the lesion due to the risk of segmental intestinal ischemia,

Thus, we performed a surgical approach by mini-laparotomy, with careful inspection of the peritoneal cavity, and we observed a nodular, encapsulated, hypervascular lesion in the root of the mesentery. Due to the clinical suspicion that it was a paraganglioma, blood and urine were collected intraoperatively before tumor resection to measure metanephrines. The lesion was resected with adequate margins and sent for anatomopathological study.

Histopathological analysis showed a 2cm, well-circumscribed, hyper-vascularized, encapsulated neoplasia displaying a nested pattern. The neoplasia showed epithelioid cells with round, centrally placed nuclei surrounded by an eosinophilic granular cytoplasm. Immunohistochemistry showed the expression of chromogranin A. The morphological and immunohistochemistry features allowed the diagnosis of a paraganglioma. A PET-Scan revealed no evidence of somatostatin-avid tumor lesions at other locations.

CONCLUSION: Paragangliomas are usually located in the adrenal medulla, and only up to 10% have an extra-adrenal location usually found in the abdomen. In these cases, they are typically located adjacent to the aorta due to their dependence on sympathetic or parasympathetic paraganglia. A mesenteric paraganglioma is very rare, with only a few cases reported in the literature. Due to their hypervascular nature, differential diagnosis with vascular lesions could be challenging.



P52 Deep vein thrombosis associated with ivc agenesis: catheter-directed fibrinolysis as a treatment option

Luís Diogo Fernandes, Diogo Silveira, Carolina Semião, João Henrique Andrade de Almeida, Sérgio Teixeira, Daniel Mendes, Carlos Veterano, Henrique Rocha, João Castro, Andreia Pinelo, Miguel Queirós, Rui de Almeida

Centro Hospitalar Universitário do Porto

INTRODUCTION: Inferior vena cava agenesis is a rare malformation. Its diagnosis often occurs during the study of an idiopathic deep vein thrombosis of the lower limbs in typically young individuals. The aim of this case paper is to present a case of deep vein thrombosis in a young patient with agenesis of the inferior vena cava and its management.

CASE REPORT: We describe the case of a 16-year-old female patient, with no relevant pathological history, chronic medication included only oral contraceptive, who went to the emergency department for pain and edema of the right lower limb with a day of evolution. She denied chest pain, dyspnea, trauma, or recent travels. After venous doppler ultrassound of the lower limbs, an iliofemoral deep vein thrombosis was diagnosed. Subsequently a CT angiography was performed confirming the deep venous thrombosis and revealing an agenesis of the infrahepatic inferior vena cava. The patient underwent catheter-directed fibrinolysis with good therapeutic results and was discharged home on hypocoagulation. The subsequent study in the outpatient setting revealed a factor V Leiden mutation in heterozygosity. The patient remains completely asymptomatic on extended therapy with NOAC, with no new episodes of venous thrombosis in the last 2 years or signs of post-thrombotic syndrome.

CONCLUSION: Most cases of inferior vena cava agenesis are asymptomatic and therefore remain undiagnosed. The management of venous thromboembolism associated with this malformation is complex and the best therapeutic strategy is not clear. In the presented case, catheter-directed fibrinolysis was abled to restore the permeability of the previously developed collateral circulation network possibly preventing post-thrombotic syndrome in a patient with inferior vena cava agenesis. Long-term anticoagulation and compression stockings are the only well-defined treatment options, but in selected cases catheter-directed fibrinolysis can also be considered.

P53 Extensive liver ischemia following open aortic repair: a case report

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INTRODUCTION: Chronic intestinal ischemia is a rare manifestation of atherosclerotic disease, especially in its asymptomatic forms. Mesenteric revascularization in these patients is controversial. Recent guidelines recommend mesenteric revascularization only for symptom relief in severe forms. Revascularization in asymptomatic patients is still a matter for clinical debate.

