SUPPLEMENT

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VASCULAR SURGERY

BASAL GANGLIA'S INFLUENCE ON AWAKE TESTING IN CAROTID ENDARTERECTOMY

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Keywords: *Carotid stenosis; Brain ischemia; Regional anesthesia;*

INTRODUCTION

White matter changes (WMC) have been associated with the underlying presence of chronic cerebral ischemia, such as in carotid stenosis and age-related white matter changes (ARWMC). A hyperintensity signal on T2-weighted magnetic resonance imaging or low attenuation on computed tomography (CT) characterizes these alterations. Patients undergoing carotid endarterectomy (CEA) with severe WMC may be at increased risk of transient cerebral ischemia (IND) during carotid clamping. This study aims to determine the potential role of ARWMC as a predictor of IND during CEA with regional anesthesia (RA).

METHODS

Patients undergoing CEA under RA at a tertiary referral center, who presented with IND during CEA were prospectively and consecutively recruited between January 2011 and December 2023. The control group comprised the immediately consecutive patient who underwent the same procedure without IND. From this sample, patients with preoperative CT were selected and compared based on ARWMC score (> 1 and 2). Differences in demographics and comorbidities were assessed between the groups. A multivariable logistic regression was performed.

RESULTS

One hundred and twenty-one patients were enrolled. Patients with IND had a significantly higher ARWMC score in basal ganglia (ARWMC-BG>2) and posterior circulation disease was more frequent (27.8%). No significant differences were observed in anatomical variations of the circle of Willis.

For patients with ARWMC-BG>2, a significant burden of other comorbidities was associated, such as chronic kidney disease, coronary disease, and atrial fibrillation. After multivariable logistic regression analysis, ARWMC-BG score> 2 was an independent risk factor for IND (aOR 3.472).

METHODS

An ARWMC-BG score above 2 predicts positive intraoperative "awake tests" in CEA with RA, constituting a reliable tool to stratify patients according to their risk of adverse events. However, larger prospective cohorts are needed to validate these findings and offer a better selection and management of this subset of patients.

COMPARISON OF END-TO-SIDE AND SIDE-TO-SIDE ANASTOMOSIS TECHNIQUES IN ARTERIOVENOUS FISTULA FOR HEMODIALYSIS. A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Keywords: *Arteriovenous Shunt; Vascular Patency; Hemodialysis;*

INTRODUCTION

Autogenous arteriovenous fistula (AVF) is the vascular access of choice for chronic kidney disease to patients requiring hemodialysis. However, there still needs to be more consensus on whether the best surgical approach is an end-of-vein to side-of-artery (ETS) or a side-of-vein to side-of-artery (STS) anastomosis. This study aims to compare venous maturation rates, mid-term patency and post-operative steal syndrome rates between ETS and STS techniques for arteriovenous fistulas.

Three databases were searched during November 2022: PubMed, Scopus, and ISI Web of Knowledge. Two independent reviewers examined both titles and abstracts. In all studies, eligibility was assessed, and data regarding the study's characteristics, methods, and considered outcomes was obtained. The odds ratio (OR) assessed maturation rates, 6 and 12-month patency, and steal syndrome. Meta-analysis was done using a fixed-effect model if I2 values were under 30%, and a random-effects model from 30 to 60%.

Thirteen studies were included, with a total of 1960 patients studied. Patients undergoing ETS anastomosis had higher maturation rates (OR 3.30 95% CI 1.81, 6.00, I2=20%). No difference was found in patency at 6 months (OR 1.05 95% CI 0.69, 1.59, I2=54%) and 12 months (OR 0.75 95% CI 0.46, 1.23, I2=7%). Regarding steal syndrome, STS anastomosis presented a greater risk of developing this post-operative complication (OR 0.24 95% CI 0.11, 0.50, I2=0%).

The present review suggests that ETS anastomosis is associated with higher maturation rates and a lower risk of arterial steal syndrome. Randomized clinical trials are required to confirm our findings.

ENDOVASCULAR TREATMENT OF AORTIC PSEUDOANEURYSMS LATE AFTER COARCTATION REPAIR: CASE-REPORT AND SYSTEMATIC LITERATURE REVIEW

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Keywords: *aortic coarctation; pseudoaneurysm; endovascular repair;*

INTRODUCTION

Late anastomotic pseudoaneurysms are not an uncommon complication after aortic coarctation repair, with considerable mortality rates if left unrepaired. However, redo open surgery is associated with significant morbidity, including recurrent laryngeal nerve damage, paraplegia or bleeding.

AIMS

We aim to present a case of an aortic pseudoaneurysm four decades after coarctation surgery that was successfully managed with TEVAR and left carotid-subclavian bypass. We also aimed to perform a systematic review on the effectiveness and safety of endovascular approaches in the treatment of this long- term complication.

METHODS

The authors performed a retrospective collection of medical information from electronic records. A systematic review was also conducted according to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement. Primary endpoint was the 30-day mortality and morbidity. Secondary outcomes included the occurrence of endoleaks and the reintervention rate.

RESULTS & CONCLUSIONS

A total of 15 articles with 105 patients were included. Average pseudoaneurysm size ranged from 38.5 to 71.3 mm. Median age at initial open surgery ranged from 1 to 20 years and the most frequently performed procedure was patch aortoplasty (57.3%), followed by interposition graft (16.7%) and end-to-end anastomosis (13.5%). Median age at endovascular repair varied from 31.5 to 53 years.

The proportion of symptomatic patients varied from 15.4% to 75%. The most frequently reported symptoms were hemoptysis (32.1%) and thoracic pain (28.6%). In 15 patients, the endovascular intervention was considered urgent/emergent. The remaining cases were treated electively (or the setting was not reported). The most frequently used endografts were the Medtronic ValiantTM (28.6%) and TalentTM (15.2%), followed by Gore® TAG® (13.3%) and C-TAG® (11.4%). A single endoprosthesis was sufficient in the majority of patients (80%). Adjunctive procedures mainly included carotid-subclavian bypass and subclavian-carotid transposition.

Thirty-day mortality and stroke rate were 1.9%. No cases of paraplegia were reported. Fifteen endoleaks were detected (14.3%), mostly type II, nine of them requiring reintervention (60%). Overall reintervention rate was 18.1%. Other causes of reintervention besides endoleaks were: access site-related complications (n=3, 15.8%), upper extremity ischemia (n=6, 31.6%) and partial occlusion of the LCCA ostium (n=1, 5.3%).

Endovascular repair seems to be a feasible alternative in patients with coarctation-related pseudoaneurysms. Nevertheless, main concerns persist regarding the aortic arch morfology and the proximity to the supra-aortic branches, eventually needing adjunctive procedures. Long-term follow-up and multicentric prospective studies are essential to assert the true value of endovascular techniques in these patients.

INFLAMMATORY MARKERS AS PREDICTIVE TOOLS FOR CAROTID ENDARTERECTOMY POSTOPERATIVE OUTCOMES: AN EVALUATION USING PCAT IN ENDARTERECTOMY PATIENTS

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Keywords: *Carotid endarterectomy postoperative outcomes; Inflammatory markers; Pericarotid adipose tissue;*

INTRODUCTION

Carotid endarterectomy (CEA) is a prophylactic surgical procedure for stroke, consisting of the removal of atherosclerotic buildup from the carotid artery. Systemic inflammation plays a significant role in plaque stability and postoperative outcomes. Therefore, inflammatory markers such as red cell distribution width (RDW) and neutrophil-to-lymphocyte ratio (NLR) have emerged as predictors of cardiovascular events. Furthermore, pericarotid adipose tissue (PCAT) characterization and fat distribution analyses through imaging scans may reflect vascular health, especially in inflammation.

CASE REPORT

This study aimed to evaluate the association between inflammatory markers (RDW and NLR) and PCAT findings with postoperative outcomes in patients undergoing CEA.

METHODS

An analysis was conducted on a group of 20 patients, with a mean age of 70 years, that underwent CEA. In addition to measuring preoperative RDW and NLR, imaging scans were analyzed to evaluate the features of the pericarotid tissue and Hounsfield units (HU), a proxy for PCAT content. Postoperative outcomes, such as stroke, restenosis, and mortality, were monitored over 12 months. The correlation between inflammatory markers, PCAT findings, and clinical outcomes was then evaluated using linear regression.

RESULTS

Higher RDW and NLR were significantly associated with adverse outcomes, such as increased stroke risk ($p < 0.05$), restenosis ($p < 0.05$), and 12-month mortality ($p < 0.05$). PCAT showed that pericarotid tissues with lower Hounsfield units ($-190 > HU < -30$), associated with higher rates of fat tissue, were linked to higher stroke and restenosis rates. Additionally, the fat distribution observed in PCAT correlated with RDW and NLR, indicating its role as a marker of systemic inflammation and tissue vulnerability.

CONCLUSION

RDW and NLR are independent predictors of postoperative outcomes in CEA patients, while PCAT distribution provides valuable complementary information as a marker of inflammation. Combining systemic inflammatory markers with PCAT imaging results enhances risk stratification and may lead to improved management of patients with carotid artery disease.

INTRAVASCULAR LITHOTRIPSY FOR SEVERE PERIPHERAL ARTERY CALCIFICATION – A 3-YEAR SINGLE CENTRE EXPERIENCE

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Keywords: *Intravascular lithotripsy; Peripheral artery disease; Peripheral artery calcification;*

INTRODUCTION

Severe intimal and medial arterial calcification is a challenging limitation in endovascular procedures leading to lower procedural success rates and worse clinical outcomes. Conventional balloon angioplasty alone may provide limited luminal gain and various adjunctive strategies of plaque modification have been suggested, such as intravascular lithotripsy (IVL). The aim of this study is to describe our institutional experience and results with IVL in the treatment of peripheral artery disease (PAD).

METHODS

A prospectively maintained single centre database from a tertiary academic medical centre was retrospectively enquired from October 2021 to September 2024. The study included all patients who underwent IVL (Shockwave Medical, Inc., California, USA) for vessel preparation during endovascular treatment of PAD.

RESULTS

A total of 19 patients were included in the study (79% male, 21% female, median age 76 years) with a median follow-up period of 6 months. Most common risk factors were hypertension (90%), diabetes mellitus (68%), dislipidemia (63%) and history of coronary artery disease (63%). Clinical presentation was most often chronic limb-threatening ischemia (Fontaine grade IV in 74% and Fontaine grade III in 10%) or claudication (Fontaine grade IIb in 16%). The target lesion that underwent IVL was femoropopliteal in 13 patients (68%), aortoiliac in 5 (26%) and infrapopliteal in 1 (5%). As for intraprocedural details, lesion crossing was almost equally subintimal and intraluminal (53% vs. 47%, respectively) and the majority of patients underwent definitive treatment of the lesion with stenting (79%) or drug-coated ballooning (11%). Additionally, 3 of the patients (16%) underwent a hybrid procedure which either included femoral endarterectomy (11%) or femoro- femoral bypass (5%). Regarding the 14 patients in Fontaine grade IV, 8 patients (57%) healed their wounds with a median time of 2 months, while the remaining 6 (43%) are still under wound. There were no identified procedural complications. No patients required reintervention, except for 1 (5%) who underwent subsequent major amputation due to reocclusion of the previously treated territory and wound progression at 3 months of follow-up. In a total period of 35 months of follow-up, the overall all-cause mortality rate was 16%.

CONCLUSION

IVL is a safe, effective and low-risk adjunctive measure in vessel preparation during endovascular or hybrid procedures for PAD, especially in the femoropopliteal sector. It may be used after subintimal lesion crossing with adequate results. Further research is needed to evaluate its results in comparison with other supplementary treatment alternatives.

REAL WORLD APPLICABILITY OF VOYAGER-PAD ACCORDING TO OAC3PAD SCORE

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Keywords: *Peripheral artery disease; Risk assessment; OAC3-PAD;*

INTRODUCTION

Lower extremity peripheral artery disease (PAD) is associated with a high risk of cardiovascular and limb adverse events. Optimal post intervention antithrombotic strategy may significantly impact medium to long- term outcomes. The VOYAGER PAD trial showed a clinical benefit of combining low dose rivaroxaban plus aspirin by reducing cardiovascular and limb major adverse events. However, safety of this dual pathway inhibition (DPI) may be questionable. Current European Society for Vascular Surgery guidelines on this subject suggest DPI for symptomatic PAD patients undergoing invasive treatment, in the absence of high bleeding risk. However, real-world patients differ from those enrolled in the VOYAGER PAD trial, especially chronic limb threatening ischemia (CLTI) patients. The OAC3PAD score is a novel risk stratification tool to assess bleeding risk in PAD patients that may help balance the benefits and risks of antithrombotic therapy.

METHODS

This is a single center retrospective study analyzing data all patients admitted for lower limb revascularization procedures between 2020 and 2023. The primary objective was to evaluate the proportion of patients, as categorized by the OAC3PAD score, who would be candidates for low-dose rivaroxaban therapy according to the VOYAGER PAD trial criteria.

