LIVE 2019

Leading Innovative Vascular Education

Organized by:

Institute of Vascular Diseases (IVD), Greece

In collaboration with:

Hellenic Society of Vascular and Endovascular Surgery

Stony Brook University Medical Center, New York, USA

International Symposium on Endovascular Therapeutics

Intervention Master Aortic Course

May 9-11 2019

10th ANNIVERSARY

Larissa Imperial Hotel

Larissa, GREECE

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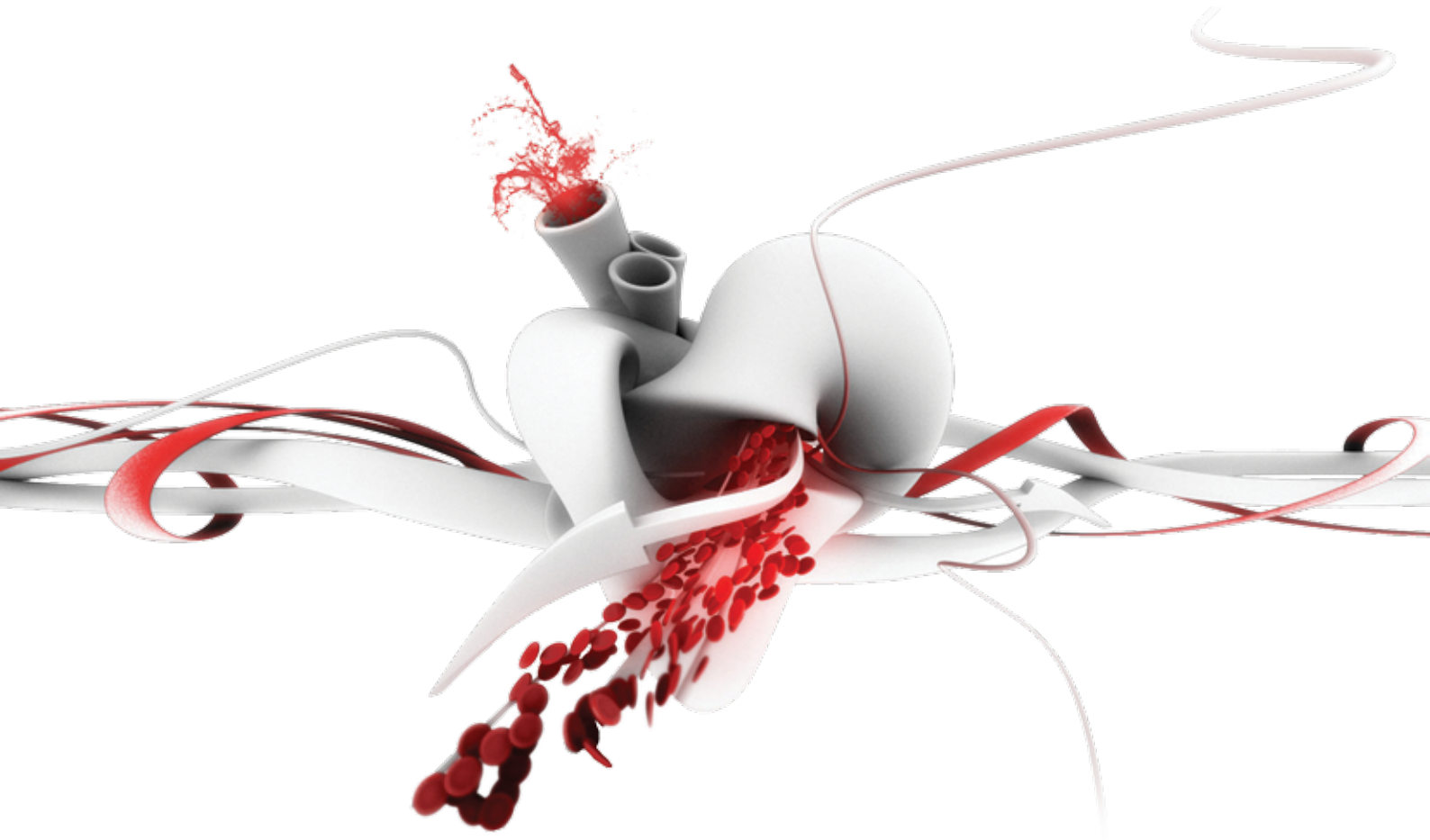
Abstract Book

Oral Presentations, Clinical Cases & E-Poster Presentations

Abstract Book

LARISSA, Greece, May 9-11, 2019
LIVE 2019 - Leading Innovative Vascular Education

Contents



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Intervention Master Aortic Course

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ORAL PRESENTATIONS

OP1

THREE-DIMENSIONAL (3D) PRINTING TECHNOLOGY TO ALIGN FENESTRATIONS IN SURGEON MODIFIED ENDOGRAFTS

Triantafyllos Giannakopoulos, Christos Papasideris, Angeliki Pantazi, Christos Liapis

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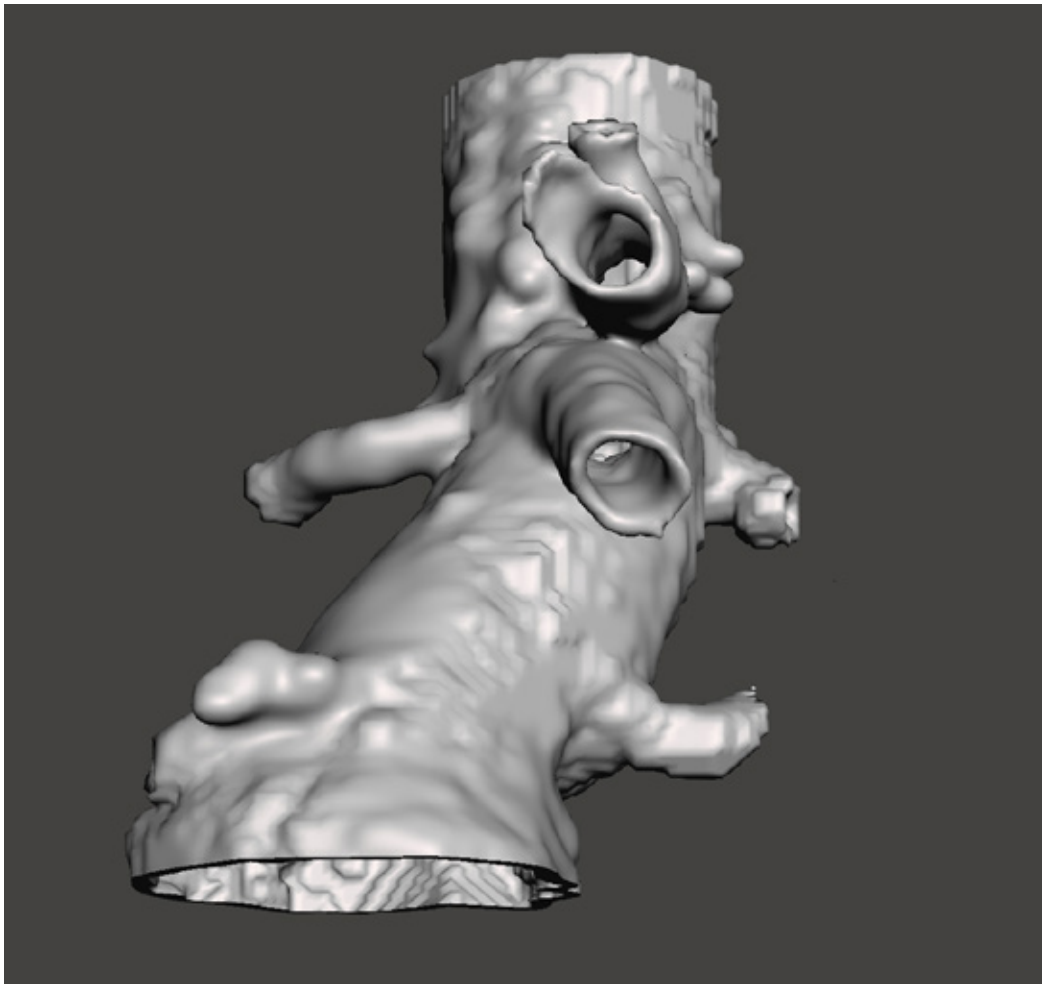
Background-Aims: Custom built fenestrated endografts are the preferred option for treating complex thoracoabdominal aneurysms. However, when resources and time are unavailable surgeon modified endografts (SMEG) have been reported to be a safe and effective solution. Creation of fenestrations is approximated based on measurements made by the physician using an imaging software. We sought to determine the applicability of 3D printing technology in achieving perfect matching of fenestrations and target vessels in SMEGs.