CASE REPORT: We report the case of 61-year-old patient electively admitted to the Vascular Surgery ward for Leriche syndrome. He has a previous history of pulmonary thromboembolism in 2020, arterial hypertension, chronic obstructive pulmonary disease and osteoarthritis. At physical examination, the patient presents erythroses in both feet. Abdominal palpation was painless, with no masses palpated. There was no palpable femoral pulse on both sides. An angio CT scan was performed, which confirmed extensive atherosclerotic disease in the visceral arteries, namely the celiac artery, as well as infrarenal aortic thrombosis with patent common femoral arteries bilaterally. The patient was subjected to an aortobifemoral bypass under general anesthesia, with 30 minutes of suprarenal clamping. Over the first 24 hours in the intensive care unit, he developed distributive shock due to reperfusion and perioperative hypotension. At day 2, there was a significant rise in abdominal distension and a rise in parameters of hepatic cytolysis. An urgent CT scan was performed, showing signs of liver ischemia in segments II and IV as well as occlusive disease at the origin of the celiac trunk. A diagnosis of abdominal compartment syndrome was presumed, and the patient was subjected to decompressive laparotomy and surgical exploration. Both the superior mesenteric and the hepatic arteries were patent, with no evidence of bowel or liver ischemia. The patient was left with a laparostomy. 24 hours after the surgical revision, there was a significant rise in cytolysis parameters, with ALT levels over 1500 U/L. A second look surgical exploration was performed, with evidence of liver and gallbladder ischemia. The patient was subjected to a jump graft to the common hepatic artery, liver segmentectomy and cholecystectomy.The following days in the ICU were uneventful, and the patient was transferred to the vascular surgery unit.

CONCLUSION: This clinical case highlights the importance of evaluating pre-existing mesenteric arterial disease in patients undergoing open aortic repair. Perioperative disturbances such as hypovolemia or anemia may significantly alter splanchnic circulation and potentiate mesenteric ischemia. Open or endovascular mesenteric revascularization must be weighed and discussed in this subset of patients, since there are no strict recommendations on this subject.

P54 Type Ia endoleak: screwing the problem

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INTRODUCTION: Endoleaks are the most common complication of EVAR. Of these, type Ia Endoleak is further associated with a high risk of aneurysmal expansion and consequent secondary rupture.

Traditionally, aortic cuff and / or Giant Palmaz Stent are the treatment options for type Ia Endoleak.

FDA-approved, since 2011, the Heli-FX EndoAnchor system (Aptus Endosystems) has emerged as an alternative for the treatment of Endoleak type IA, whose mechanism consists of "anchoring" or "screwing" the prosthesis to the aortic wall in order to obtain better apposition /sealing.

OBJECTIVES: To describe a clinical case of use of Endoacnchors in a type Ia Endoleak.

METHODS: Based in clinic report.

RESULTS-CASE REPORT: Male patient, 71 years old, sent to Vascular Surgery consultation for finding AAA 55 mmx63 mm routine abdominal ultrasound.

The AAA presented a 20 mm and conical (25-28mm) aortic neck, with moderate proximal neck calcification with mild thrombus.

The patient underwent a aorto-bi-iliac EVAR (Endurant II 32x16x166 left acess + 16x16x156 right acess).

The procedure was complicated by extremely calcified femoral accesses (planned surgical exposure) and an extremely calcified external iliac artery (difficult progression of EVAR main body).

Control angiography revealed a type II Endoleak (IMA) and no evidence of type I Endoleak.

A control CT- Angiography (3 days after procedure) revealed a evident Type IA Endoleak, mainly in the posterior left sealing zone.

The patient underwent a new surgery, and the type IA Endoleak was solved by the deployement of 10 Endoanchors (placed preferably at the posterior left aortic neck level).

The control angiography revealed no type Ia endoleak, that was confirmed by a 5 days control CT- Angiography.

CONCLUSION: Use of EndoAnchors to treat existing anda cute type Ia Endoleaks and endograft migration was successful in several clinical studies, has shown a higher rate of aneurysm sac regression and suggests its use in the treatment of patients with challenging proximal aneurysm anatomy proposed to EVAR.

P55 Upper limb edema in a patient with a arteriovenous access: _x000b_a rare cause of venous hypertension

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INTRODUCTION: Venous hypertension is a common complication of arteriovenous fistula. The main goal in its management is to relieve edema with preservation of the access. We report a case of a rare cause of venous hypertension related to arteriovenous fistula: a patient with a cervical tumour invading jugular and subclavian veins.

CASE REPORT: We describe an 86-year-old male patient with arm and forearm edema with over two months of evolution, without any other complains. The patient had a radiocephalic arteriovenous fistula in the left arm for haemodialysis with a high blood flow (2600 mL/min). A phlebography was performed which suggested a partial occlusive thrombus on the confluence of left subclavian and the internal jugular veins. The patient was hipocoagulated with LMWH and underwent a flow reduction surgery by post anastomotic vein plicature (final flow 900 mL/min). After two weeks the symptoms did not improve. Further studies included doppler ultrasonography that revealed mobile mass conditioning luminal loss of the left internal jugular and subclavian veins and no proximal or distal signs of vein thrombosis. CT angiography was then performed and revelled a contrast-enhanced pharyngeal mass with invasion the left internal jugular vein. An oncology appointment was scheduled for follow-up. For symptomatic control of upper limb edema arteriousvenous fistula was ligated.