RESULTS

A total of 652 patients were included in this study. Mean age of the patients was 69,6 ±10,3 years, and 76,8% were male. Out of the 652 patients, 12% were classified as high bleeding risk, 23% as intermediate to high bleeding risk, 46% as low to moderate bleeding risk, and 19% as low bleeding risk. Based on the VOYAGER PAD trial criteria, 441 patients (67,6%) were identified as potential candidates for low-dose rivaroxaban therapy. Eligibility for DPI varied significantly ($p<0.001$) across OAC3PAD scores, with the highest proportion of patients observed in the low to intermediate bleeding risk patients, while the lowest was in the high bleeding risk patients.

CONCLUSIONS

Current evidence points to a higher bleeding risk of PAD patients than previous stated, especially when CLTI patients are being considered. Despite showing promising results, dual pathway inhibition with low dose rivaroxaban plus aspirin is not feasible in almost 50% of CLTI patients due to bleeding risk. This is a more frail and older population were adverse cardiovascular and limb events are more common and would benefit the most from strategies to reduce such events.

SUPERFICIAL FEMORAL ARTERY DISEASE AS A CARDIOVASCULAR PROGNOSTIC PREDICTOR IN AORTOILIAC REVASCULARIZATION – A COHORT STUDY

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Keywords: *peripheral arterial disease; aortoiliac disease; major adverse cardiac events;*

INTRODUCTION

Aortoiliac disease is a severe vascular condition that reduces blood flow to the lower limbs, leading to significant morbidity and mortality. The prevalence of peripheral arterial disease (PAD) is increasing, particularly in low and middle-income countries. This study aims to evaluate the prognostic value for Major Adverse Cardiovascular Events (MACE) of superficial femoral artery (SFA) disease in patients undergoing aortoiliac revascularization.

METHODS

This prospective cohort study included all consecutive patients who underwent elective aortoiliac revascularization between January 2013 and September 2022 at both a central and a district hospital. Only patients with aortoiliac Transatlantic Inter-Society Consensus (TASC) II type D lesions were included, excluding those with aortoiliac aneurysmal disease.

Patient demographics, clinical characteristics, and procedural details were collected. Outcomes were assessed in the first 30 days post-procedure and during long-term follow-up. Statistical analyses included Kaplan-Meier survival curves and multivariate Cox regression.

RESULTS

A total of 133 patients were included, with a mean age of 62.3 ± 9.23 years; 94.0% were male, and a median follow-up of 61[IQR - 55.0-67.0] months. SFA disease was present in 60.9% of patients and was associated with hypertension (p=0.025), coronary artery disease (p=0.005), congestive heart failure (p=0.02), and age (p=0.008). Patients with SFA disease had a lower 30-day ankle-brachial index (ABI) (p<0.001), smaller post-surgery ABI variation (p=0.003), longer hospital stays (p=0.005), and higher rates of major adverse limb event (MALE) (p=0.007). Survival analysis demonstrated increased long-term MALE, MACE, and all-cause mortality in patients with SFA disease. Multivariable analysis confirmed SFA disease as a significant predictor of all-cause mortality (HR=2,046 [1.042-4.443] p=0.048) and suggested a trend towards increased risk of MACE (HR=1.542, [0.866-3.101], p=0.075).

CONCLUSION

This study identifies SFA disease as a critical prognostic marker for adverse cardiovascular outcomes in patients undergoing aortoiliac revascularization. Further research with larger sample sizes and longer follow-up periods is warranted to validate these findings and improve patient management strategies.

TEN-YEAR EXPERIENCE OF A TERTIARY CENTER WITH GIANT ABDOMINAL AORTIC ANEURYSMS: A RETROSPECTIVE ANALYSIS

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Keywords: *Abdominal Aortic Aneurysms management; Long-term outcomes; Surgical intervention;*

METHODS

We identified all AAA treated at our center exceeding 9 cm in diameter from surgical records between January 1, 2013, and September 10, 2024. Demographic data, risk factors, anatomical characteristics, treatments, and outcomes were recorded. Furthermore, we analyzed and compared the anatomical features and outcomes of giant aneurysms with non-giant AAAs treated in our department (non- giant AAAs) from 2019 and 2023.

RESULTS

A total of 24 patients with giant AAAs were identified, with a mean age of 77.46?9.026 years, and the majority were male (95.8%). Giant AAAs were significantly more likely to be pararenal or juxtarenal compared to the non-giant AAAs group (8.3% vs. 1.1% and 20.8% vs. 9.6%, respectively). Additionally, rupture was significantly more frequent in the giant AAAs cohort (54.2% vs. 9.6%, $p<0.001$). Analysing separately ruptured and non-ruptured cases, the AAA proximal neck was shorter in giant aneurysms. Also, in non-ruptured cases, giant AAAs were significantly less likely to undergo endovascular aneurysm repair (EVAR) (45.4% vs. 78.8%, $p=0.016$) with a higher risk of reintervention due to complications (25% vs. 2.4%, $p=0.026$). However, peri-operative (30-day) and one-year outcomes were similar in both ruptured and non- ruptured cases when compared to non-giant AAA.

CONCLUSION

Giant AAAs are predominantly ruptured at presentation and primarily managed with open surgical repair. Among the few cases treated with endovascular aneurysm repair (EVAR), there was a higher risk of reintervention compared to non-giant AAAs. However, no differences were attained in peri-operative and long term mortality.

THE IMPACT OF NEUTROPHIL-TO-LYMPHOCYTE RATIO ON SHORT- AND LONG-TERM PROGNOSIS FOLLOWING ELECTIVE INFRARENAL EVAR

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Keywords: *Endovascular Aneurysm Repair; Abdominal Aortic Aneurysm; Prognosis;*

INTRODUCTION

Neutrophil-to-lymphocyte ratio (NLR) is an inexpensive, readily available parameter, associated with long-term outcomes in multiple cardiovascular conditions. Its impact on short to mid-term as well as disease-specific outcomes, particularly after EVAR, seems less clarified. The authors aim to analyze the predictors of NLR and its impact on the outcomes of EVAR performed within a tertiary care institution over 14-years.

METHODS

Single-center retrospective comparative study. All consecutive patients who underwent elective EVAR between January 2011 and December 2023, with an available complete blood count within 48h of the procedure were considered. Primary outcome is short-term major adverse events (MAE) and long-term all- cause death. Secondary outcomes were freedom-from EVAR failure and predictors of NLR elevation. Multivariable logistic regression analyses were performed for binary outcomes. Survival outcomes were analyzed through Kaplan-Meier plots and adjusted for confounding with Cox regression analyses.

RESULTS

Overall, 434 patients were included. A 2.4 NLR cutoff was a fair discriminator for long-term-mortality (AUC, 0.62), and groups were dichotomized according to this premise. Increasing age (adjusted odds ratio [aOR] 1.06; 1.03-1.09, per year increase) and the presence of pulmonary comorbidity (aOR 1.91; 1.24-2.96) associated to an NLR?2.4, while no significant association between comorbidity burden and NLR was noted. Sixty-eight short-term MAE were reported and occurred more often in patients with NLR?2.4 (6.2 vs 11.6% high-NLR, P=.049; NLR?2.4 aOR 2.10; 1.01-4.36). Overall, survival estimates favored low-NLR (55.7% vs 33.7% high-NLR, P<.001, NLR?2.4 Hazard Ratio [HR] 1.07; 1.05-1.98). A similar trend was observed when depicting NLR by tertiles. No differences in freedom-from EVAR failure (70.6 vs 68.2% high-NLR, P=.27, NLR?2.4 aHR 1.26; 0.82-1.94), nor in time passed up to failure was observed.

CONCLUSIONS

NLR appears as a strong prognostic marker with reduced impact of comorbidity burden. After EVAR, it independently predicts short-term MAE. Notwithstanding, EVAR efficacy over time, seems uncompromised.

USING PEDAL ACCELERATION TIME TO PREDICT ISCHEMIC WOUND HEALING IN DIABETIC PATIENTS

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Keywords: *pedal acceleration time; diabetes mellitus; wound healing;*

INTRODUCTION

Diabetes Mellitus is one of the main factors for peripheral arterial disease (PAD), commonly involving the infra-popliteal arteries while also being associated with mediocalcinosis, leading to arterial incompressibility. The ankle-brachial index is one of the most widely used diagnostic tools for assessing PAD, one of its limitations being its inability to assess calcified arteries such as those in this group of patients. Pedal acceleration time (PAT), measured by Duplex ultrasound, has emerged as a diagnostic alternative, by measuring the systolic acceleration in the arteries of the foot in milliseconds, with higher PAT values corresponding to a worse prognosis and with the literature suggesting a cut-off of 180ms as a predictor of wound healing. We aimed to confirm whether we could use PAT to predict wound healing, need for revascularization and amputation in diabetic patients and whether this cut-off was valid in our population.

METHODS

A retrospective cross-sectional study was carried on diabetic patients referred to our department with PAD and lower limb wounds. Each limb was assessed individually in case of bilateral wounds. Limbs with unmeasurable PAT were excluded. Limbs were assessed on follow-up and classified as: healed wounds (HW), non-healed wounds (NHW), revascularized or amputated. PAT cut-off for wound healing was measured with ROC curve. Significance was defined at $p<0.05$

RESULTS

A total of 88 patients and 100 limbs were included, mostly males (n=71, 80.68%) with a mean age of 77.6 years. Cut-off for wound healing was validated at 180.5ms in our sample. Among the assessed limbs, 26% HW, 31% NHW, 33% revascularized limbs and 7% amputations. Mean PAT in each group was 159.81ms (HW), 199.32ms (NHW), 239.18ms (revascularized), 279.14ms (amputated). When comparing the HW and NHW groups, we found that 61.3% of NHW had PAT >180ms versus 19.2% HW, $p<0.001$ (OR=6.65; IC95% [1.975-22.388]). In the sub-set of NHW we further analysed whether the wound was clinically better or worse: wounds with a positive healing process had a mean PAT of 189.96ms vs 231.43ms ($p=0.14$) in wounds with worse evolution.

CONCLUSIONS

The results of our study validate the cut-off of 180ms and reinforce using PAT as a predictor for wound healing, even among diabetic patients. In our analysis, only patients with HW had mean PAT>180ms, with higher values of TAP being associated with worse outcomes (need for revascularization/amputation). Furthermore, in NHW, patients with PAT closer to 180ms were considered to have a more favourable wound evolution.

ACUTE LOWER LIMB ISCHEMIA DUE TO COMMON ILIAC AND FEMORAL ANEURYSM IN A PATIENT WITH RENAL MALFORMATIONS: REPORT OF A CASE AND LITERATURE REVIEW

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Keywords: *Aneurysm of the common iliac artery bilateral; Isolated pelvic kidney; Acute limb ischemia (ALI) due to thrombosis of an external iliac aneurysm;*

INTRODUCTION

Acute limb ischemia (ALI) is a vascular emergency that poses a high risk of limb loss and death. Thrombosis of iliac aneurysms is a rare cause of ALI, difficult to diagnose due to pelvic location and proximity to other structures. Thrombosis of an external iliac aneurysm, while uncommon, typically presents with acute ischemia due to reduced blood flow. They carry a significant mortality risk, and many cases go undiagnosed until ischemic changes prompt imaging studies. Common femoral artery aneurysms are also rare. Both aneurysmal locations are more common in men over 70 years old and associated with arterial degeneration. Thrombosis of an external iliac or/and femoral artery aneurysm is an extremely rare cause of ALI, and the level of rarity increases when it comes to a patient with renal malformation and anomalous renal artery origin.

METHODS

Description of a clinical case involving a patient admitted to the Vascular Surgery Service in February 2024 with a diagnosis of ALI due to thrombosis of bilateral external iliac and femoral aneurysms, with common iliac aneurysms and a single functional pelvic kidney.

CASE REPORT

A 72-year-old male patient, with a history of cigarette smoking, was admitted due to ALI classe IIa of the right lower limb. He reported persistent right foot pain in the last 15 days, with progressive worsening. A CT angiography revealed common iliac aneurysms, thrombosed bilateral external iliac artery aneurysms and thrombosed bilateral common femoral artery aneurysms. Additionally revealed a pelvic right kidney, with the origin of the right renal artery located at the level of the aortic bifurcation. A renal scan confirmed the non-functionality of the left kidney. The patient underwent open repair with bilateral aneurysmorrhaphy of common iliac artery bilateral with interposition of a Dacron graft from the left common iliac (to reduce renal clamping time) to the deep femoral arteries, along without complications. The postoperative course was uneventful, and no deterioration in renal function was observed.

CONCLUSIONS

ALI caused by isolated external iliac artery thrombosis is extremely rare, with its specific incidence poorly documented. Renal anomalies during aortic surgeries are also uncommon. Treating iliac and pelvic artery aneurysms is complex due to unusual anatomy. The main surgical goals are to resolve ALI, repair aneurysms, and preserve renal function.