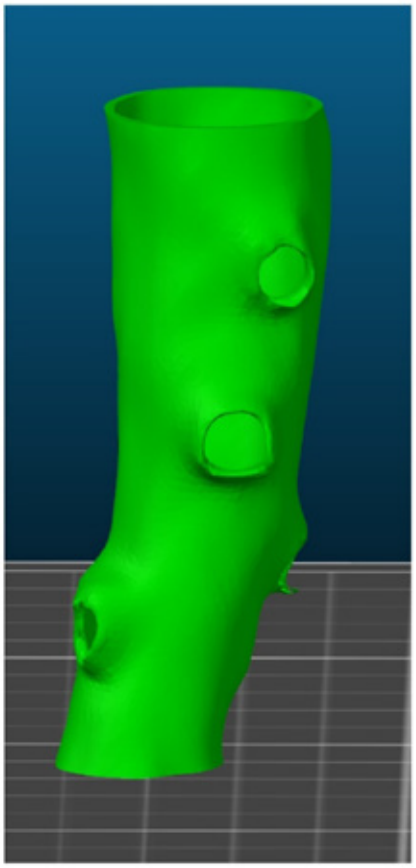
Methods: We used open source software (3DSlicer) and computed tomography angiography series to manually segment the visceral branch segment of the aorta (10 cm in length) and the first 5 mm of each branch. The segmented volume was then transformed into a hollow 1:1 sized model ready to be printed with a fused deposition modelling printer. The time taken to complete this process was recorded.

Results: Ten patients' CTA were used and the average time for model creation was 22.3 +/- 4.3 minutes. A Prusa MK3S 3D printer was used to print created models using sterilizable filament.

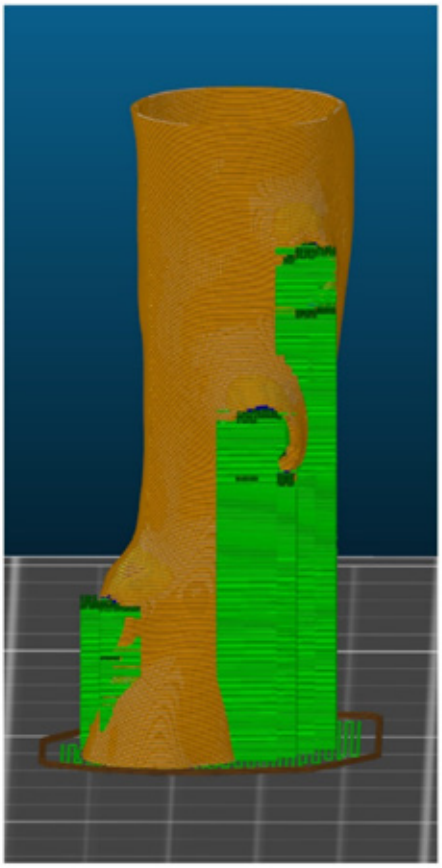
Conclusions: Three dimensional printers can easily be used to accurately place fenestrations on surgeon modified endografts by deploying the endograft within the sterilized 3D-printed aortic segment of the specific patient.



Visceral Aortic Segment



Final 3D Printout



3D Printout with Support lines

OP2

FATE OF TESTICULAR ARTERIES IN PATIENTS UNDERGOING ENDOVASCULAR ANEURYSM REPAIR

Nikolaos Kontopodis[1], Christos Chronis[1], Nikolaos Galanakis[2], Emmanouil Tavlas[1], Nikolaos Daskalakis[1], Alexandros Kafetzakis[1], Stella Lioudaki[1], Ioannis Dimopoulos[1], Dimitrios Tsetis[2], Christos Ioannou[1]

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Introduction: Testicular ischemia has been reported after Endovascular Aneurysm Repair (EVAR) but data are very scarce. We report a patient who presented this rare complication which motivated us to examine the presence of testicular arteries in patients with AAA undergoing EVAR.

Methods: We reviewed baseline and 1-month postoperative CT scans of 30 consecutive AAA patients who underwent EVAR. The presence of testicular arteries was examined. Additionally, a control group of 30 patients who had CT angiography for other reasons was evaluated. Statistical comparisons of the number of testicular arteries between the three groups (baseline AAA, Post-EVAR and control) were made.

Results: A 65-year old patient who underwent EVAR, developed acute left testicular ischemia during the immediate postoperative period. The right internal iliac artery was intentionally occluded due to common iliac aneurysm, while the left was preserved. This complication was attributed to testicular artery embolization from aortic thrombus during deployment of the endograft. The patient was managed conservatively and symptoms gradually resolved.

Evaluation of the number of patent testicular arteries revealed that patients in the control group had significantly more patent arteries compared to AAA patients (1.63 vs 1, p=0.01). Moreover, following EVAR, the number of patent arteries significantly decreased (1 vs 0.4, p=0.006).

Conclusion: Testicular ischemia although rare, is a possible complication post-EVAR. Acute and chronic compromise of testicular perfusion due to AAA or AAA treatment is not well understood. The clinical relevance of these findings remains to be determined.

OP3

VASCULAR SURGERY: INSPIRING THE NEXT GENERATION TO PURSUE THE SPECIALITY

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[2]King Abdulaziz University, Jeddah, Saudi Arabia
[3]St Thomas' Hospital, London, U.K.

Aims: Applications numbers to join vascular surgery have been in decline in the last few years. St George's Surgical Society held a one-day conference to assess how effective exposing undergraduates to the speciality in inspiring them to pursue it as a career.