CONCLUSION: Venous hypertension symptoms in an arteriovenous fistula are distressing and lead to increased morbidity with disfunction of hemodialysis access. Diagnosis and management can be challenging as presented in this case. We describe a rare case of jugular vein tumoral invasion manifested by upper limb edema secondary to venous hypertension in a limb with arteriovenous access.

P56 Oclusão crónica de EVAR e via de colaterais de Winslow - combinação improvável

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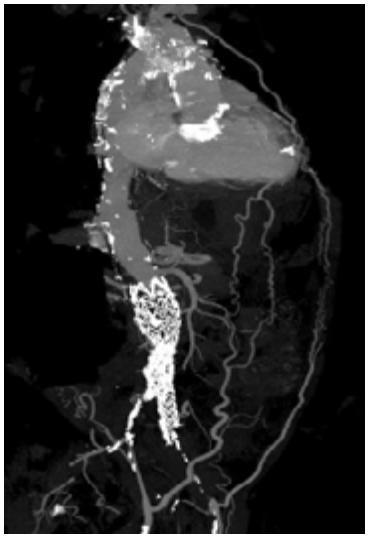
INTRODUÇÃO: A doença arterial periférica é uma patologia frequente nos idosos e pode afetar múltiplos territórios arteriais. Tratando-se de uma doença crónica, o desenvolvimento de colateralização é comum. No caso da doença oclusiva aortoilíaca, a colateralização entre artérias viscerais- sistémicas e, de forma mais importante, a colateralização por vias de colaterais sistémico-sistémicas é observada e identificada em exames de imagem. A oclusão da aorta abdominal também pode ser o resultado da trombose aguda de aneurisma da aorta, porém manifesta-

se frequentemente com isquémia aguda bilateral dos membros inferiores, com taxa de mortalidade de até 59%. Existem, mais raramente, casos descritos de oclusão crónica de aneurismas da aorta, esses manifestando-se mais frequentemente com sintomas de isquémia crónica dos membros. Reportamos um caso de oclusão assintomática de cirurgia endovascular aórtica por doença aneurismática, com ênfase nas vias de colateralização predominantes.

CASO CLÍNICO: Doente de 71 anos, do sexo masculino, com história de tabagismo, insuficiência cardíaca, DPOC, hipertensão arterial e dislipidémia. Foi submetido cerca de 5 anos antes a EVAR aorto-uni-ilíaco esquerdo por ruptura de aneurisma micótico (Brucella Mellitensis) da aorta abdominal infrarrenal (oclusão crónica da artéria ilíaca comum direita). Não apresentou complicações pós-operatórias e posteriormente acabou por perder o seguimento. Cinco anos após a cirurgia, realizou angiografia por tomografia computorizada por motivo não relacionado, que revelou trombose do EVAR, com repermeabilização de ambas as ilíacas externas distais por colaterais. Como se encontrava assintomático, não foi considerada necessária qualquer intervenção. Entretanto acabou por falecer por causa não relacionada.

DISCUSSÃO: Na doença oclusiva aortoilíaca verificam-se duas principais vias de colateralização. As vias de colaterais sistémico-sistémicas, originadas de segmentos embriológicos da aorta dorsal e que incluem as artérias intercostais, lombares, torácica interna, circunflexa ilíaca profunda, epigástrica inferior e obturadora. As artérias viscerais (tronco celíaco, artéria mesentérica superior, mesentérica inferior e renais) também podem formar vias de colaterais com as artérias sistémicas – vias de colaterais viscerais-sistémicas. Existe uma importante via de colateralização sistémico-sistémica que envolve as intercostais/lombares com a ilíaca circunflexa, que se consegue observar no flanco direito do doente (Figura 1). Existe também uma via de colaterais mais infrequente, via de colaterais de Winslow, que dirige o fluxo sanguíneo dos membros superiores para a pélvis e membros inferiores através da artéria torácica interna, epigástricas superiores e inferiores terminando na artéria ilíaca externa. No caso reportado a repermeabilização bilateral das artérias ilíacas externas dá-se predominantemente através desta via incomum (Figuras 2 e 3). Os cirurgiões devem ter em atenção este tipo de vias de colateralização tendo em conta que podem ser lesadas em intervenções da parede abdominal, aquando da colheita de artéria torácica interna como conduto para revascularização coronária ou aquando da utilização de acessos intravasculares de grande calibre no membro superior, sendo que poderão surgir complicações isquémicas desastrosas