AN UNCOMMON GROIN MASS: IDIOPATHIC FEMORAL VEIN ANEURYSM

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Keywords: *Venous aneurysm;*

INTRODUCTION

Femoral vein aneurysms are extremely rare, having an unknown incidence and prevalence worldwide. Its etiology is multifactorial and not completely elucidated, though some risk factors have been proposed, such as trauma, inflammation and connective tissue disorders. The majority of cases are asymptomatic, yet they may present as thrombosis and embolism or cause local symptoms, namely, local swelling, limb edema and pain. We present a case of an idiopathic femoral vein aneurysm.

CASE REPORT

A 50-year-old female presented with a non-pulsatile right groin mass that she had noticed around 6 months prior, without any associated symptoms. Patient was healthy, except for obesity and history of contralateral lower limb varicose vein surgery; she denied history of local trauma, surgery or any venous puncture at the groin. Her family doctor requested a duplex ultrasound which identified a large venous aneurysm (68x51 mm) of the right common femoral vein and referred the patient to our department. After confirming the diagnosis, the patient underwent tangential aneurysmectomy and venorraphy. The aneurysmatic sac was sent to pathology to exclude a connective tissue disorder but came negative.

CONCLUSION

This case highlights the importance of considering femoral vein aneurysms in the differential diagnosis of groin masses, even in patients without typical risk factors. Surgical treatment is effective in preventing potential complications such as thrombosis and embolism.

ARE LIMB OUTCOMES AFFECTED BY THE TARGET BTK ARTERY OR NUMBER OF PATENT BTK ARTERIES?

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Keywords: *target below-the-knee artery; multivessel revascularization; limb outcomes;*

INTRODUCTION

It is generally accepted that a higher number of vessels with distal outflow correlates with better long term outcomes after endovascular treatment (EVT). However, the role of multivessel revascularization and the significance of the target BTK artery remain unclear.

AIMS

This study aims to assess the impact of multivessel revascularization and the target BTK artery on patients outcomes following below-the-knee (BTK) EVT.

METHODS

Retrospective, single-center, comparative study. From January 2023 to September 2024, all patients with chronic limb threatening ischemia caused by severe BTK disease who underwent EVT were considered. The main BTK artery (MA) and the number of BTK patent vessels with distal outflow (NV) after EVT were assessed through post revascularization angiographic evaluation. Patients were categorized according to MA into two groups: patients with a tibial vessel as the target BTK artery (T group) and patients with peroneal artery as the main BTK vessel (P group). Additionally, patients were grouped according to NV: patients with one artery providing distal outflow (group 1) and those with two or more vessels with distal outflow (group 2). Groups were compared regarding the primary endpoint of rate of amputation.

RESULTS

The study included 78 patients, of which 4% (N=3) presented with rest pain and 96% (N=75) with ulcer or gangrene. The median time of follow up was 7 months. Tibial vessels were the target vessel in 82% of patients (N= 64) (group T), while in 18% of the patients (N=14) the main distal vessel was peroneal artery (P group). Group 1 included 54% (N=42) of the patients while group 2 included 46% (N=36). No statistically significant differences in GLASS BTK classification were found between groups. Regarding major amputation rates, 12% patients in T group (N=7) and 33% (N=4) in P group underwent major amputation, after 18 months of follow-up (p=.17). Comparing NV groups, 31% (N=6) in group 1 and 20% (N=5) in group 2 underwent major amputation, after 18 months of follow-up (p=.95). After 19 months of follow-up, reintervention rate was 28% and overall survival was 66%.

CONCLUSIONS

Although there was no statistically significant difference in amputation rates between groups, the results may suggest an increased risk of amputation in patients where the peroneal artery was the main BTK vessel and in those with only one patent BTK artery post-procedure. Further research with larger sample size and longer follow-up time may help to better define the hypothesis of this study.

CARBON DIOXIDE ANGIOGRAPHY EMPLOYMENT IN EVAR: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Keywords: *Carbon dioxide angiography; EVAR; Abdominal aortic aneurysm;*

Endovascular aneurysm repair (EVAR) traditionally relies on iodinated contrast media (ICM); however, its use can be problematic in patients with renal insufficiency or iodine allergy. Carbon dioxide (CO2) has emerged as a valuable alternative. Its efficacy and outcomes compared to ICM have yet to be fully explored. Further investigation is required to thoroughly assess its benefits, limitations and potential for general application in EVAR procedures.

This study aims to evaluate the safety, efficacy, and clinical outcomes of CO2 angiography in EVAR, specifically its impact on renal function preservation, procedural success, complication rates, and adverse events.

A comprehensive literature search was conducted using PubMed, Cochrane Library, Scopus, and ISI databases to identify studies assessing CO2 angiography use in EVAR. The primary endpoint was represented by serum creatinine levels, estimated glomerular filtration rate, and chronic kidney disease variability pre- and postoperatively. Secondary endpoints were technical success, total radiation dose exposure, clinical adverse effects, postoperative endoleak detection, duration of hospital stay, mortality, and procedure-related death. Meta-analyses were performed to assess the outcomes.

The analysis included seven studies with 1117 patients, 398 of which were undergoing EVAR with CO2 angiography. CO2 angiography demonstrated comparable procedural success rates to ICM and promising results regarding renal function protection, endoleak detection and minor adverse effects. Complication rates were low and similar between groups.

However, further large-scale randomized trials are needed to validate these findings.

Reducing the negative repercussions of EVAR on renal function has become an increasing concern, especially in the high-risk population that often requires this procedure. CO2 angiography is a safe and effective alternative to ICM in EVAR. The results support its use for patients at high risk of contrast-induced nephropathy, and ICM allergy. Further large-scale randomized clinical trials are needed to validate these findings and are pivotal for optimizing CO2 angiography as a viable alternative to iodinated contrast media in clinical practice.

CAROTID ARTERY STENTING: A SINGLE-CENTER EXPERIENCE

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Keywords: *carotid artery stenting (CAS); in-stent restenosis (ISR); long-term safety CAS;*

AIMS

This study aims to characterize the clinical and demographic profile of patients undergoing carotid artery stenting (CAS), assess immediate complications, and evaluate long-term safety, including the risk of material degradation and in-stent restenosis (ISR), with an average follow-up of over five years.

METHODS

Retrospective analysis of patients who underwent carotid artery stenting (CAS) between January 2008 and August 2024 at the "Unidade Local de Saúde de Lisboa Ocidental", excluding those treated exclusively with CEA or CAS for non-obstructive carotid disease.

RESULTS

A total of 125 procedures were performed on 120 patients (89 men, 31 women) with a mean age of 69. Stroke was the main indication (42,4%), followed by asymptomatic patients with hemodynamically significant atherosclerotic plaques (38.4%) and TIAs in 12,8%. In almost all cases stents were used with cerebral protection. Cristallo was the stent more used (40%), followed by the Roadsaver (32,6%). Cerebral protection devices used included MoMA (66,4%), Angioguard (19,2%), and Emboshield (12,8%).

Arterial access points were mainly femoral, transcarotid and humeral.

Complications included 4,8% post-procedural strokes or AIT s, 0,8% secondary stent thrombosis requiring reintervention, 3,2% patients with hemodynamic instability, 1,6% access complications (one hypovolemic and one femoral pseudoaneurysm). During follow-up, which was on average 59 months (ranging from 1 month to 10 years), 8,8% cases of ISR were detected, none requiring reintervention.

CONCLUSION

In our study CAS is a safe and effective alternative for carotid revascularization. No association was observed between comorbidities or the type of endovascular materials used and complications. Long- term follow-up showed no significant ISR or material-related issues, confirming the procedure's durability and safety.

CHRONIC KIDNEY DISEASE AS A PREDICTOR OF LONG-TERM ADVERSE CARDIOVASCULAR OUTCOMES IN PATIENTS WITH AORTOILIAC DISEASE: A PROSPECTIVE COHORT STUDY

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Keywords: *peripheral artery disease; major adverse cardiovascular events; arterial occlusive diseases;*

INTRODUCTION

Aortoiliac disease poses a significant cardiovascular risk, especially in individuals with chronic kidney disease. This study aimed to assess the predictive role of chronic kidney disease in long-term major adverse cardiovascular events in patients submitted to aortoiliac revascularization due to severe aortoiliac atherosclerotic disease.

METHODS

From 2013 to 2023, patients who underwent aortoiliac revascularization for TASC II type D lesions, including those with chronic kidney disease, were selected from a prospective cohort study. Demographic, clinical, and postoperative data were collected. Prognostic factors were evaluated for their independent impact on outcomes using survival analysis with a multivariate Cox regression model.

RESULTS

The study included 135 patients, 93.3% male, with a mean age of 62.39 ± 9.20 years. Chronic kidney disease had a higher prevalence of short-term myocardial injury after noncardiac surgery (54.5%, P=0.014) and was a long-term predictor of acute heart failure (Hazard Ratio =4.884; 95% confidence interval 2.377-22.802; P=0.007), major adverse cardiovascular events (HR 2.992; 95% CI 1.498-5.975, P=0.002) and all-cause mortality (HR 3.296; 95% CI 1.626-6.682, P<0.001). Multivariable analysis showed significant associations between major adverse cardiovascular events and chronic kidney disease (adjusted HR=2.416, 95% CI 1.171-4.984, p=0.017) and congestive heart failure (adjusted HR=2.633, 95% CI 1.233-5.623, p=0.012).

CONCLUSIONS

Chronic kidney disease is a recognized cardiovascular risk factor found to be an independent predictor of long-term acute heart failure, major adverse cardiovascular events, and all-cause mortality. These findings underscore the importance of early identification and stricter follow-up in the long term for chronic kidney disease patients undergoing aortoiliac revascularization.

DIRECT STENT PUNCTURE – A VIABLE OPTION FOR FEMOROPOPLITEAL IN- STENT OCCLUSION

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Keywords: *Direct stent puncture; In-stent occlusion; Chronic limb-threatening ischemia;*

INTRODUCTION

In-stent restenosis and occlusion are common and defiant complications in endovascular reinterventions of the femoropopliteal sector. While anterograde catheterisation may be an effective pathway, this is not always the case due to possible subintimal progression of the guidewire at the edge of the stent. In these cases, retrograde direct stent puncture (DSP) is a known alternative option for recanalizing in-stent occlusions.

AIMS AND METHODS

We aim to describe the case of a successful DSP in a patient with an occluded superficial femoral artery (SFA) stent presenting with chronic limb-threatening ischemia (CLTI).

RESULTS

An 85-year-old male with previous known history of valvular and ischemic heart disease, diabetes mellitus, hypertension, chronic kidney disease and obesity was admitted due to CLTI, presenting with left toe gangrene. 11 years prior, he had undergone left mid-SFA and P1 popliteal artery percutaneous transluminal angioplasty (PTA) with bare metal stents (BMS). Via a retrograde contralateral femoral approach, access was obtained with a 6Fr sheath. Angiography showed a 50% ostial external iliac artery (EIA) stenosis, a patent SFA ostium with occlusion of the proximal SFA and occlusion of the 2 previously implanted stents on SFA and P1 popliteal artery, with patency of the distal third of the P1 stent and of P2-P3 and peroneal arteries. Anterograde intraluminal crossing of long SFA occlusion was not successful and subintimal catheterisation was obtained in the proximal SFA and SFA stent. Retrograde access through a DSP on the patent part of the popliteal stent was achieved but again intrastent catheterisation of the SFA stent was not accomplished. To overcome this problem, retrograde puncture of the occluded mid-SFA stent segment allowed for intrastent catheterisation and subsequent intraluminal retrograde reentry in the proximal SFA using a reverse-CART technique. After intraluminal crossing of both stents, drug-coated balloon PTA inside the previous implanted stents (6x200mm and 5x80mm) and BMS of the proximal SFA and between previous stents (6x80mm and 6x120mm, respectively) was performed along with EIA PTA with a 7x40mm balloon. Final control angiography showed a complete recanalization of the SFA and P1 popliteal artery and patent P2-P3 popliteal and peroneal arteries. The right femoral access was closed using Angio-Seal. At 1-month of follow-up, revascularization was patent and the patient is healing a toe amputation.

CONCLUSIONS

DSP is a viable and feasible option for intraluminal stent recanalization in the femoropopliteal segment when a classic anterograde approach is not successful due to subintimal catheterisation.

ENDOVASCULAR TREATMENT IN ACUTE MESENTERIC ISCHEMIA – THE POWER OF COLLATERALIZATION

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Keywords: *Mesenteric ischemia; Endovascular procedures; Stent;*

Acute mesenteric ischemia (AMI) is an uncommon etiology of acute abdomen, defined by compromised intestinal blood flow. Current guidelines for the initial management of AMI recommend either endovascular or surgical revascularization, though these guidelines are predominantly based on retrospective studies with small sample sizes. Endovascular intervention does not replace the surgical approach but offers the potential to enhance patient prognosis in cases of AMI.