Methods: The conference consisted of introductory lectures followed by practical skills workshops simulating aortic anastomosis on porcine aortas. Pre-course and post-course questionnaires assessed positive and negative perceptions of vascular surgery, knowledge and self-reported confidence in practical surgical skills and utility of the course in their decision to potentially pursue a career in vascular surgery.

Results: There was a significant increase of 27% ($p = 0.03$) in the positive perception of the speciality. Attendees reported a 27% significant increase ($p = 0.02$) in the perception that vascular surgery offered opportunities in academic/research work. Finally, there was an 18% decrease ($p = 0.03$) in the negative perception of vascular surgery as discriminatory against females. There was also a significant rise in interest (33%) and understanding (73%) of vascular surgery.

Conclusions: A one-day conference can significantly improve students' perception especially when there is a lack of exposure within the undergraduate curriculum. The workshops held at this conference increased students' confidence and awareness of relevant surgical skills. It also provided a unique experience that educated and trained undergraduates and thus served as an important educational supplement to core medical curriculum.

OP4

DYNAMIC CONTRAST-ENHANCED MRI FOR EVALUATION OF PTA OUTCOME IN PATIENTS WITH CRITICAL LIMB ISCHEMIA

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Background - Aim: The purpose of this study is to evaluate foot perfusion in patients with critical limb ischemia (CLI) and estimate percutaneous transluminal angioplasty (PTA) results using dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI).

Methods: Eight patients (5 male, median age 68 years, range 58-79 years) with CLI [Rutherford 4 (n=2), Rutherford 5 (n=5), Rutherford 6 (n=1)] were examined. All patients underwent DCE-MRI of the lower calf and foot, 1 day before and 1 month after revascularization. Perfusion parameters such as blood flow (BF), K^{trans}, K_{ep} were analyzed and applied for statistical comparisons. The studies were also examined by a second observer to determine inter-observer reproducibility.

Results: Revascularization was technically successful in all patients and mean ankle brachial index (ABI) increased from 0.35 ± 0.2 to 0.76 ± 0.25, $p<0.05$. During follow-up (mean duration 18 months), one patient died due to acute myocardial infarction and overall, there were two minor toe amputations. After PTA, mean BF increased from 6.18 ± 3.221 to 9.788 ± 3.346, K^{trans} increased from 0.063 ± 0.024 to 0.106 ± 0.045 and K_{ep} increased from 0.102 ± 0.026 to 0.145 ± 0.026, $p<0.05$. All measurements demonstrated very good inter-observer reproducibility with an ICC>0.9 for all perfusion parameters.

Conclusions: DCE-MRI may be a useful means for the diagnosis of foot hypo-perfusion. It seems also to be a promising tool for evaluation of PTA outcome, as significant restitution of perfusion parameters was observed after successful revascularization.

OP5

THE CHIMNEY TECHNIQUE FOR PARA-RENAL ANEURYSMS REPAIR. INITIAL RESULTS

Petroula Nana[1], Georgios Kouvelos[1], Konstantinos Spanos[1], Konstantinos Mpatzalexis[1], Eleni Arnaoutoglou[2], Athanasios Giannoukas[1], Miltos Matsagkas[1]

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Background/Aim: Chimney technique (ChEVAR) is an off-the-shelf treatment in challenging aortic anatomies. This studyreports the outcomes of ChEVAR for para-renal abdominal aortic aneurysm (AAA) in a single center.

Methods: This is a retrospective analysis of prospectively collected data. All patients treated with ChEVAR between May 2016-February 2019 were included. Proximal landing zones precluded any standard endovascular intervention and all patients were considered as high risk for open repair. As main outcomes endoleak type Ia, overall mortality, freedom from target vessel occlusion, as well as reinterventions were analyzed.

Results: Thirty patients underwent Ch-EVAR. 23 cases were primarily treated while 7 had a previous aortic procedure. Target vessels (TVs) included 51 renal and 11 superior mesenteric arteries. 11 patients received three chimneys, 10 patients two and 9 patients one. The median preoperative proximal neck length increased from 3mm (range, 0-8mm), to 24.5 mm (range, 18-34 mm) using the chimney technique. Technical success was 100%. Thirty-day mortality was 10%. During follow-up, the survival rate was 73%, TVs primary patency 95% and freedom from chimney graft-related re-interventions 94.7% at 24 months. Three gutter endoleaks were detected and spontaneously resolved. In 2 cases, a type Ia endoleak was detected (93.3% at 24 months). These patients are under close surveillance.

Conclusion: ChEVAR allows the endovascular treatment of para-renal aneurysms according to patient's specific anatomy. It seems feasible and safe at least during the early follow-up. Despite the minimal invasive nature of the procedure, these patients remain fragile.

OP6

INTERNAL CAROTID ARTERY OCCLUSION IS MAINLY SYMPTOMATIC AND ASSOCIATED WITH ECHOLUCENT PLAQUES

Triantafyllos Giannakopoulos, Konstantinos Antonopoulos, Dimitrios Liapis, Nikolaos Kadoglou, Christos Papasideris, Angeliki Pantazi, Christos Liapis

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Background-Aims: Internal carotid artery occlusion (ICAO) has been reported to occur without symptoms in most patients. We sought to explore symptomatology in a cohort of patients with ICAO.

Methods: We prospectively recorded risk factors, symptoms at diagnosis and degree of contralateral internal carotid artery (ICA) stenosis for ICAO outpatients from 1987 to 2017. For 2014-2017 coagulation status was also noted. Plaques were characterized using the ultrasonographic Gray-Weale classification.

Results: From 274 patients (82.5% males, mean age: 65.6+/- 9.7 years) with 279 ICAO, 132 patients (48.2%) presented with right ICAO, whereas 5 patients (1.8%) had bilateral ICAO. The majority of patients had hypertension (91.6%), were tobacco users (83.9%), hyperlipidaemic (83.6%) and had disease in at least 1 additional vascular bed (72%). Patients with ICAO were mainly (75.9%) symptomatic (46.0% acute stroke, 17.5% transient ischemic attack, 5.5% visual field deficits, 4.0% ataxia/vertigo, 2.9% decrease in the level of consciousness). Only 24.1% were totally asymptomatic. Echolucent plaques (types I-II) were significantly more predominant among ICAOs (69.2%) compared to contralateral ICAs (59.1%) ($p=0.01$). Occluded ICAs were 1.55 times more likely to be echolucent than non-occluded (OR 1.55, 95% CI: 1.09-2.21; $p< 0.01$). In a recent subgroup of 25 patients with ICAO, 15 (60%) had antiphospholipid syndrome.

Conclusions: Patients with ICAO are mainly symptomatic at the time of diagnosis and have significant atherosclerotic risk factors, multibed disease and coagulation disorders. Plaque echolucency is associated with ICA occlusion compared to the contralateral ICA.