P57 Elbow blockade of forearm av fistula: two different outflow improvement procedures

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INTRODUCTION: Autologous arteriovenous fistulas (AVF) are the vascular access of choice for hemodialysis. Whenever possible, forearm AVFs should be the first option. Venous scarring at the elbow junction is a common problem that causes forearm fistulas' early and late dysfunctions and precludes proximal cephalic AVFs constructions. Any effort to prolong the long-term patency of these vascular accesses will be highly beneficial for the patients' survival, maximizing the use of restricted venous capital. We present two patients with AVF in the forearm with impaired venous outflow at

the elbow, resolved using different approaches (surgery vs endovascular).

CASE SERIES:

CASE 1: A 70-year-old man initiated hemodialysis about a year ago. The patient had end-stage chronic kidney disease (ESRD) secondary to diffuse membranous glomerulonephritis. Initially, a left radio-cephalic AVF was constructed with no maturation. Subsequently, an ulnar-basilic AVF was created at the distal forearm. Good AVF maturation with arterialization of the forearm basilic vein was observed.

After approximately eight months, a decrease in dialysis efficacy was observed. Vascular access ultrasound showed multiple stenoses along the forearm basilic vein. Percutaneous transluminal angioplasty (PTA) was made with good results. Angiography showed a lack of direct drainage to the basilic arm vein. Fistula venous outflow was limited to the antecubital perforating vein and the median basilic vein through a tortuous "S-shaped" communicant vein. After half a year, significant outflow stenosis was observed, conditioning vascular access dysfunction. The median-basilic vein was rotated and anastomosed to the forearm basilic vein ensuring adequate outflow, and in the same procedure, a PTA of inflow stenosis was made. Vascular access is patent at 18 months of follow-up.

CASE 2: An 84-year-old autonomous male with ESRD caused by diabetic nephropathy started hemodialysis approximately six years ago from a left brachio-cephalic AVF. Toward the end of this access's life, a right radio-cephalic AVF was created, needing balloon-assisted maturation. At angiography, it was observed that the only drainage vein from the fistula at the elbow was the antecubital perforator with occlusion of the cephalic vein and the median-basilic vein. After the intervention, the AVF was used uneventfully; however, AVF dysfunction was observed nine months later. An angiography showed significant stenosis of the antecubital perforating vein, treated with PTA. Early recurrence of this stenosis was observed, and treatment with a better long-term outcome was decided. The stenosis was dilated with a 7mm high-pressure balloon, and two 8mm COVERA® stentgrafs were implanted in the perforating vein at the elbow. Stentsgrafts were overlapped to increase kinking resistance at the elbow junction. Vascular access patency was observed at one year of follow-up.

CONCLUSION: Any strategy that extends the useful life of forearm access will markedly benefit patients on hemodialysis and certainly prolong their survival. Vascular surgeons, having the mastery of surgical and endovascular techniques in their toolbox, are privileged to offer the best possible solution for each patient. Our approaches proved to be an excellent strategy for a complex problem associated with vascular access chronic dysfunction or thrombosis. A detailed preoperative vascular ultrasound is essential to select the best treatment for individual patients.

P58 Endoleak type 2: a plague following EVAR

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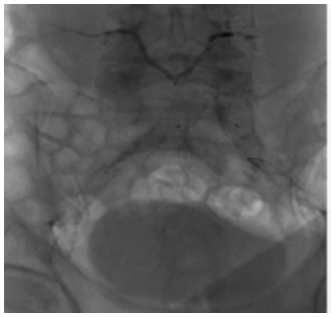
INTRODUCTION: Type II endoleaks (EL) have a frequent occurrence after EVAR. Even though, these often have a benign nature, sometimes they keep pressurizing the aneurysm sac, leading to an increase in sac diameter potential risk of rupture. The present case report aims to present a case of a type II EL with persistent sac increase after EVAR, despite several types of interventions.

METHODS: Patient clinical registries and imagological studies were retrospectively consulted within electronic clinical registries.