An 83-year-old female patient with multiple cardiovascular risk factors presented to the emergency department with an intense diffuse abdominal pain and guarding on palpation. Laboratory analysis revealed a marked increase in inflammatory parameters. A computed tomography (CT) scan demonstrated severe stenosis of the celiac trunk (CeT) and a large, calcified plaque in the proximal segment of the superior mesenteric artery (SMA) with proximal occlusion, along with changes suggestive of ileocolitis likely of ischemic etiology. Diagnostic angiography revealed occlusion of the CeT and SMA, as well as stenosis of the inferior mesenteric artery (IMA) with maintained patency and significant collateral circulation via the arc of Riolan. Initial attempts at recanalization of the SMA using multiple catheters were unsuccessful, leading to revascularization of the IMA with angioplasty and placement of an OmniLink 7*39 balloon expandable stent. The patient's condition improved during hospitalization, with resolution of pain and good dietary tolerance. She was discharged on the second day post-revascularization, completely asymptomatic. At the 3-month follow-up, she had gained weight and reported no intestinal angina. A CT scan showed good splanchnic perfusion, with patency of the SMA and IMA branches, and a duplex ultrasonography revealed no morphological or hemodynamic abnormalities of the abdominal aorta.

Arterial AMI can be etiologically categorized into embolic and thrombotic types. The thrombotic etiology accounts for approximately 15-35% of AMI cases and is more commonly associated with occlusions of the proximal SMA near the arterial ostium. This association is due to the higher prevalence of atherosclerotic changes at this anatomical location. In these cases, endovascular therapies, particularly angioplasty and stenting, have a higher likelihood of success, potentially circumventing the need for surgical intervention. This is particularly relevant in emergency settings, where surgical treatments are associated with significant morbidity and mortality rates.

The use of endovascular techniques had proved to be a viable option in the context of AMI, contributing to an improvement in our patient outcomes.

FEMORAL ARTERY PSEUDOANEURYSM FOLLOWING PENETRATING INJURY

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Keywords: *Pseudoaneurysm; Trauma; Superficial Femoral Artery;*

Post-traumatic peripheral pseudoaneurysms (PA) predominantly occur in young adults, with a higher incidence in males. These PA most frequently involve the arteries of the upper extremities, often resulting from blunt trauma. In contrast, PA of the thigh are less common compared to those of the groin, likely due to the rising prevalence of percutaneous access techniques in contemporary interventional procedures.

A 30-year-old male presented at the emergency department with a penetrating trauma to the posterior aspect of the left thigh, resulting in an actively bleeding wound. A computed tomography (CT) scan revealed a large hematoma and a PA of the femoral artery. Arteriography of the left lower limb demonstrated an arteriovenous fistula (AVF) with apparently high flow in the mid-third of the superficial femoral artery, with adjacent flow consistent with a pseudoaneurysm. Consecutive attempts to occlude the peri-AVF using 6mm and 7mm diameter balloons resulted in an apparent decrease in flow but failed to exclude the AVF. Therefore, it was decided not to proceed with endovascular treatment. Surgical intervention was chosen, and the left femoro-femoral AVF was fixed with primary repair of the femoral vein and placement of an arterial interposition graft using an inverted ipsilateral saphenous vein. The patient's hospital course was favorable, with good perfusion of the limb, resorption of the hematoma, and engagement in a physical rehabilitation program. The patient was discharged on the 12th postoperative day with improved mobility of the left lower limb and no complaints of pain.

Iatrogenic causes are the primary etiology of femoral PAs, with an increasing incidence due to the rising frequency of diagnostic and therapeutic procedures involving femoral artery punctures. Duplex ultrasonography is the preferred initial imaging modality for evaluating femoral artery PAs, offering high sensitivity and specificity. Additionally, CT and magnetic resonance imaging are utilized for diagnosing, particularly in anatomically complex regions. Diagnosis of PAs is often delayed, with symptoms such as leg swelling, pain, and unexplained anemia potentially serving as early indicators. The primary treatment remains open surgical repair. However, advances in interventional techniques have led to the increased use of minimally invasive endovascular treatments.

In conclusion, this case underscores the importance of recognizing these lesions, due to its rarity and ambiguous presentation trauma surgeons should, therefore, be aware of this complication and have a high index of suspicion, especially in cases that involve penetrating injuries.

FENESTRATED THORACIC ENDOVASCULAR AORTIC REPAIR (FTEVAR) FOR PENETRATING AORTIC ULCERS IN THE AORTIC ARCH: TWO CASE REPORTS

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Keywords: *Penetrating Aortic Ulcer; Fenestrated Thoracic Endovascular Aortic Repair; Infectious aortitis;*

INTRODUCTION

Pathologies involving the aortic arch (AA) pose significant challenges due to its angulated anatomy, variations in anatomy and the risk of embolization, that can result in complications such as upper limb ischemia or stroke. We present two cases of AA penetrating aortic ulcers (PAUs) both treated with fTEVAR.

Describe the clinical presentation, diagnosis, and endovascular treatment of two AA PAUs.

Retrospective review of medical data, surgical reports, and imaging, with patient consent.

RESULTS

Case Report 1:

A 65-year-old male with a history of thoracic trauma, hypertension, and heavy smoking was referred for vascular surgery due to an AA lesion.

The angioCT revealed a type II aortic arch PAU in Ishimaru's Zone 3, near the left subclavian artery (LSA), measuring 17mmx11mm. The distance between the left common carotid artery (LCCA) and LSA was 10mm, and 3mm between LCCA and brachiocephalic trunk (BT).

After LCCA-LSA bypass with PTFE plus LSA occlusion with a 14x9mm amplatzer plug, a fTEVAR was performed, with a custom-made Terumo Aortic Relay 42x36x205mm with an upper fenestration of 31x25mm for LCCA and BT.

The patient was discharged on the 6th postoperative day with no complications and confirmed ulcer exclusion at angioCT.

Case Report 2:

A 72-year-old male presented to the emergency department with 4 days of abdominal pain. He was polypneic, had hypocapnia, and elevated D-dimer levels. AngioCT, performed to rule out pulmonary embolism, revealed a contained rupture of the descending thoracic aorta and a saccular aneurysm at the aortic bifurcation. AT this point a suspicion of infectious aortitis was raised.

A TEVAR with a Gore cTAG 31x31x100mm endograft and a kissing stent with Gore VBX 11x59mm were performed to treat the contained rupture. However, in the next day at control angio-CT an aortic arch PAU and pseudoaneurysm at LSA were noticed.

In this case, we come across a type II bovine AA. So, we perform a LCCA-LSA bypass with PTFE plus LSA occlusion with a 16x12mm amplatzer plug II. Then, a fTEVAR with custom-made Terumo Relay Pro 40x30x185mm was deployed in the AA.

Despite negative blood cultures and serologies, an infectious cause was considered likely. He remains on broad-spectrum antibiotics with no surgical complications, confirmed by angioCT.

CONCLUSIONS

Aortic arch pathologies remain complex, but advancements in endovascular techniques, including the use of custom fTEVAR devices, have expanded treatment options for patients unsuitable for open surgery, reducing morbidity and improving outcomes.

INCIDENCE OF MYOCARDIAL INJURY IN PATIENTS SUBMITTED TO ABDOMINAL AORTIC ANEURYSM CORRECTION: A SYSTEMATIC REVIEW

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Keywords: *Myocardial damage; postoperative troponin elevation; abdominal aortic aneurysm;*

The correction of Abdominal aortic aneurysms (AAA) is a major vascular surgery that caries a risk of Myocardial injury following noncardiac surgery (MINS). Recent evidence suggests perioperative myocardial injury occurs in approximately 20% of patients undergoing non-cardiac surgery. Its clinical spectrum ranges from asymptomatic myocardial injury to overt postoperative MI. MINS affects short- and long-term patient outcomes, but it's incidence is not determined in this subset of patients. Therefore, this systematic review with meta-analysis aims to determine the incidence of MINS in patients undergoing AAA repair. There are two different major techniques that can be used in AAA repair, open aortic repair (OAR) or Endovascular aortic repair (EVAR). We will report both of them separately and attempt to compare them. Three electronic databases MEDLINE, Web of Science, and Scopus were used to search for studies assessing the occurrence of MINS in the postoperative setting of patients undergoing AAA correction. The incidence of MINS in EVAR and OAR was pooled by random-effects meta-analysis, with sources of heterogeneity being explored by meta-regression. Assessment of studies' quality was performed using National Heart, Lung, and Blood Institute Study Quality Assessment Tool, and Risk of Bias 2 tools. Eighteen studies were included, with a total of 26,302 participants. Two of them were RCTs, while the remaining were cohort studies. The incidence of MINS after EVAR in primary studies ranged from 0.7 to 42.9% and after OAR, a range of 2.5 to 47% was. The meta-analytical incidence of MINS after EVAR in cohort studies was 13.1% [95% CI 5.6-20.7%] while in studies that used databases was 0.9% [95% CI 0.4-1.4%], but severe heterogeneity was found in both (I2 =97.196%; and I2 =79.142%; respectively). The meta-analytical incidence of MINS after OAR in cohort studies was 30.6% [95% CI 19.5-41.7%], in studies that used databases was 3.2% [95% CI 1.8-4.6%] and in RCT was 32.4% [95% CI 18.1-46.8%] but we also found severe heterogeneity (I2 =96.763%; I2 =86.621%; and I2 =71.337%; respectively). The significant heterogeneity found indicates a need for additional research with consistent methodology and definitions to assess the true incidence, risk factors and prognostic relevance of MINS, and to allow for better comparison of the two techniques.

INCIDENCE OF POSITIVE AWAKE TEST DURING CAROTID ENDARTERECTOMY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Keywords: *carotid stenosis; stroke risk incidence; atherosclerosis;*

INTRODUCTION

The awake test, commonly used during carotid endarterectomy (CEA), aims to assess real-time neurological function by keeping the patient conscious, allowing early detection of ischemic events. Despite its widespread use, the incidence of a positive awake test and its correlation with stroke risk remains uncertain, with reported values varying widely across studies.

METHODS

A systematic review was conducted to evaluate the incidence of a positive awake test during CEA and its associated stroke risk. A comprehensive search of ISI Web of Science, MEDLINE, and Scopus databases identified 168 studies encompassing a total of 12,879 patients. Studies reporting the incidence of a positive awake test and the corresponding stroke outcomes were included. Data were analyzed using random-effects models to pool the incidence rates and stroke risks.

RESULTS

The incidence of a positive awake test during CEA ranged from 2% to 43%, reflecting significant variability between studies. The pooled estimate showed an overall incidence of 8%. The stroke risk associated with a positive awake test ranged from 4% to 20%, with a pooled estimate of 15%. Heterogeneity between studies was high, likely due to differences in patient populations, surgical techniques, and intraoperative monitoring protocols.

CONCLUSIONS

The incidence of a positive awake test during carotid endarterectomy varies considerably, ranging from 2% to 43% across studies. A positive awake test is associated with an elevated stroke risk, with reported values between 4% and 20%. These findings highlight the importance of standardized monitoring protocols during CEA and suggest that patients with a positive awake test may require closer postoperative surveillance to mitigate the risk of ischemic events.

INFLAMMATORY ABDOMINAL AORTIC ANEURYSM - OPEN SURGICAL REPAIR (OSR) VS ENDOVASCULAR ANEURYSM REPAIR (EVAR)- SYSTEMATIC REVIEW AND META-ANALYSIS

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Keywords: *Inflammatory abdominal aortic aneurysm; EVAR; OSR, meta-analysis, mortality, hydronephrosis, colonic ischemia.*

INTRODUCTION

Inflammatory abdominal aortic aneurysm (iAAA) represents a rare and complex subtype of abdominal aortic aneurysm, characterized by a significant inflammatory response and an increased risk of complications, including hydronephrosis and colonic ischemia. This meta-analysis aims to evaluate mortality rates and perioperative complications in patients with iAAA undergoing endovascular aneurysm repair (EVAR) or open surgical repair (OSR).

METHODS

A systematic search was conducted in ISI Web of Science, MEDLINE, and Scopus databases. Mortality rates and perioperative complications, such as hydronephrosis and colonic ischemia, were analyzed using binary random-effects models, with logarithmic transformation for mortality data. Heterogeneity was assessed using tau2, Q-tests, and I2 statistics.

RESULTS

A total of 14 studies were included, with a total of 629 patients. The pooled estimate of mortality for EVAR was 3.1% (95% CI: -0.000 to 6.2%, $p = 0.053$), with no significant heterogeneity ($I2 = 0\%$, $p = 0.812$). For OSR, mortality was slightly higher at 4.1% (95% CI: 1.3% to 7.0%, $p = 0.004$), with moderate heterogeneity ($I2 = 21.78\%$, $p = 0.320$). Preoperative hydronephrosis had an incidence of 18.0% (95% CI: 13.5% to 22.6%, $p < 0.001$), while postoperative hydronephrosis following OSR was 63.8% (95% CI: 31.1% to 96.6%, $p < 0.001$), with significant heterogeneity ($I2 = 82.27\%$, $p = 0.001$). Colonic ischemia was observed in 2.3% (95% CI: 0.3% to 4.2%, $p = 0.025$) of OSR patients and 4.7% (95% CI: -0.4% to 9.9%, $p = 0.070$) of EVAR patients, both with low heterogeneity.