OP7

THE POST-IMPLANTATION SYNDROME: THE IMPACT OF DIFFERENT ENDOVASCULAR ANEURYSM REPAIR MODALITIES AND DEVICES AND RELATED ETIOPATHOGENETIC IMPLICATIONS

Alessia Di Girolamo, Ombretta Martinelli, Cristina Belli, Roberto Gattuso, Bruno Gossetti, Luigi Irace

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Background: Post-implantation syndrome (PIS) is a systemic inflammatory response, occurring early after endovascular treatment for Abdominal Aortic Aneurysm (AAA). Although, its pathophysiology and its impact on clinical outcomes during follow-up are not yet understood, it seems that the graft type as well as the mural thrombus may play a determining role.

Aim: The primary aim was to evaluate the incidence of PIS after EVAR and after EVAS using Nellix, the sac-anchoring endoprosthesis, whose endobags completely obliterates the sac, preventing new thrombus apposition. Secondary aims were to assess the effect of endoskeleton AFX (Endologix) device compared with other exoskeleton PTFE endograft on the inflammatory response and to evaluate the clinical complications during follow-up.

Methods: From November 2013 to September 2017, we retrospectively reviewed 170 patients: 60 treated with EVAS and 110 submitted to EVAR (56 AFX devices and 54 other PTFE endograft).

The diagnosis of PIS should fulfill at least two of these criteria: body temperature >38°C and leukocyte count >12,000/μL and serum C-reactive protein rise, serially assessed before and after EVAR.

Results: The Nellix implantation was associated with lower incidence of PIS and of early and mid-term complications when compared to EVAR using AFX device and other endografts, without any statistically significant difference in its incidence afterEVAR with different devices. During follow-up, adverse outcomes rates did not significantly differ in patients with and without PIS.

Conclusions: Implantation of Nellix endograft seems to have less effect on PIS than EVAR devices. This might be related to aneurysm sac complete sealing with the endobags, avoiding the new-onset of mural thrombus. This could confirm the role of new-onset mural thrombus in the genesis of PIS.

The systemic inflammatory response does not significantly differ between endoskeleton AFX and exoskeleton devices without any significant prognostic implications in terms of major adverse events.

OP8

HEMODYNAMIC PROPERTIES' PREDICTION AFTER FENESTRATED ENDOVASCULAR ANEURYSM REPAIR, A PILOT STUDY

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Aim: Fenestrated endovascular aneurysm repair (FEVAR) has been increasingly applied for the treatment of abdominal aortic aneurysms (AAA), with unconventional morphology. Aim of this pilot study is the comparison of pre- and post-operative blood flow in the visceral vessels after FEVAR. The deployment of both the device and bridging covered stents might give rise to hemodynamic conditions that could impair the long-term success of the treatment.

Methods: We reconstructed pre- and post-operative computed tomography scans of two patients treated with a custom-made fenestrated endografts. Blood flow properties were obtained by computational fluid dynamics (CFD) simulations. Specifically, pressure drop, velocity, wall shear stress (WSS) and mean helicity were measured during the cardiac cycle.

Results: Computational simulations showed that flow in the superior mesenteric and renal arteries remains almost unaffected post-operatively. Important indices such as time averaged WSS (TAWSS), oscillatory shear index (OSI) and helicity are retained to almost normal levels. Blood flow during the cardiac cycle was characterized by a helical flow with two counter-rotating structures.

Conclusion: This pilot study shows the possibility of predicting non-invasively the hemodynamic performance of FEVAR utilizing CFD. Immediately after intervention, FEVAR does not seem to alter target vessel and aorta blood flow significantly, allowing good perfusion of visceral arteries.

Keywords: endografts; fenestrated endovascular repair; hemodynamics; multiscale model;

OP9

DEVELOPMENT OF RELIABLE CLINICAL RISK INDICATORS FOR ATHEROSCLEROTIC DISEASES BASED ON OXIDIZED LDL

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Background-Aim: Atherosclerosis Related Disease (ARD) risk is clinically assessed worldwide by serum LDL cholesterol (LDL-C) levels against the "normal" ones, which however have been unreliably defined since they have not any proven direct causal relationship with ARDs. In contrast, oxidized LDL (ox-LDL), although a proven component of atherosclerotic plaque formation, is limited to clinical research because of (i) its uncharacterized oxidative status, and (ii) its non-specific/-standardized quantification. This study proposes the following objectives: (1) Characterization/measurement of LDL's specific oxidized components (phospholipids, apoB100) and antioxidants (carotenoids, tocopherols), to be used as markers for the reliable clinical assessment of ARDs risk, by (2) establishment of their levels in atherosclerosis prone diseases (e.g. in type II diabetic patients).

Methods: We developed clinically appropriate rapid methods for LDL particle (LDL-P) isolation and fractionation into its main components apoB100 and phospholipids. The latter were used for definition and measurement of the oxidized phospholipid marker hydroperoxide groups (oxLDL-OOH). The complementary markers carotenoid content (per LDL-P), LDL-P concentration and diameter were also developed.

Results: ApoB100 isolation (>90% purity) was achieved. OxLDL-OOH levels in healthy and diabetic subjects did not correlate with their corresponding LDL-C values. In healthy subjects, 85% of oxLDL-OOH levels fall within the 0-3 nmoles/mg apoB100 range (designated as normal), while the rest reach up to 3-fold higher. In contrast, 76% of diabetic oxLDL-OOH values exceed the 3 nmoles/mg apoB100 upper normal limit.

Conclusions: The results on preliminary ARDs causative oxidative indicators suggest their clinical usefulness and verify the unreliability of LDL-C as clinical indicator.

OP10

META-ANALYSIS OF OUTCOMES OF RUPTURED ABDOMINAL AORTIC ANEURYSM IN PATIENTS WITH AND WITHOUT PRIOR ENDOVASCULAR REPAIR

Nikolaos Kontopodis[1], Nikolaos Galanakis[2], Emmanouil Tavlas[1], Christos Chronis[1], Nikolaos Daskalakis[1], Alexandros Kafetzakis[1], Stavros Charalampous[2], Dimitrios Tsetis[2], Christos Ioannou[1]

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Introduction: Whether prior endovascular aneurysm repair (EVAR) confers a protective effect in patients with ruptured abdominal aortic aneurysm (rAAA) is not known. We aimed to systematically review and compare outcomes of rAAA in patients with and without prior EVAR.

Methods: We performed a systematic review that conformed to the Preferred Reporting Items for Systematic Reviews and Meta-analysis. We selected studies comparing patients with rAAA after prior EVAR (group 1) and patients with de novo rAAAs (group 2). We conducted a proportion meta-analysis of perioperative mortality and obtained summary estimates of odds ratios (ORs) and 95% confidence intervals (CIs) using random-effects models.

Results: We included 4 studies (retrospective observational studies) in quantitative synthesis reporting a total of 719 patients [Group 1 (89) group 2 (630)]. The perioperative mortality in group 1 and group 2 was 30% and 41%, respectively. There was no statistical significant difference in perioperative mortality between these groups (OR 0.66, 95% CI 0.30 – 1.43, P=0.07). The choice between endovascular or open surgery treatment in group 1 did not affect the perioperative mortality (OR 0.77, 95% CI 0.24 – 2.52, P=0.47). However, prior EVAR was associated with reduced hemodynamic instability in patients with rAAAs compared to de novo ruptures (OR 0.31, 95% CI 0.19 – 0.50, P<0.05). Endoleak type I and III were the main cause of rAAA in group 1.