CASE REPORT: A 71 years-old male, with an infrarrenal aortic aneurysm with 55mm of diameter was submitted to EVAR. Patient was kept under surveillance and CT scan 4 months after surgery showed a type II EL, caused by two lumbar arteries. A progressive enlargement of aortic sac was detected, that reached an increasing more than 10mm in 12 months (between the 3rdand 4th year of follow-up). Coil sac embolization was attempted, passing a guidewire between the aortic wall and the prothesis but without technical success. In a second time, a retroperitoneal approach and a direct sac embolization with FLOW SEAL® was performed but type II EL persisted in the post-op CT. Given its persistency, a transperitoneal approach, with aortic arteriotomy and lumbar arteries ligation was done with no bleeding identified intra-operatively. Postoperative CT scan showed consistently sac enlargement with the persistent type 2 EL. Aneurysm sac reached 130mm, so we decided to embolized lumbar arteries within internal iliac artery access with coils and onyx, with good imagological result (Figure 1). Patient maintained on regular follow-up, regarding aneurysm sac enlargement.

CONCLUSION: Type II EL after EVAR still constitute an important source of secondary interventions. Controversy regarding their behavior and treatment is still present among vascular community. Further investigation and imagiological refinements are needed to determine the most effective management for optimal durable results.



P59 Double “banana technique” to treat iliac aneurysms after aortic open surgery

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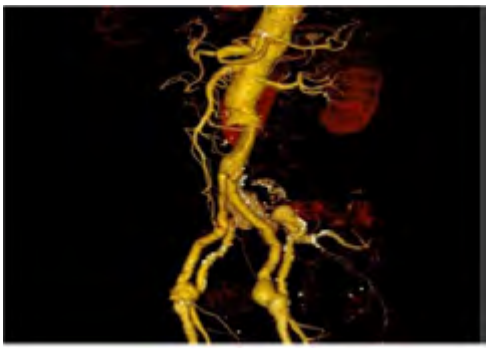

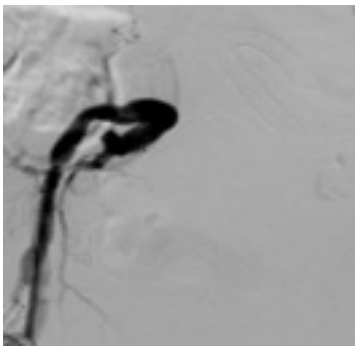

INTRODUCTION: Anastomotic aneurysms complicate 1-4% of arterial anastomosis, most commonly affecting the femoral artery. The incidence of aortic aneurysms is probably underestimated because of inadequate surveillance, prolonged time to recognition, and their initially quiescent behavior.

METHODS: Report a case of a patient affected by multiple aneurysms, successfully treated with hybrid repair.

CLINICAL CASE: A 66 years old man, with history of diabetes, dyslipidemia and arterial hypertension, was on the 13th year of follow-up of under an aortobifemoral bypass (ABFB) graft for abdominal aortic aneurysm (AAA). On physical examination, a pulsatile mass was evident in both femoral arteries palpation. Computed tomography angiogram revealed an aortic anastomotic pseudoaneurysm, pseudoaneurysms of both femoral anastomosis and also an aneurysms of both common iliac arteries (CIA) (Figure 1). The potential risk of rupture demanded surgical correction of all the aneurysms. However, the previous open surgery, the presence of multiple aneurysms along with the patient’s young age, hypogastric preservation was mandatory and a two phase hybrid intervention was adopted. In the first surgery, an aortic cuff was also deployed for aortic anastomotic aneurysm exclusion and the left femoral pseudoaneurysm was repaired with an interposition graft between the ABFB left branch and the left common femoral artery. During this phase, in order to exclude the left CIA aneurysm and to maintain the pelvic circulation, an external to internal iliac artery (IIA) endograft (Vihaban) was positioned using “*Banana stent technique*”. The covered stents were introduced through native external iliac artery and then the hypogastric was cathetherized and a bridging covered covered stent. Three weeks later, the patient was again submitted to a similar procedure on the right side: the right CIA was treated by exclusion using self-expanding heparin bonded stent grafts (Vihaban) in a “banana” retrograde fashion and a femoral interposition graft. At 6-month follow-up, computed tomography scan confirmed the patency of both endografts and the interposition grafts, without complications.

CONCLUSION: Surveillance is of major importance in all vascular procedures. Internal to external “*Banana stent technique*” for the treatment of CIA aneurysm after AAA open repair can be considered as an alternative option to surgery, avoiding specific surgical complications and preserving the pelvic circulation.