CONCLUSION

Inflammatory abdominal aortic aneurysm is a challenging condition, with significant perioperative risks. While hydronephrosis has a high incidence, it tends to regress favorably in most cases post-surgery. These findings emphasize the need for tailored surgical approaches and careful perioperative monitoring to optimize outcomes in iAAA patients.

INSIGHTS FROM UNTARGETED PLASMA PROTEOMICS ON ABDOMINAL AORTIC ANEURYSM: A SYSTEMATIC REVIEW

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Keywords: *Abdominal aortic aneurysm; Proteomics; Bioinformatics;*

INTRODUCTION

Our understanding of the pathophysiology underlying abdominal aortic aneurysm (AAA) formation, progression, and rupture remains limited. Enhancing this knowledge could facilitate the identification of specific biomarkers that would be highly valuable for clinical decision-making and prognosis. Over the past decades, mass spectrometry (MS)–based proteomics has revolutionized untargeted analysis of complex samples, showing great potential in AAA research, particularly to uncover the mechanisms underlying the disease and unveil novel biomarkers.

AIMS

This review aims to provide a comprehensive overview of current findings on the proteomics of AAA, focusing on the identification of surrogate AAA–related protein biomarkers.

METHODS

A systematic review was carried out in accordance with the PRISMA guidelines. A search of English medical literature was conducted using the MEDLINE, EMBASE, Web of Science, and Cochrane Library databases, covering publications up until July 2024. Studies were included if they highlighted the use of untargeted proteomics for the discovery of potential AAA–related biomarkers.

RESULTS

A total of 315 reports were retrieved. After screening titles and abstracts, 58 articles were selected for full-text screening and, ultimately, 5 were included in the systematic review. The included studies were case-control (n = 4) or cohort studies (n = 1). In total, 61 patients with AAA and 37 controls were analysed. In the case-control studies, control groups were age-, sex-, and risk factors-matched patients without AAA, and in the cohort study, plasma proteome was compared between patients with fast and slow growing aneurysms. We found 218 proteins whose abundance was changed in plasma from AAA patients versus controls. Functional enrichment analysis (Gene Ontology and Reactome) revealed several pathways with significant roles in AAA pathophysiology, including the regulation of complement and coagulation cascades, the regulation of platelet degranulation/activation, lipoprotein assembly, remodeling, and clearance. The proteins kininogen-1, complement component C9, and hemoglobin subunit beta were the most commonly identified proteins among studies, participating in the complement and coagulation cascades, besides other pathways.

CONCLUSION

The current literature on untargeted plasma proteomics offers a broad perspective on the biological processes related to the pathophysiology of AAA. The proteins flagged with these analyses hold potential for a prospective testing of their biomarker value for the diagnosis or prognosis of AAA.

LESS IS MORE: SINGLE VS. DOUBLE-LUMEN INTUBATION FOR THORACOSCOPIC SYMPATECTHOMY

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Keywords: *Thoracoscopic sympathectomy; Single-lumen intubation; Outpatient;*

INTRODUCTION

Thoracoscopic sympathectomy has been the mainstay for treatment of primary hyperhidrosis refractory to conservative management. Given the low complication rate, pressure to transfer the procedure to the outpatient clinic altered the anesthesiology practice, switching to the use of carbon dioxide insufflation and single-lumen (SL) intubation instead of the previous gold-standard of double-lumen (DL) intubation. This study's main aim is to compare SL and DL intubation, focusing on post-operative complications.

METHODS

This is an observational single-center retrospective study. Medical records of all patients submitted to thoracoscopic sympathectomy from July 2017 to June 2024 were reviewed. Two groups were created based on the intubation type, either SL or DL. Demographic, procedural data, and postoperative status and events were recorded and analyzed. Primary outcome was defined as the occurrence of post-operative complications (including pneumothorax, atelectasis, hemothorax, subcutaneous emphysema, and bronchospasm).

RESULTS

Eighty-one patients were included (SL group=40; DL group=41). The SL group was significantly older (26.5 [16.0] vs. 22.0 [12.0], p = 0.025), had a higher proportion of smokers (13% vs. 9.8%, p = 0.012), and more comorbidities (ASA I 35.0% vs. 58.5%, p = 0.034). All 41 DL group interventions occurred in an inpatient setting, while 90% of SL interventions were outpatient surgeries. Twelve procedures had intra or postoperative complications, with 11 (26,8%) in the DL group and 1 (2,5%) in the SL group (p=0.002). Asymptomatic pneumothorax detected on post-operative control imaging was the most frequent event (9 patients, 14,3%), and all cases resolved spontaneously within 24 hours. Other relevant complications were 3 cases of subcutaneous emphysema, and 3 episodes of bronchospasm, none of these motivated additional measures. The SL group presented with arterial blood pressure lability, and higher need for short-acting vasopressor drugs (p < 0.001). Predictably, hospital stay was shorter in the SL group with a higher percentage of outpatient procedure (22.0 [13.0] vs. 28.0 [18.0], p = <0.001), even though operative room and procedure time did not show significant difference between groups. The remaining variables including peripheral oximetry values and opioid administration did not show statistical difference.

CONCLUSIONS

Thoracoscopic sympathectomy using SL intubation is a safe technique even in patients with multiple comorbidities. This change in paradigm allows for secure transfer of this procedure to an outpatient setting. Single-lumen intubation seems to increase intraoperative tensional lability and vasopressor usage, likely due to hypercapnia-induced vasodilation and vena cava compression, although this did not translate into postoperative complications.

META-ANALYSIS OF PLATELET RICH-PLASMA FOR VENOUS ULCERS: CLINICAL EFFICACY AND COMPLICATIONS

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Keywords: *venous ulcer; wound healing; platelet-rich plasma;*

INTRODUCTION

Venous leg ulcers (VLUs) are a prevalent and challenging consequence of chronic venous insufficiency, resulting in significant morbidity, prolonged healing, and high recurrence rates. They adversely affect patients' quality of life and impose a substantial economic burden on healthcare systems. Traditional treatments, including compression therapy and wound care management, often lead to slow and incomplete healing. Recently, platelet-rich plasma (PRP) has emerged as a potential therapeutic option, containing high levels of platelets and growth factors that are believed to enhance wound healing. However, PRP's effectiveness in VLUs remains controversial, with studies reporting varying degrees of success. This systematic review and meta-analysis aim to assess PRP's overall impact on wound healing in VLUs and clarify its efficacy.

AIMS

The aim of this systematic review and meta-analysis is to assess the effectiveness of platelet-rich plasma in enhancing wound healing in VLUs by comparing its impact on complete and partial healing with conventional treatments.

METHODS

A systematic search was conducted in ISI Web of Science, MEDLINE, and Scopus databases. Thirteen studies were included, with a total of 554 patients. Healing outcomes, such as total and partial ulcer healing rates, were analyzed using binary random-effects models. Heterogeneity was assessed using tau2, Q-tests, and I2 statistics to account for variations across studies.

RESULTS

The meta-analysis demonstrated that PRP significantly increased total wound healing by 40% compared to conventional treatments. The meta-analysis included 13 studies, with a total of 554 patients, comparing the effectiveness of PRP versus conventional treatments in promoting wound healing in venous leg ulcers. The pooled estimate for complete wound healing in patients treated with PRP was 69.6% (95% CI: 54.8% to 84.4%, $p < 0.001$), indicating a significant improvement in healing outcomes. The heterogeneity across the studies was substantial ($I2 = 85.9\%$, $p < 0.001$), suggesting variability in the results that could be attributed to differences in study design, patient populations, or PRP preparation methods.

In contrast, the pooled estimate for complete healing in patients treated without PRP was significantly lower at 35.3% (95% CI: 17.0% to 53.7%, $p < 0.001$). The heterogeneity in this group was also high ($I2 = 89.9\%$, $p < 0.001$), further emphasizing the variability in outcomes across studies.

CONCLUSIONS

PRP is an effective therapy for venous leg ulcers, significantly increasing total wound healing by 40%. These findings support PRP's integration as a valuable approach in managing VLUs, especially for patients with slow-healing or chronic wounds.

OUTCOMES OF VIDEO-ASSISTED THORACOSCOPIC SYMPATHECTOMY WITH CARBON DIOXIDE PNEUMOCOMPARTMENT IN PRIMARY FOCAL HYPERHIDROSIS: A SINGLE-CENTRE RETROSPECTIVE STUDY

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Keywords: *Primary focal hyperhidrosis; Video-assisted thoracoscopic sympathectomy; Carbon dioxide pneumocompartment;*

INTRODUCTION

Primary focal hyperhidrosis is an idiopathic condition characterized by excessive sweating in specific regions of the body, such as the face, axillae, palms, or soles. Sympathectomy remains the most effective treatment for patients with severe, debilitating hyperhidrosis. Historically, video-assisted thoracoscopic sympathectomy (VATS) is performed with double-lumen tube intubation and pulmonary exclusion. However, the emergence of minimally invasive techniques has led to the development of VATS with carbon dioxide pneumocompartment and single-lumen tube intubation, a promising alternative associated with shorter anesthesia time and reduced airway trauma.

AIMS

This study aims to present a unicentric experience operating the VATS with carbon dioxide pneumocompartment for the treatment of primary focal hyperhidrosis.

METHODS

This retrospective and single-centre study included patients who underwent bilateral VATS with carbon dioxide pneumocompartment between January 2021 and August 2023 for the treatment of primary focal hyperhidrosis. All procedures were performed in an outpatient surgery setting without pulmonary exclusion. Postoperative follow-up evaluations assessed treatment efficacy, short and long-term complications, and adverse events.

RESULTS

The cohort consisted of 119 patients, 65.5% of whom were female, with an average age of 28.1 ± 10.7 years. The distribution of hyperhidrosis was as follows: facial (10.1%), axillary (62.2%), palmar (84.9%), and plantar (66.4%). The mean anaesthesia time was 13.4 ± 6.0 minutes, and the mean surgical duration was 34.6 ± 9.1 minutes. Short-term complications occurred in 6 patients (5.0%). Follow-up attendance was 90%, with an average time of 31.7 ± 67.4 days to the postoperative appointment. No mortality was observed during the follow-up period. Complete resolution of palmar hyperhidrosis was achieved in all cases. Compensatory hyperhidrosis was reported by 33.0% of patients, with the abdominal and dorsal regions being the most commonly affected.

CONCLUSIONS

This study demonstrates the efficacy of VATS with carbon dioxide pneumocompartment in the treatment of primary focal hyperhidrosis, particularly for palmar hyperhidrosis. The technique is associated with reduced surgical times and a low incidence of postoperative complications, making it a viable and effective alternative to traditional methods.

PATENCY AND MATURATION RATES AFTER FOREARM ARTERIOVENOUS FISTULAS - SYSTEMATIC REVIEW WITH META ANALYSIS

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Keywords: *Cimino-Brescia fistula; Primary Patency; Renal Dialysis;*

INTRODUCTION

The growing burden of Chronic Kidney Disease (CKD) and its subsequent progression to End-Stage Renal Disease (ESRD) have significantly increased the demand for hemodialysis, with reliable vascular access being vital for treatment success. Although the radiocephalic arterio-venous fistula remains the first option for long-term hemodialysis, it faces substantial challenges, particularly with an aging patient population and the rising prevalence of comorbidities. Therefore, this systematic review with meta-analysis aims to determine the patency and maturation rates of radiocephalic arteriovenous fistulas, with a particular focus on how different patient characteristics and surgical methodologies impact these rates.

METHODS

Three electronic databases (Pubmed, Web of Science and Cochrane) were used to search for studies assessing the patency and maturation rates in the postoperative setting of patients undergoing radiocephalic arteriovenous fistulas creation. The incidence of maturation failure, thrombosis, aneurysm formation, infection, and local reintervention was pooled by random-effects meta-analysis, with sources of heterogeneity being explored by meta-regression. Assessment of studies' quality was performed using National Heart, Lung, and Blood Institute (NHLBI) Study Quality Assessment Tool for observational cohorts and cross-sectional studies.

RESULTS

Thirty five cohort studies were selected, with fourteen of them being prospective. A total of 4405 participants were included, with a mean age of 51 years old and a percentage of male participants of sixty six percent. The meta-analytical incidence of maturation failure was 23,9% at the end of follow-up, with high levels of heterogeneity. In addition to that, the meta-analytical incidence of secondary variables like infection, aneurysm formation, early-thrombosis and secondary intervention rates was 3,9%, 3,6%, 9,7% and 20,1%, retrospectively. In all the variables previously referred, high levels of heterogeneity were also found.