Conclusion: Perioperative mortality was similar for rAAA either de novo or after prior EVAR. However, ruptures in patients with prior EVAR presented hemodynamically more stable.

OP11

THE APPLICATION OF RACR SCORING SYSTEM IN TEMPORAL ARTERY BIOPSIES IN THE DIAGNOSIS OF GIANT CELL ARTERITIS

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Background: The gold standard test for diagnosing Giant Cell arteritis (GCA) is a Temporal Artery Biopsy (TAB). The proposed ACR criteria, and more recently revised ACR criteria is a scoring system developed to aid diagnosis. We aim to investigate the utility of the rACR criteria compared to the original ACR criteria in reducing unnecessary TAB.

Method: We conduct a retrospective study of 59 patients undergoing TAB in the last 5 years in Beaumont Hospital. We collect demographic data, biochemical results, presenting features, and histology results. The ACR score and rACR score is compiled.

Results: Data was analysed from 53 samples and ACR scores were compiled. 17 scored < 3 and 36 scored 3-5. All 11 positive biopsies were in the 3-5 score range. 45 patients were analysed with rACR scores. 8 were excluded due to not meeting the inclusion criteria. Of the 11 positive biopsies, 2 were in the 3-4 score range, and 9 were in the ≥5 score range. In the ACR method, 36% % of all biopsies score as Low Risk pre-biopsy. In the rACR method 84.4% of all biopsies score in the Low and Intermediate Risk group pre-biopsy and 15.6% of all biopsies score in the High Risk group pre-biopsy

Conclusion: The rACR scoring system may be a useful tool to categorise patients into Low, Intermediate, and High Risk of GCA pre biopsy. Performing TAB is of benefit in Low and Intermediate Risk groups but may be of minimal benefit in the High Risk group.

OP12

TREATMENT OPTIONS OF SPONTANEOUS DISSECTION OF VISCERAL ARTERIES

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Background/Aim: The wide application of computer tomography angiography (CTA) in diagnostic evaluation identifies an increasing number of spontaneous dissections of the visceral arteries (SDVA). SDVA can be treated conservatively or invasively. The aim of the study was to analyze our results in the management of SDVA.

Methods: This is a two-center retrospective analysis of patients who presented with SDVA from 2013-2018. All patients were assessed with CTA at presentation and follow up. Patients received conservative treatment with or without endovascular intervention.

Results: Twelve patients presented with SDVA; 9 symptomatic and 3 asymptomatic. CTA revealed a dissection of the celiac trunk (2 symptomatic) or the superior mesenteric artery (10 patients; 7 symptomatic). Symptomatic patients were initially treated conservatively with food restriction and anticoagulant therapy. One patient with SMA dissection, who clinically deteriorated, was treated using a covered stent. Another patient who suffered a mild ischemic colitis was managed conservatively with a complete recovery as well. The rest of the symptomatic patients were discharged showing clinical improvement. A short-term anticoagulant therapy was prescribed (1 month) with a long-term single antiplatelet therapy thereafter. Asymptomatic patients initiated single antiplatelet therapy and remained under close surveillance. During follow-up (range 3-60 months), all patients were asymptomatic and serial imaging confirmed the stabilization/improvement of the dissection.

Conclusion: SDVA should be considered in differential diagnosis of acute abdominal pain. CTA is the preferred method for diagnosis and follow-up. Conservative treatment seems to be a safe and efficient option, while an endovascular procedure could be attempted in persistent symptomatology.

CLINICAL CASES

CLINICAL CASES 1: ABDOMINAL AORTA

PERCOUTANEOUS EVAR USING THE ALTURA STENT-GRAFT

Stylianos. Koutsias
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RUPTURED JUXTARENAL AORTIC ANEURYSM WITH AORTOCAVAL FISTULA ON OCTOGENARIAN PATIENT

Aikaterini Poulou, Andreas Lazaris, George Geroulakos
Vascular Surgery Unit, National and Kapodistrian University of Athens, Medical School, Attikon University Hospital, Athens, Greece

EARLY POST-EVAR RUPTURE CAUSED BY ENDOLEAK TYPE II: A BORDERLINE TREATMENT

Christiana Anastasiadou, Sotirios Giannakakis, Anastasios Papapetrou, George Galyfos, Georgios Kastrisios, Chrisostomos Maltezos
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TRANSPLANTED KIDNEY, STENOSED RENAL ARTERY AND GIANT PSEUDOANEURYSM

Murat Ugurlucan[1], Yılmaz Onal[2], Didem Melis Oztas[3], Ali Rıza Odabas[4], Ufuk Alpagut[5]
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ENDOVASCULAR REPAIR OF A COMPLEX SYMPTOMATIC DISSECTING ANEURYSM OF THE SUPERIOR MESENTERIC ARTERY

Nikolaos Patelis, Ilias Dodos, Georgios Koufopoulos, Theodosios Bisdas
Athens Medical Center, Athens, Greece

AN IVC FILTER PENETRATING THE DUODENUM

Alexandros Gougoulakis
Vascular Surgery Department, "Ygeia Hospital", Athens, Greece

SECONDARY AORTOENTERIC FISTULA - A MODIFIED NAIS PROCEDURE WITH A COMPOSITE GRAFT

Vasileios Bouris, Petros Chatzigakis, Vasileios Katsikas
Vascular Surgery Department, General Hospital of Athens "G. Gennimatas", Athens, Greece

CONTINUED SIGNIFICANT ANEURYSM SAC EXPANSION (19CM) AFTER MULTIPLE ENDOVASCULAR INTERVENTIONS

Emily Beales, Dimitrios Liakopoulos, Luis Ribeiro, Gary Maytham, Ian Loftus, Peter Holt
Department of Vascular Surgery, St. George's University Hospital, London, U.K.

CONCURRENT EXISTENCE OF ABDOMINAL AORTA AND RENAL ARTERY ANEURYSMS

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TECHNIQUE TO AVOID WIRE PASSING BEHIND THE ENDOSKELETON OF A PREVIOUS ENDOLOGIX AFX REPAIR WITH A COLLAPSED LIMB

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AUTOLOGOUS VEINS USE FOR THE TREATMENT OF EVAR INFECTION

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BILATERAL URETERO-ILIACAL FISTULA FORMATION, FOLLOWING PELVIC MALIGNANCY EXCISION AND RADIATION

Georgios Sachsamanis, Ara Asatryan, Milena Pavlovic, Ali Badrouni, Julio Perez, Lucian Costin, Karin Pfister, Kyriakos Oikonomou
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CLINICAL CASES 2: ABDOMINAL AORTA

TREATMENT OF TYPE IA ENDOLEAK IN A PATIENT WITH A 15 YEARS' FOLLOW UP USING AN ALTURA STENTGRAFT

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CUSTOM-MADE ENDOGRAFT FOR THE TREATMENT OF AAA WITH AN ECTOPIC PELVIC KIDNEY

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OVATION ENDOGRAFT MAY PROVIDE AN OPTIMAL PLATFORM FOR CHIMNEY-EVAR

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COMBINATION OF THE CHIMNEY TECHNIQUE AND AN ILIAC-BRANCHED DEVICE FOR THE REPAIR OF A FAILED EVAR

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WANDERING AORTIC THROMBUS

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UNEXPECTED CAUSES FOR CRITICAL DECLINE OF KIDNEY FUNCTION IN A 66 YR-OLD PATIENT 6 MONTHS AFTER EVAR AND BILATERAL RENAL ARTERY STENTING: WHEN OPEN CLASSICAL TECHNIQUES ARE STILL THE "GOLD STANDARD"?