CONCLUSIONS

This systematic review and meta-analysis reveals substantial variability in the outcomes of radiocephalic arteriovenous fistula (RCAVF) creation across different clinical settings and patient populations. The wide range of reported maturation failure rates, as well as the significant heterogeneity observed in infection, thrombosis, aneurysm formation, and reintervention rates, highlight the complexity of RCAVF management. These findings underline the need for standardized clinical practices and further large-scale studies to identify the factors influencing RCAVF outcomes, which will be crucial for improving patient care and addressing the high variability observed in this analysis.

PROPENSITY SCORE ANALYSIS OF OUTCOMES IN FEMALES UNDERGOING ANEURYSM REPAIR: A COMPREHENSIVE SYSTEMATIC REVIEW

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Keywords: *Sex; EVAR; Propensity score match;*

INTRODUCTION

Sex-related differences significantly impact the presentation and outcomes of aneurysms and have become a focus in recent studies.

AIMS

This systematic review and meta-analysis aimed to compare outcomes of elective endovascular repair (EVAR) for non-ruptured aneurysms between men and women, using propensity score methods to account for confounders and provide a more accurate estimate of the true effect of sex on EVAR outcomes.

METHODS

A comprehensive search across MEDLINE, Cochrane, and Web of Science databases identified studies evaluating sex-specific differences in peri- and postoperative outcomes following elective EVAR for non-ruptured aneurysms, where a female-to-male propensity score matching was used to adjust for confounders. The primary outcome was 30-day mortality, pooled using random-effects meta-analysis with meta-regression to explore heterogeneity. Study quality was assessed using the National Heart, Lung, and Blood Institute (NHLBI) Study Quality Assessment Tool and the Risk of Bias 2 tool.

RESULTS

Six studies published between 2011 and 2023 were included. All were retrospective observational cohorts. Five studies employed propensity score matching, while one used inverse probability of treatment weighting. A total of 65 162 male and 14 306 female patients undergoing elective EVAR for intact infrarenal AAA were assessed. Perioperative mortality ranged from 2.4% to 7.7% in women and from 0.9% to 3.0% in men. The meta- analysis revealed a higher risk of 30-day mortality for women with an odds ratio of 4.28 (95% CI: 1.02–17.90), but significant heterogeneity was observed ($I2 = 93\%$, $p < 0.01$).

Additional analyses included 7,752 male and 6,655 female patients undergoing EVAR for thoracoabdominal aortic aneurysm (TAAA) and 990 male and 270 female patients undergoing EVAR for suprarenal, juxtarenal, and pararenal aneurysms. Perioperative mortality following EVAR for TAAA was 2.85% in men and 3.19% in women, who experienced higher rates of bowel ischemia, cardiac and neurological complications, while men experienced more respiratory and renal complications. For suprarenal, juxtarenal, and pararenal aneurysms, perioperative mortality following EVAR was 2.4% in men and 6.3% in women, who had higher rates of all complications.

CONCLUSIONS

Propensity score matching of men and women undergoing EVAR for non-ruptured AAA and complex aneurysms suggested that women that have similar baseline characteristics as men may face increased perioperative complications and mortality. Despite study heterogeneity, these findings emphasize the need for tailored management of female patients, while further standardized research is crucial to confirm these trends and investigate the underlying mechanisms behind the observed disparities.

PROSTHETIC GRAFT INFECTION IN FEMOROPOPLITEAL BYPASS

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Keywords: *Peripheral Artery Disease; Vascular Grafts; Atherosclerosis;*

INTRODUCTION

Peripheral artery disease (PAD) is a manifestation of systemic atherosclerosis that impairs blood circulation, particularly in the lower limbs. In advanced stages, PAD often requires surgical revascularization to restore adequate perfusion. When autologous veins are unsuitable, synthetic vascular grafts are used. However, the use of synthetic materials carries an increased risk of complications, particularly prosthetic graft infections, which, although rare, are associated with significant morbidity and mortality.

AIMS

This study aims to review the current literature on prosthetic graft infections in femoropopliteal bypass surgeries, focusing on epidemiology, risk factors, microbiology, diagnostic methods, treatment strategies, and preventive measures.

METHODS

A narrative review of the literature was conducted using databases such as PubMed to identify relevant studies on vascular prosthetic infections, particularly in femoropopliteal bypass surgeries.

RESULTS

Prosthetic graft infections occur in approximately 2.6% of femoropopliteal bypass surgeries, with significant risk factors including postoperative hematoma formation, diabetes, and hospital readmissions. Staphylococcus aureus is the most commonly isolated pathogen, and its ability to form biofilms complicates treatment. Other relevant pathogens include coagulase-negative staphylococci, such as Staphylococcus epidermidis, and Gram-negative bacteria, such as Pseudomonas aeruginosa, Escherichia coli, and Klebsiella pneumoniae. Early diagnosis, aided by microbiological and imaging techniques, is critical for guiding treatment. Treatment generally involves a combination of antibiotic therapy and surgical intervention, with graft removal often being necessary.

CONCLUSIONS

Prosthetic graft infections in femoropopliteal bypass surgeries are serious complications with significant impacts on patient morbidity and healthcare costs. Preventive measures, including effective risk factor management, appropriate use of antibiotic prophylaxis, and early diagnosis, are key to reducing the incidence of these infections and improving patient outcomes.

RENAL ARTERY ANEURYSM RUPTURE – A RARE EMERGENCY

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Keywords: *Primary focal hyperhidrosis; Video-assisted thoracoscopic sympathectomy; Carbon dioxide pneumocompartment;*

INTRODUCTION

Renal Artery Aneurysms (RAAs) are rare, estimated to occur in approximately 0,1% of the general population. These aneurysms typically present in women in their 6th decade of life, they are often saccular and more often affect the right renal artery. The diagnosis is usually incidental, mostly in computed tomography (CT). The natural history of RAAs appears to be more benign than previously thought, with slow growth and lower rates of rupture. However, ruptured RAAs are associated with a 10% mortality rate, in the general population, and more than 50% in pregnant women.

CASE REPORT

A 52-year-old female, with unknown previous history, was brought to the emergency department by a prehospital care team after experiencing a loss of consciousness at home.

On admission, the patient was obnubilated and mildly hypotensive. On physical examination she appeared pale and reported left flank pain on deep palpation.

Laboratory results revealed 9,5 g/dL of haemoglobin and leucocytosis (17,83 x109/L), with no other relevant findings. Electrocardiogram and chest X-ray were unremarkable.

An emergent CT scan showed a left retroperitoneal haematoma and two aneurysms in the inferior and superior branches of the left renal artery, measuring 7 mm and 5 mm in diameter, respectively. The left kidney presented triangular perfusion defects in its superior third.

The patient underwent endovascular exclusion of the aneurysms with a covered stent graft (Bentley Begraft 5x22 mm).

At 2-year follow-up, the stent remained patent with the kidney preserved.

DISCUSSION

While small RAAs are often managed conservatively, rupture - though rare - remains a life-threatening emergency. The best approach for rupture RAA is still unclear due to limited literature, however, in clinically stable patients, endovascular repair is an effective, fast and less invasive approach. Other elective options include open resection, ex-vivo repair, nephrectomy and laparoscopic or robotic repair.

THE USE OF PSYCHEDELICS IN THE TREATMENT OF PHANTOM LIMB PAIN: A REVIEW

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Keywords: *Phantom limb pain; Psychedelics;*

Phantom limb pain (PLP) is a challenging condition characterized by pain in an absent limb. Traditional treatments often yield limited results, prompting interest in alternative therapies, including psychedelics. This review evaluates the efficacy of psychedelics, specifically psilocybin and lysergic acid diethylamide (LSD), in the management of PLP.

URGENT POPLITEAL ANEURYSM SURGERY - A SINGLE-CENTER 4-YEAR OUTCOME ANALYSIS

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Keywords: *Popliteal artery aneurysm; Acute Limb Ischemia;*

This study shows the outcomes of the treatment of PAA in patients that are admitted with ALI in our center for the last 4 years.

The evaluated endpoint was the outcome of urgent PAAs treatment according to major amputation.

A total of 10 patients (38,5%) needed a major amputation throughout the follow-up and of the 16 remaining patients, 4 patients (25%) needed some kind of minor amputation. Bypass patency at 1-month follow-up (57,7%) was strongly correlated to major amputation ($p<0.01$) but there was no correlation found with used conduit, minor amputation, size of the aneurysm or adjunctive intra-operatory treatment using intra-arterial Alteplase. Although, the percentage of patient at 1-month submitted to major amputation, that received intra- arterial Alteplase, was 20% vs 38,1% that did not receive adjunctive intra-operatory treatment.

A BREATHTAKING CASE OF ARTERIOVENOUS FISTULA-RELATED VENOUS HYPERTENSION

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Keywords: *Venous hypertension; Arteriovenous fistula;*

VH frequently presents as upper limb edema; however, in more advanced cases, it can involve the head, neck, and trunk. Symptoms are often mild and may improve over time with the development of collaterals. In such cases, intervention is not required.

In severe cases, surgical intervention is warranted. The first-line treatment is percutaneous transluminal angioplasty (PTA). If PTA is not feasible, AVF ligation and creation of an AVF at another site may be an effective alternative.

A 38-year-old man with a history of end-stage renal disease secondary to IgA nephropathy was admitted for a planned basilic vein transposition. Approximately three years earlier, a temporary hemodialysis catheter was placed in the left subclavian vein for urgent hemodialysis induction. A left humerocephalic fistula was subsequently created, and the catheter was removed. As the patient presented moderate symptoms of VH, anterograde venography was performed, revealing occlusion of the left brachiocephalic venous trunk. Two PTA attempts were made, but both were unsuccessful due to the inability to advance the guidewire through the lesion. A right basilic-humeral fistula was constructed to replace the left AVF, and basilic vein transposition was scheduled. On admission, the patient exhibited severe edema of the left upper limb, trunk, neck and hemiface, leading to eyelid closure and dyspnea.

Given the severity of VH, with airway compromise, the procedure was deemed high-risk and general anesthesia was precluded. The decision was made to ligate the left AVF under local anesthesia, deferring basilic vein transposition to a second stage. In the immediate postoperative period, the patient showed significant improvement, including resolution of dyspnea and reopening of the eyelid, so he was discharged on the same day. A temporary hemodialysis catheter was placed, and the basilic vein transposition was performed later that week.

A PHYSICIAN-MODIFIED ENDOGRAFT SOLUTION FOR A SYMPTOMATIC COMPLEX ABDOMINAL AORTIC ANEURYSM REPAIR

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Keywords: *complex abdominal aortic aneurysm; aortic aneurysm endovascular repair; physician- modified endograft;*

INTRODUCTION

Endovascular repair is considered the preferable approach for high-risk surgical patients with complex abdominal aortic aneurysm (AAA). On acute settings, physician modified endograft (PMEG) may present as the most suitable option. Concomitant aortoiliac chronic disease challenges arterial accesses and endografts deployment.

AIMS

To describe a case of a symptomatic Crawford IV AAA treated with a PMEG and iliac endoconduits for arterial accesses.

ACUTE LIMB ISCHEMIA FOLLOWING A PROXIMAL HUMERUS FRACTURE- DISLOCATION: A RARE VASCULAR COMPLICATION

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Keywords: *acute limb ischemia; vascular injuries; trauma;*

Proximal humerus fractures are frequent, corresponding to 4-6% of all fractures. Associated vascular injuries are extremely rare, occurring in just 0.085% of cases, but critical due to the risk of loss of limb.

We present the case of a 52-year-old male who was victim of an aggression, sustaining a blunt trauma to the left shoulder. He presented with pain, shoulder deformity and associated functional limitation. The absence of radial or ulnar pulses was found in the physical examination. The hand was cold and had a prolonged capillary refill time. Imaging revealed a proximal shoulder fracture-dislocation, with anterior and medial displacement of the humeral head, compressing the axillar artery, with an interruption of contrast progression at that level.

Acute limb ischemia was confirmed and the patient underwent urgent surgical treatment. The humeral head was extracted via a deltopectoral approach, but distal pulses were not restored. The fracture was treated with a shoulder hemiarthroplasty. The proximal, pulsatile axillary artery was isolated through the same incision. The brachial artery was approached distally at the middle third of the arm and a distal thromboembolectomy was performed, with extraction of a large amount of embolic material and recovery of arterial flow. Lastly, we performed an axillobrachial bypass with a polytetrafluoroethylene synthetic conduct. By the end of the procedure, the patient had regained radial and ulnar pulses, with good extremity perfusion.

Vascular injuries are associated with high morbidity, with a major amputation required in up to 21% of cases. The axillary artery is the most often affected. The threshold for suspicion should be low, with an active search for signs of ischemia (pain, pallor, pulselessness, poikilothermia, paresthesias, paralysis) or an expanding hematoma. The presence of pulses or a normal capillary refill time does not rule out the diagnosis, as they may be present due to collateralization and do not exclude intimal dissection. Therefore, an imaging study with evaluation of the arterial tree should always be performed. Contrasted imaging studies allow injury identification and characterization. Risk factors include male sex, open fractures, fracture- dislocations, associated scapular fractures, brachial plexus injuries or atherosclerosis. Operative treatment is required and may involve thromboembolectomy, autologous or synthetic bypass grafting, or direct arterial repair, depending on the lesion.

Although rare complications of proximal humerus fractures, vascular injuries are of great importance. Prompt diagnosis and treatment are crucial to prevent prolonged ischemia and the need for limb amputation.

ANTEROGRADE BYPASS IN ACUTE MESENTERIC ISCHEMIA REVASCULARIZATION – CASE REPORT AND LITERATURE REVIEW

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Keywords: *Aortomesenteric Bypass; Acute Mesenteric Ischemia;*

Previous medical history was relevant for smoking, alcoholism, dyslipidemia, coronary disease and a chronic mesenteric ischemia submitted to revascularization procedure through celiac artery (CA) stenting in 2017 due to failure to anterograde revascularization of superior mesenteric artery (SMA). A CT scan showed an acute complete occlusion of the CA stent and common hepatic artery alongside an osteal chronic occlusion of the SMA and osteal stenosis of inferior mesenteric artery, already known previously in 2017. Although there were no significant signs of mesenteric ischemia found in the CT scan.

Relevant analytics workup showed an increase of Leucocytes (18.5 x10^9/L), Reactive C-Protein (26.37 mg/dL) and a slight increase in hepatic enzymes and gasometrical Lactates – 2.7 mmol/L.

Decision to urgent mesenteric revascularization was made after anterograde endovascular procedure deemed not possible.

General surgery team was called to the operating room and Cholecystectomy was performed. Mesenteric ischemia was considered reversible without necrotic/perforated bowel.

Retrograde stenting of the SMA was tried, without success.

Decision to proceed with an antegrade bypass revascularization due to extensive infrarrenal aortoiliac atherosclerosis – a supra celiac aortomesenteric bypass was performed with great saphenous vein covered in omental patch and tunneled anatomically, through a retro pancreatic path.

A post-operatory Angio CT scan showed a patent bypass without kinking with a patent SMA which recanalized hepatic artery through gastroduodenal artery. The patient improved clinically and there was a regression in symptomatology, without post prandial pain.

Open surgical revascularization using an anterograde approach is still relevant for AMI treatment.

AORTODUODENAL FISTULA DUE TO A TYPE II ENDOLEAK

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Keywords: *endoleak; aortoduodenal fistula; gastrointestinal bleeding;*

Aortoenteric fistula is a rare entity. Nonetheless, when a patient previously submitted to aortic surgery or endovascular aortic aneurysm repair suffers gastrointestinal bleeding, it is an important differential diagnosis to consider. Mortality rates are high, especially if the diagnosis is delayed. Surgical treatment should be immediate to repair the hemorrhage source, remove the infected material, and repair the damaged intestine.

Here we present a case report of an aortoduodenal fistula caused by a type II endoleak.

The patient was an 83-year-old male with multiple comorbidities (dilated myocardiopathy, cardiac insufficiency, type 2 diabetes, hypertension, and obstructive sleep apnea).

He had been previously submitted to an EVAR due to an infrarenal aortic aneurysm (57x55mm). During follow-up, sac growth (72x73mm) was detected and attributed to a type II endoleak. An embolization of the ostium of a posterior lumbar artery and the aneurysmatic sac was performed with Onyx (trans-sealing approach).

He later presented in the emergency room with hematemesis and melenas. He was stable but had a hemoglobin level of 7g/dL.

The CT scan raised suspicion of sac rupture with an aortoenteric fistula, so emergency surgery was performed.

Due to his general status, age and comorbidities, a conservative approach was chosen.

Intra-operatively, an aortoduodenal fistula was identified. The aneurysmatic sac was opened and irrigated with rifampicin. The posterior lumbar artery that was bleeding was sutured. The fistula was fistulized to the skin with a pezzer catheter.

During hospitalization, antibiotics were always administered, initially large spectrum ones and later directed to the microorganisms identified in the purulent material collected during the procedure. Antifungal cover was also provided.

Two months after the surgery, the patient developed bilateral pneumonia and died shortly afterward.

Despite the atypical approach, we consider this a pertinent case as it shows one of the most common presentations of this disease.

ASYMPTOMATIC SUPERFICIAL FEMORAL ARTERY MYCOTIC ANEURYSM – CASE REPORT

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Keywords: *micotic; femoral; aneurysm;*

INTRODUCTION

Superficial femoral artery (SFA) aneurysms are rare. A mycotic aneurysm refers to a focal, irreversible dilation of an artery due to the destruction of a vessel wall by infection. This can occur in a previously healthy.

CASE REPORT

A 79-year-old male with polycystic kidney disease on hemodialysis, prior endovascular aortic aneurysm repair (EVAR) and right common femoral artery aneurysm open repair was found to have a right saccular SFA aneurysm during a routine CT scan for EVAR follow-up. The aneurysm measured 22 mm in diameter. The patient was asymptomatic and denied any history of trauma or infection in recent years.

On physical examination, a painless mass was palpable in the right mid-thigh region. All arterial pulses were present, and no signs of distal embolization were found. Preoperative blood investigations revealed no elevation in inflammatory markers.

The patient underwent surgical intervention. Intraoperatively, a thin-walled saccular aneurysm with parietal thrombus was identified and no gross signs of infection were present. Aneurysmectomy was performed, a short reversed great saphenous vein bypass was constructed. The aneurysm wall was sent for microbiological analysis. Postoperative cultures from the aneurysm wall revealed the presence of Stenotrophomonas maltophilia, while blood cultures were negative. The patient completed 6 weeks of antibiotic therapy after surgery.

DISCUSSION

This case describes an asymptomatic SFA mycotic aneurysm, a rare entity. In this patient, Stenotrophomonas maltophilia was isolated from the aneurysm wall. Stenotrophomonas maltophilia is a gram-negative bacillus often found in healthcare settings, particularly in patients with chronic kidney disease in hemodialysis. It is plausible that the patient had a small pre-existing SFA aneurysm that became secondarily infected during an episode of Stenotrophomonas maltophilia bacteremia. Plausably this infection was self-limiting, as evidenced by the lack of local or systemic infection and negative blood cultures. As no signs of infection intraoperatively were detected and a good diameter GSF was attained, aneurysmectomy and construction of a short inlay bypass was found to be the best option.

CONCLUSIONS

This patient's history of polyaneurysmal disease, chronic kidney disease, and hemodialysis presents a high risk for the development of mycotic aneurysms. Although mycotic degeneration of existing aneurysms is rare, regular monitoring of arterial aneurysms evolution in such patients is essential to prevent acute complications.

COMPLICATED INFRAPOPLITEAL MYCOTIC ANEURYSM: A CASE REPORT

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Keywords: *mycotic aneurysm; posterior tibial artery aneurysm; endovascular;*

Infrapopliteal mycotic aneurysms are rare due to the aggressive treatment of bacterial endocarditis, with only a few cases reported in the literature. Typically, mycotic aneurysms of the tibioperoneal trunk are treated with conventional surgery. However, in this case, we report the successful endovascular exclusion of such an aneurysm, achieving both technical and clinical success.

We present the case of a 59-year-old woman, previously autonomous in her daily activities, who presented with syncope, asthenia, left lower limb pain, and fever. She was hospitalized in the cardiology department with bacterial endocarditis and severe aortic regurgitation and received empirical antibiotic therapy with Ampicillin, Ceftriaxone, and Gentamicin. After several weeks of treatment, inflammatory markers were normal, and blood cultures were negative. A CT scan was performed due to persistent leg pain, revealing a pseudoaneurysm of the tibioperoneal trunk, measuring 65 x 28 x 52 mm, with thrombotic content in the lower segment.

The vascular surgery team initially performed an intra-aneurysmal thrombin injection with partial success, leaving a permeable lumen. The following day, angiography showed active hemorrhage from the bifurcation of the tibioperoneal trunk, prompting a decision for ligation. Subsequently, the patient experienced a significant drop in hemoglobin and developed a large inguinal hematoma. Conservative management was initially attempted, but further expansion of the hematoma led to a new angio-CT scan, which confirmed a pseudoaneurysm of the superficial femoral artery (55 x 55 x 30 mm).

The patient was transferred to a tertiary hospital for urgent intervention. She underwent hematoma evacuation, direct arteriography of the superficial femoral artery (SFA), peroneal coil embolization, and exclusion of the mycotic aneurysm using a covered stent. The following day, she was transferred back to a secondary hospital for continued vascular surgery care, with an Avelle dressing and a regimen of dual antiplatelet therapy for one month. The successful use of endovascular techniques in a patient awaiting aortic valve replacement, after several weeks of antibiotic therapy and with no remaining inflammatory markers, demonstrates the value of this approach as a viable and effective alternative, particularly for high- risk patients in whom traditional surgery may not be feasible.

EFFECTIVENESS OF STATINS ON ARTERIOVENOUS FISTULAS PATENCY – A LITERATURE REVIEW

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Keywords: *statins; arteriovenous fistula; patency;*

Vascular access compromise remains an important cause of hospitalization on dialysis patients. Beyond their lipid lowering effect, statins may have a beneficial impact on patency of arteriovenous fistulas (AVF). They have been shown to mediate important pleiotropic vascular properties and in different clinical studies have demonstrated improvement of primary patency of AVF.

We reviewed the literature demonstrating the effect of statins on AVF patency.

It has been demonstrated, on animal studies, the protective effect of statins on AVF. However, the translation of these findings to human trials remains controversial.

Further studies addressing the effect of statins on AVF patency are paramount for more robust evidence on their sustained use on dialysis patients, who are a significant population in vascular surgery practice.

EFFICACY, SAFETY AND COMPLICATIONS OF MANTA VASCULAR CLOSURE DEVICE IN VA-ECMO DECANNULATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Keywords: *Mechanical circulatory support; percutaneous closure; decannulation;*

INTRODUCTION

Venoarterial extracorporeal membrane oxygenation (VA-ECMO) is increasingly used as a temporary mechanical circulatory support in critical care, particularly for patients with refractory cardiogenic shock, high-risk cardiac procedures, or awaiting heart transplantation.

Previously, VA-ECMO decannulation was a surgical procedure frequently linked to a high incidence of periprocedural complications, including surgical site infections, bleeding, and significant patient mobilization costs. Newer percutaneous techniques, including the Manta VCD, have minimized these risks by facilitating quicker, safer decannulation. The aim of this study was to conduct a systematic review to assess the success and complication rates associated with the use of percutaneous closure devices for VA-ECMO decannulation.

AIMS

A systematic review of the latest literature was performed to evaluate the outcomes of the Manta vascular closure device in VA-ECMO decannulation.

METHODS

The Medline, Web of Science, and Cochrane databases were systematically searched up to March 2024. Six observational studies were included, with a total of 132 patients. Outcomes, such as acute limb ischemia, arterial thrombosis and pseudoaneurysms were analyzed using binary random-effects models. Quality assessment was conducted using the tools provided by the National Heart, Lung, and Blood Institute.

RESULTS

The Manta VCD demonstrated a 95.8% efficacy (95% CI 92.4–99.1%) in VA-ECMO decannulation. Among all patients, the incidence of acute limb ischemia post-decannulation was 5.7% (95% CI 1.1–8.2%), arterial thrombosis occurred in 2.4% (95% CI 0.1–5%), and 3.4% (95% CI 0.4–6.5%) developed a pseudoaneurysm.

CONCLUSIONS

Manta vascular closure device is a safe and effective option for achieving hemostasis following VA-ECMO decannulation, exhibiting a high success rate and a low incidence of major complications. Therefore, percutaneous decannulation using the Manta device should be considered for appropriate patients undergoing VA-ECMO.

EXISTEM INIQUIDADES EM SAÚDE NA REGIÃO CENTRO DE PORTUGAL? – UMA ANÁLISE CRÍTICA DOS ANEURISMAS DA AORTA ABDOMINAL OPERADOS NOS ÚLTIMOS 5 ANOS

Eduardo Silva (Portugal) [1]; Celso Nunes (Portugal) [1]; Miguel Castro (Portugal) [1]; Luís Orelhas (Portugal) [1]; Maria Carmona (Portugal) [1]; Joana Moreira (Portugal) [1]; Manuel Fonseca (Portugal) [1];

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Keywords: *saúde pública; aneurismas; região centro;*

MÉTODOS

Realizou-se uma análise retrospetiva incluindo pacientes com aneurismas da aorta abdominal operados nos últimos cinco anos na nossa instituição. Os doentes foram divididos em dois grupos: aneurismas em rotura (Grupo I) e aneurismas sem rotura (Grupo II). Foram analisados dados demográficos (sexo, idade, hospital de referenciação e local de residência (cidades com ou sem hospital)), dimensões do aneurisma e tipo de cirurgia. Compararam-se o número de roturas e cirurgias eletivas por hospital, ajustado à densidade populacional de cada área de referenciação. No Grupo I, avaliou-se a mortalidade a 30 dias por hospital e por área de residência.