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CLINICAL CASES 3: THORACIC AORTA

IVUS-GUIDED TEVAR

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TOTAL ENDOVASCULAR REPAIR OF AN AORTIC ARCH ANEURYSM WITH A COMBINED CHIMNEY/ PERISCOPE TECHNIQUE

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USING THE SANDWICH TECHNIQUE FOR THORACO-ABDOMINAL ANEURYSM REPAIR

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ENDOVASCULAR TREATMENT OF TYPE III THORACOABDOMINAL ANEURYSM IN AORTIC DISSECTION WITH FENESTRATED ENDOGRAFT AND AUTOLOGOUS HETEROTROPHIC RENAL TRANSPLANTATION

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WHEN IS THE OPTIMAL MEDICAL TREATMENT BETTER THAN SURGERY FOR RETROGRADE TYPE A AORTIC DISSECTION?

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PARA-RENAL AAA AFTER FAILED PREVIOUS EVAR WITH SUBSEQUENT GRAFT MIGRATION

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CLINICAL CASES 4: THORACIC AORTA

TYPE B DISSECTION WITH TRUE LUMEN MALPERFUSION POST TYPE A DISSECTION AORTIC REPAIR

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THORACOABDOMINAL ANEURYSM - ENDOVASCULAR APPROACH

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ENDOVASCULAR APPROACH FOR THE TREATMENT OF A DISTAL AORTIC ARCH ANEURYSM IN AN NONAGENARIAN PATIENT

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ENDOVASCULAR ARCH ANEURYSM REPAIR WITH DEBRANCHING AND CHIMNEY

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ACUTE TYPE I DISSECTION INVOLVING THE AORTIC ARCH

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MANAGEMENT OF AN EXPANDING AORTIC ARCH ANEURYSM AFTER REPAIR WITH A HYBRID ENDOVASCULAR AND DEBRANCHING PROCEDURE

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AN INTERESTING CASE OF A COMPLICATED ACUTE TYPE B AORTIC DISSECTION TREATED BY ENDOVASCULAR APPROACH IN A MULTI-STAGE PROCEDURE WITH AN EXCELLENT OUTCOME

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A STAGED OFF-THE-SHELF ENDOVASCULAR REPAIR OF A RUPTURED TYPE III THORACOABDOMINAL ANEURYSM

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ACUTE AORTIC COARCTATION SECONDARY TO GRAFT THROMBOSIS IN HYBRID AORTIC ARCH REPAIR FOR CHRONIC AORTIC DISSECTION

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ENDOVASCULAR CORRECTION OF TORACOABDOMINAL ANEURISM: CASE REPORT

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ENDOVASCULAR REPAIR OF AN ENLARGING MYCOTIC THORACIC PSEUDOANEURYSM ON A PATIENT TREATED WITH INTRAVESICAL BCG INJECTIONS FOR BLADDER CARCINOMA

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E-POSTER PRESENTATIONS

E-Poster Presentations

EPP1

BRACHIAL ARTERY GRAFT INFECTION DUE TO ENDOVASCULAR INTERVENTION

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Background/Aim: Brachial artery aneurysms are uncommon peripheral aneurysms that typically occur due to trauma, infection, atherosclerosis and after ligation of arterio-venous fistulae for dialysis. The majority of them remain asymptomatic, but due to the high risk of complication, surgical management is recommended. We present a rare case of a brachial artery graft infection due to endovascular intervention.

Methods: Report of a rare and really complicated case.

Results: A 76-year-old man, with a history of chronic renal failure on dialysis due to diabetic nephropathy and a prosthetic bypass graft of the brachial artery due to aneurysm fifteen years ago, presented to the outpatient clinic of our department with acute ischemia of the right upper extremity. Physical examination and computed tomography angiogram revealed graft thrombosis, which was treated endovascularly. After a month, the patient was readmitted due to sepsis and abscess formation on the area of the intervention. He was treated with broad spectrum antibiotics, drainage of the abscess, excision of the prosthetic graft and axillary-radial bypass with hybrid (reversed saphenous vein - PROPATEN®) graft. At five months postoperatively, the wound has healed and the reconstruction remains patent.

Conclusion: We present a rare case of brachial artery graft infection due to endovascular intervention in a patient with a history of brachial artery bypass due to aneurysm and chronic renal failure. Natural history studies on brachial artery aneurysm, especially after arterio-venous fistulae, are scarce and open surgical repair remains the first treatment option in these patients.

EPP2

CASE REPORT OF A GRAFT ARTERVIOVENOUS FISTULA COMPLICATED WITH MULTIPLE COMPLICATIONS TREATED SUCCESSFULLY OVER 5 YEARS

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Introduction: Graft Arteriovenous Fistula (AVF) is a good alternative when native AVF is not a viable option. However, complications are higher and close surveillance is required for successful salvage intervention.

Case Description: We present the case of a 42 year old man with a history of a successful Brachio-Axillary graft fistula performed in his right arm in 2012. He had a background of multiple previous failed attempts of a native AVF formation. He presented in 2014 with symptoms consistent with AVF stenosis. He underwent a successful fistuloplasty and 2 stent insertion. In June 2015 he presented with re-stenosis and a successful fistuloplasty was performed with balloon dilatation. In October 2015 he presented with an AVF thrombosis. This was treated with fistuloplasty and thrombolysis. He presented again in August 2016 with a recurrent thrombosis in his AVF and this was again treated with a successful fistuloplasty and thrombolysis. He then presented in September 2016 with re-stenosis. This was treated with fistuloplasty and 2 stent insertion. Around this time, he underwent a successful renal transplant. He presented again with a sinus discharge February 2019. The plan was made for subtotal graft excision and he was discharged on oral antibiotics.

Discussion: Incidence of complications is higher when a graft is used over a native AVF. However, close surveillance and prompt intervention can lead to multiple successful salvage procedures thus effectively prolonging the life of the AVF. As in our case, we were able to prolong the life of the graft AVF with 6 successful interventions.

EPP3

NECROZITING FASCIITIS AFTER TOTALLY IMPLANTED CATHETER

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Background-Aim: The totally implanted catheter allows a calibrated and durable venous central access. However, severe complications such as infection might demand its removal. Necrotizing fasciitis is a rare but severe and fast soft tissue infection and it can spread through deep muscles. Due to its fast development, with the aim of reduce morbidity and increase survival, it is necessary the immediate recognition and initial adequate surgical debridement.

Methods: Case report and review of the literature.

Results: Development of necrotizing fasciitis after the placement of a totally implanted catheter in male patient, 45 years old, that was admitted to the hospital to investigate a leukocytosis, with myelogram and immunophenotyping confirming acute lymphoid leukemia type T. After the evaluation from the Vascular Surgery service, the catheter was placed without complications to start the chemotherapy. The patient developed neutropenic fever (30 leukocytes), hyperemia and necrosis in the site of the catheter. Antibiotics were administrated (Piperaciclin + Tazobactam and Vancomicin), the catheter was removed and the debridement of the necrosis with vacuum bandage was performed. The bacteria culture was positive for Pseudomonas aeruginosa.

Conclusion: the aims of this case report are to discuss the correlation between the placing of the totally implanted catheter and the occurrence of necrotizing fasciitis, the clinic evolution of the patient, clinical laboratory tests and to review the literature data on this pathology and the possibilities of treatment.

EPP4

PREOPERATIVE EMBOLIZATION OF PARAGANGLIOMA: CASE REPORT

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Background-aim: Paraganglia are clusters of cells originating from the neural crest with histological and cytochemical characteristics of neuroendocrine cells. Paraganglioma in the carotid body is a tumor that arises from the bifurcation of the internal and external carotid arteries. The treatment of choice for carotid body tumor paragangliomas is surgical resection. Due to the high vascularity of these tumors pre-operative embolization should be considered.

Methods: Case report and review of literature.

Results: A 31 years old previously healthy woman had searched for medical assistance due to a left cervical bulging. The carotid ultrasound Doppler showed an image of 3,1x 2,8x 2,1 cm in the bifurcation of the left carotid bulb (involving the carotid arteries intern and extern). The patient was submitted to a carotid CT angiography for the surgical planning. Thus, the patient was submitted to embolization of the tumor with Embosphere 300-500 um in the left extern carotid remarking a reduction of the blood flow. Finally, the patient had the tumor resection done. Procedure without complications.

Conclusions: Embolization prior to surgical resection is an efficacious procedure that may reduce operative complications such as blood loss and associated morbidity.

EPP5

CONTRALATERAL VENOUS THROMBOSIS AFTER TREATMENT OF COCKETT-MAY- THURNER SYNDROME

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Background-Aim: The most common variant of Cockett-May-Turner Syndrome is the compression of the left common iliac vein by the right common iliac artery, being one of the main causes of deep venous thrombosis of the femoral iliac system and chronic venous insufficiency.

Methods: Case report and literature review.

Results: A case of right common iliac vein thrombosis has been reported in a 63-year-old female patient with a previous medical history of left iliac-femoral venous thrombosis. After 11 years of initial diagnosis, she underwent endovascular treatment of Cockett-May-Turner Syndrome through stenting. The patient remained under ambulatory follow-up and for two years presented right common iliac vein thrombosis; on imaging studies it was evidenced that the stent migrated towards the right common iliac vein and was the cause of the thrombosis. The patient was anticoagulated with rivaroxaban showing improvement of venous thrombosis on venous Doppler after treatment.

Conclusion: Analyzes indicate that the stent location is associated with the development of contralateral deep venous thrombosis, and further studies are needed, as there is no consensus regarding the stent size and the ideal placement site. As there was improvement with clinical treatment (anticoagulation) we chose not to implant other stents in the iliac cava axis.

EPP6

TROMBOLYSIS AFTER FLEGMASIA CERULEA AND ENDOVASCULAR TREATMENT FOR COCCKET-MAY-TURNER SYNDROME

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Background-Aim: In this case report we have the purpose of discussing the relationship between Flegmasia Cerulea Dolens and Coccket-May-Turner Syndrome, clinical evolution, laboratory tests and review the literature data on this pathology and the possibilities of treatment. Flegmasia Cerulea Dolens is an extremely severe condition in which extensive deep venous thrombosis occurs that compromises venous return and is characterized by edema and cyanosis in the affected limb.

Methods: Case report and literature review.

Results: A case of 23-year-old female patient with clinical picture of massive deep vein thrombosis has been reported. She had a previous medical history of deep venous thrombosis four years ago using estrogenic contraceptive. The patient was anticoagulated with heparin, but did not obtain clinical improvement. The patient also presented thrombophilia with low levels of antithrombin III and protein S and expressive increase of CPK. The patient underwent interruption of the inferior vena cava with a recoverable filter, thrombolysis and aspiration of thrombi. Two wallstents were implanted throughout the femoral iliac system and an arteriovenous fistula with PTFE prosthesis was made and ringed 6 mm. The patient presents only a slight edema after treatment, presenting good evolution, maintaining the use of anticoagulation with apixaban and elastic socks of high compression.

Conclusion: Treatment with thrombolysis in massive venous thrombosis presents a satisfactory result.

EPP7

ACUTE AORTIC OCCLUSION: A RARE CASE PRESENTED WITH PARAPLEGIA

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Aim: Acute total occlusion of the abdominal aorta is a very rare and highly mortal clinical condition. In this case report, we present a 72-year-old male patient with paraplegia depending on near totally occluded aorta and his surgical treatment.

Methods: A 72-year-old male patient presented with complaints of cooling and inability to move the legs in the last 3 hours. The patient had no history of any known cardiac disease, malignancy, and trauma. Immediately after the onset of his complaints, urinary incontinence occurred. In physical examination, bilateral lower extremity pulses could not be palpated and the extremities were cold. CT angiography revealed a thrombus, that occluded lumen near total, starting from the aorta at the level of lumbar 3rd vertebra and extending to both main iliac arteries. After his consent, operation was planned.

Results: The patient was operated under general anesthesia. Following bilateral femoral embolectomy, the flow was lack of providing enough in-flow. Hence, axillo bifemoral bypass was performed. The patient was discharged on the 8th postoperative day with a slight loss of strength in the lower extremities.

Conclusions: The clinical condition determines the occlusion-induced ischemia and the symptoms of clinical ischemia are associated with ischemia time and collateral network. Paraplegia is rarely accompanied by the patient clinic; occurs because of delayed diagnosis and results in poor morbidity and mortality. In order for the treatment to be effective, the intervention should be early.

EPP8

LOWER CAVA VEIN SYNDROME - CASE REPORT

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Background: The lower cava vein syndrome is a unusual condition that affects about 3% of the patients with chronic venous insuffiency.

Case report: It is reported in this case a male patient, 60 years old, which presented repeated ulcers in the lower limbs. In relation to medical history, deep venous thrombosis occurred twenty-five years ago, and for about seven years there has been a fasciitis in the lower right leg, being submitted to fasciotomy, tissue culture and adequate antibiotic therapy, with significant improvement. The patient with inferior vein cava syndrome presents bulky varicose veins and inferior vena cava contralateral runs in the abdominal wall and angiotomography performed in 2018 by occlusion of all inferior vena cava and iliac veins. Persisting annual recurrence of venous ulcers, necessitating of treatment with endovascular surgery, preferably.