FEMORAL PSEUDOANEURYSM OF INFECTIOUS ETIOLOGY: A RARE CAUSE OF INGUINAL SWELLING

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Keywords: *Femoral Pseudoaneurysm; Femoral Artery Reconstruction; Spiraled Great Saphenous Vein;*

FRAMEWORK

Femoral pseudoaneurysms/false aneurysms, though more frequent than true aneurysms, are rare and often associated with trauma or invasive procedures. Their clinical presentation varies, typically asymptomatic, but may manifest as painless swelling or complications like occlusion, embolization, or rupture. Infectious pseudoaneurysms (mycotic aneurysms), while rare, are potentially fatal due to rupture risk.

CASE DESCRIPTION

A 74-year-old male with a history of smoking (40 pack-years), dyslipidemia, and hypertension was referred to Vascular Surgery for a 1.5-year growing collection adjacent in the femoral area, with two suppuration episodes requiring drainage and antibiotics. At follow-up, he presented with pulsatile swelling, skin fragility areas, and blood seepage. Immediately referred to Emergency, an Angio-CT revealed a 3.8cm left femoral pseudoaneurysm, prompting surgical correction.

Intraoperatively, a tamponade rupture by hematoma of the common femoral artery was confirmed. Femoral bifurcation reconstruction using ipsilateral spiraled great saphenous vein was performed without complications. Thrombus and arterial wall samples yielded Serratia liquefaciens. Targeted antibiotic therapy was administered for 2 weeks intravenously, then transitioned to oral for 4 weeks, totaling 6 weeks of treatment.

DISCUSSION

Unlike true aneurysms composed of all arterial wall layers, pseudoaneurysms are contained ruptures lined by fibrous capsules. True femoral aneurysms require treatment if symptomatic or >3 cm diameter. Pseudoaneurysms, having unpredictable evolution and higher rupture risk, necessitate individualized treatment. This case's urgency stemmed from both diameter and skin fragility, indicating imminent rupture risk.

Pseudoaneurysms typically result from traumatic or iatrogenic injuries, but the patient denied such history. The area's suppuration history suggested infectious etiology. Intraoperative findings revealed complete arterial wall destruction, precluding suture repair. Suspecting infection, vascular reconstruction employed spiraled saphenous vein, the preferred technique in infectious scenarios, allowing anatomical reconstitution with lower future infectious complication risk. Serratia liquefaciens infection, an opportunistic bacterium, was treated with targeted antibiotics to prevent vascular reconstruction failure.

CONCLUSION

Femoral pseudoaneurysms, though rare, pose potentially fatal risks. Successful treatment combines surgical intervention with effective infection management. Saphenous vein reconstruction proved to be safe and effective, underscoring the importance of individualized treatment.

INDIRECT REVASCULARIZATION: HOW AND WHEN – A CASE REPORT

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Keywords: *Indirect revascularization; Profunda femoral artery; limb salvage;*

INTRODUCTION

Chronic limb-threatening ischemia (CLTI) requires prompt intervention to prevent limb loss and potentially death. In this condition, lower extremities wounds usually require in-line flow to the wound to promote healing. However, due to the extent of the disease or anatomical variations, direct revascularization may not always be feasible. In such cases, an alternative approach is needed to manage the lesion.

AIM

This case report presents a case of indirect revascularization by open surgery for wound healing and relief of rest pain in a CLTI patient

METHODS

Based in clinic report

CASE DESCRIPTION

We present a case of a 40-year-old male patient with CLTI who presented with right lower limb rest pain and a trophic lesion on the first toe. Bilateral femoral and distal pulses were non-palpable. Doppler ultrasonography of the right limb revealed no detectable doppler signal on atrophic common femoral artery (CFA) or superficial femoral artery (SFA), as well as in the popliteal artery. The profunda femoral artery (PFA) was proximally occluded, while the anterior tibial and peroneal arteries remained patent distally. A CT angiogram confirmed occlusion of bilateral external iliac arteries, right PFA patent in its midportion, good caliber collateral circulation originating from PFA, and a short segment of patent small-caliber infragenicular popliteal artery. Based on clinical and imaging findings, a common iliac artery (CIA) to mid- PFA bypass using 6-mm Propaten® ePTFE graft was performed, along with distal amputation of the first toe. The retroperitoneal right CIA exposure was used, along with a bridge incision for tunneling the graft under the inguinal ligament. Intraoperative angiography showed quick PFA outflow and severe BTK and BTA disease with extensive BTK collaterals. Approximately two weeks postoperatively, the patient's rest pain had resolved, and the wound showed favorable healing.

CONCLUSION

Although direct revascularization is the standard treatment for CLTI lesions, it is not always achievable due to adverse anatomy or the extent of the disease. When direct revascularization is not possible, it is crucial to carefully evaluate alternative options to determine the best possible treatment, that may include indirect revascularization through the PFA to effectively manage the patient's clinical condition. A good PFA might contribute for limb salvage in some CLTI patients.

SPONTANEOUS RUPTURE OF SPLENIC ARTERY ANEURYSM

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Keywords: *Splenic artery; Aneurysm, ruptured; Shock, Hemorrhagic;*

INTRODUCTION

Splenic artery aneurysm (SAA) is rare, with an estimated prevalence of 1%. However, it is the third most common arterial aneurysm, only exceeded by abdominal aorta and iliac arteries aneurysms, and it is four times more common in females. When ruptured, they can have a catastrophic presentation with ?intraperitoneal hemorrhage and hypovolemic shock, carrying high mortality rates ?(25%-75%).

AIM

The authors report a case of a rupture of a SAA and its approach in the emergency setting.

METHODS

A single adult patient who underwent emergent laparotomy for SAA rupture was reviewed and described.

RESULTS

A 65-year-old female without relevant past medical history presented to the emergency department in a peripheral hospital with a previous episode of nausea and vomiting, diffuse abdominal pain, and syncope, starting the day before. On admission, the patient had another syncope and presented signs of shock: confused, pale, tachycardic (HR: 110 bpm), and hypotensive (BP: 70/40 mmHg). Abdominal examination showed no signs of peritoneal irritation. Laboratory workup showed anemia (8.0 g/dL), leukocytosis /uL), and elevated C-reactive protein (13.00 mg/dL). Arterial blood (17.65×103 gas evaluation demonstrated metabolic acidosis and elevated lactates (10 mmol/L). Abdominal CT revealed hemoperitoneum in the left upper quadrant, between the splenic hilum and the pancreatic tail, associated with a partially. The patient went immediately to the operating room and underwent exploratory laparotomy, where voluminous hemoperitoneum was found. A ruptured saccular aneurysm in the mid-third of thrombosed SAA measuring 4.0 × 3.5 cm. the splenic artery was identified. The splenic artery was ligated proximally, with resection of the aneurysm, followed by splenectomy. During surgery, there was an estimated blood loss of 3 L, resulting in hypovolemic shock and the need for a massive transfusion. The patient was transferred to the ICU for overall support, remaining for two days. Afterward, she was moved to the ward and discharged on the fifth postoperative day, without surgical complications, and the diagnosis was confirmed by histopathology.

CONCLUSIONS

This is a rare case of a spontaneous SAA rupture in a female without relevant risk factors. The patient was admitted to the emergency department with signs of shock, and prompt diagnosis, resuscitation, and surgical treatment were crucial to save the patient's life. Current evidence only describes a few cases of SAA rupture, the majority in pregnant females. Although SAA rupture is a rare cause of hypovolemic shock, the diagnosis should be considered in patients with abdominal pain and signs of hypovolemia so that a timely and appropriate lifesaving intervention can be performed.

STENTING FOR RESTENOSIS IN FEMOROPOPLITEAL LESIONS – A CASE REPORT

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Keywords: *Bailout stenting; restenosis; femoropopliteal lesions;*

INTRODUCTION

Despite significant advances in endovascular treatment (EVT), restenosis remains a major limitation, even with improvements in procedural technology. The indications for stent placement have steadily expanded since their introduction, as stents can offer better patency rates.

AIM

This case report presents a clinical case where stents were extensively used throughout the iliac and infrainguinal vascular beds, leading to a favorable limb outcome.

METHODS

Based in clinic report.

CASE REPORT

We present the case of a 65-year-old male with chronic limb-threatening ischemia (CLTI) of the left leg, who had previously undergone hybrid revascularization treatment. The initial procedure included common femoral artery (CFA) endarterectomy and plain balloon angioplasty (POBA) of the iliac, distal superficial femoral artery (SFA), infragenicular popliteal artery and posterior tibial artery (PTA), as well as amputation of the fifth toe. Approximately two weeks postoperatively, the wound failed to heal properly. A repeat angiographic evaluation revealed a de novo occlusion of the proximal SFA and a recurrent infragenicular popliteal artery occlusion. Initial attempts to antegradely cross the SFA lesion were unsuccessful. A retrograde puncture of the left distal SFA was performed. The proximal SFA occlusion was easily crossed in a retrograde fashion and it was stented under a through-and-through guidewire.. Mid- and distal-SFA and popliteal and PTA lesions underwent DCB inflation after good vessel prep. The patient underwent amputation of the third and fourth toes with great clinical result. However, poor wound healing recurred after two months. A subsequent angiographic evaluation revealed severe restenosis along the iliac axis, distal to the SFA stent, and within the popliteal artery. Further intervention involved stenting the iliac axis, all segments of the SFA, and popliteal artery. Two months after this final intervention, the patient exhibited significant improvement with successful wound healing.

CONCLUSIONS

The factors contributing to marked short-term intimal hyperplasia in patients undergoing POBA or DCB treatment remain poorly defined. In complex cases or longer lesions, drug delivery may not be uniform or sufficient to suppress the entire proliferative process, potentially leading to early restenosis. Current discussions surrounding the placement of bailout stents in the context of restenosis after DCB angioplasty indicate a trend toward adopting a lower angiographic threshold for stenting, justified by the need to achieve optimal angiographic results. As we demonstrated with this case, this approach may improve medium-term outcomes compared to POBA and DCB and prevent major amputation and clinical recurrence.

TIBIAL POSTERIOR ANEURYSM AS A PRESENTATION OF ACUTE ISCHEMIA

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Keywords: *acute ischemia; Tibial posterior aneurysm;*

We present the case of a 72-year-old male, an active smoker, who developed acute limb ischemia due to a thrombosed tibial artery aneurysm—a rare and serious condition. He arrived at the emergency room with a 12-hour history of numbness and pain in his left foot, accompanied by exhaustion and reduced tactile sensitivity. His past medical history revealed no trauma or vasculitis. Doppler ultrasound showed no significant arterial disease in the femoropopliteal axis, but revealed an occluded anterior tibial artery and biphasic flow in the peroneal artery. Additionally, a thrombosed aneurysm (9.5 mm) was identified in the distal posterior tibial artery, causing complete obstruction of distal blood flow.

Given the worsening ischemia, immediate anticoagulation and further investigations were initiated to rule out embolic sources or endocarditis. Urgent surgical intervention included distal thrombectomy, local alteplase administration, and bypass using an inverted internal saphenous vein graft. Proximal and distal ligation of the aneurysm was performed. Intraoperative Doppler confirmed plantar artery patency, with marked improvement in limb perfusion. Microbiological analysis of the aneurysm wall was sterile, excluding infection.

This case highlights the importance of early recognition and prompt intervention in managing acute ischemia secondary to a rare tibial artery aneurysm, which ultimately led to limb salvage.

TRAUMATIC PSEUDOANEURYSM OF THE SUPERFICIAL TEMPORAL ARTERY: A CASE REPORT AND REVIEW OF DIAGNOSIS AND MANAGEMENT

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Keywords: *Superficial temporal artery; Pseudoaneurysm;*

Traumatic pseudoaneurysm of the superficial temporal artery (STA) is a rare vascular lesion that typically presents as a painless, pulsatile mass following blunt trauma to the head. Due to the STA's superficial and unprotected course over the face, it is particularly susceptible to trauma, making it the most frequently involved artery in such pseudoaneurysms. Despite its rare occurrence, awareness and knowledge of its presentation and management are crucial for clinicians. The lesion can manifest as a subcutaneous lump or, less commonly, as a large, pulsatile mass with a potential risk of hemorrhage, posing a diagnostic challenge due to its varied presentations. This case report discusses a patient who developed a traumatic pseudoaneurysm of the STA 18 years after sustaining blunt head trauma. The report highlights the anatomical and pathophysiological factors that predispose to pseudoaneurysm formation, emphasizing the need for a high index of suspicion when encountering pulsatile masses in the temporal region. The optimal approach to diagnosing and managing this condition involves imaging studies for accurate identification and differentiation from other vascular lesions, followed by definitive surgical resection to prevent potential complications such as hemorrhage or compression of adjacent neurovascular structures.