Conclusion: A possibility of endovascular treatment with recanalization using stents in the iliac veins and cava due to the patient's recurrent symptoms is being evaluated, but due to the great obstruction pathway to the endovascular treatment can be compromised, leaving the option to open a surgery (bypass), with greater morbidity to the patient. Therefore, it is important to study and discuss the possibilities of treatment for this patient.

EPP9

LEFT HALUX NECROSIS BY FUSARIUM – CASE REPORT

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Background-Aim: The fusariosis is a mycotic cutaneous lesion that presents greater incidence in immunocompromised patients. It is considered a complex infection caused by fungal species that are refractory to treatment with antifungal.

Methods: Case report and review of literature.

Results: Patient rheumatoid arthritis Carrier with left hallux lesion after one year of progress was submitted to two debridements and bacterial culture tests. The etiological diagnosis confirmed Fusarium spp. The treatment was with Voriconazol.

Conclusions: This case report is a complication of patients with immunologic system's deficiency. It is necessary further studies in order to make an early treatment of this immunodepression's complication.

EPP10

PADRER-WILLI SYNDROME IN NEWBORN PATIENT ASSOCIATED TO DEEP VENOUS THROMBOSIS

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Background-aim: The syndrome of Prader-Willi is a genetic disturb, non-hereditary, characterized by the absence or non-expression of the genes of chromosome 15. The main medical concern about this disease is the morbid obesity, which occurs still in newborn.

Methods: case report and review of literature

Results: A newborn, nighty-five days old, with previous diagnosis of Prader-Willi Syndrome developed deep venous thrombosis in right lower limb (thigh site). The correlation between the syndrome and the deep venous thrombosis related in this case seems to be coincidence.

Conclusions: Further studies are necessary in order to correlate the Prader-Willi Syndrome and the occurrence of deep venous thrombosis.

EPP11

TRAUMATIC DISSECTION OF RENAL ARTERY IN 11 YEARS OLD PATIENT

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Background-Aim: The dissection of the renal artery is considered a rare event. In some cases, the dissection of the renal artery is associated to diseases that affect the arterial system. The clinical manifestations normally appear as a classic triad: flak pain associated with hematuria and persistent arterial hypertension. Pediatric patients show more susceptibility for this occurrence due to the greater flexibility of the thoracic cavity associated with the more fragile abdominal musculature, kidneys of greater proportions and a lower amount of peri-renal fat.

Methods: Case report and review of literature.

Results: Eleven years old patient with clinical manifestations of traumatic dissection of the renal artery seek for medical assistance.

Conclusions: Even though the occurrence of this disease in pediatric patients is low, it is necessary to discuss about this in order to define treatments and determine if exist the possibility of further complications after the dissection while childhood, adult and elderly.

EPP12

ENDOVASCULAR CORRECTION OF BILATERAL ARTERY ANEURYSM WITH ZENITH AND Z-BIS ENDOPROTHESIS AND EXTENSION WITH COATED STENT

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Background-Aim: Aneurysms of the iliac system affect the common Iliac Artery more frequently and it also may occur alone or in association with Abdominal Aortic aneurysm.

Materials and Methods: This is a 49-year-old male patient with a previous medical history of celiac trunk aneurysmectomy (2005), acute myocardial infarction (2013), and arterial hypertension. Through an angiography, the patient recieved a diagnosis of an aneurysm of common iliac arteries with increased diameter (left: 2.8cm x 2.2cm and right: 1.6cm x 1.5cm) and external (left: 1.7cm x 1.8cm and right 1.6cm x 1.5cm).

Results: The endovascular correction of the aneurysm was proposed through the implantation of Zenith and Z-bis infrarenal bifurcated endoprosthesis in biliary iliacs and extension to the internal iliac artery with V12 coated stent.

Conclusion: Embolization of Internal Iliac Arteries is usually performed during endovascular repair of aortoiliac aneurysms, in order to prevent the occurrence of endoleak. However, the association of this procedure with innumerable postoperative complications is frequent, due to the decrease of the pelvic blood flow. Thus, it is necessary to develop devices and strategies for the endovascular correction of aortoiliac aneurysms. Several types of endoprostheses and strategies have been designed during the last years, aiming the preservation of the internal iliac artery. We describe in this case report the pioneering use of Z-BIS (Cook) branched endoprosthesis for the internal iliac artery.

EPP13

3D PRINTED ON ENDOVASCULAR REPAIR OF AORTIC ANEURYSMS

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Background-aim: The endovascular repair (EVAR) of abdominal aortic aneurysm has become the first-line method of treatment in most patients. Technical limitations exist due to the unavailability of material, surgical technique inexperience or complicated anatomies that do not permit proper exclusion of the aneurismal sac. Rapid prototyping has demonstrated great potential for surgical. The aim was to create rapid prototyping of complex abdominal aortic aneurysms.

Methods: The methodology was to obtain the DICOM (*Digital Imaging and Communications in Medicine)* file through an abdominal Computed tomography angiography and convert it into a CAD (*computer-aided design)* analysis. The data was sent to the 3D printing machine where the STL (Surface Tesselation Language) file format is commonly used. The model of rapid prototyping in our study was the stereolithography due its accuracy and the availability of the technology.

Results: The rapid prototyping demonstrated anatomical accuracy and allowed us to understand the configuration of the aneurysm, providing us information about the stent graft size and the location of the sealing zones.

Conclusion: Rapid prototyping can facilitate the diagnostic and help in pre-surgical planning. The pre-operative simulation of a specific and complex surgery provides an opportunity to employ surgical steps to determine the best operating strategy, increasing the surgeon's confidence, shortening operation time and reducing complications.

EPP14

LAPAROTOMY AND RETROGRADE SUPERIOR MESENTERIC ARTERY STENTING AS AN ALTERNATIVE ENDOVASCULAR REVASCULARIZATION TECHNIQUE IN PATIENTS WITH MESENTERIC ANGINA

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Aim: To describe the management of superior mesenteric artery (SMA) occlusion by means of laparotomy and retrograde stenting via a jejunal arterial branch as an alternative technique in patients with chronic mesenteric angina.

Methods & Results: A 72-year-old male presented with mesenteric angina and weight loss. CTA showed occlusion of all three splanchnic arteries. An attempt was made initially of antegrade SMA stenting via the left axillary approach, but this proved unsuccessful. The patient was discharged and rescheduled for a repeat attempt at a later date. In the meantime, he was readmitted with acute abdomen. Laparotomy found a small bowel perforation and resection and bowel anastomosis was performed without adjunctive revascularization. Despite the successful healing of the anastomosis, he continued to suffer from mesenteric angina and further weight loss. As a result, a further attempt at revascularization was attempted. Under general anesthesia and laparotomy, a jejunal branch was dissected and catheterized, a 6F-11mm sheath was inserted, and a 0.035 guide wire was passed beyond the occlusion in the thoracic aorta. A 6-mmx60-mm self-expanding stent (Protégé, EV3) was inserted and achieved a satisfactory angiographic result. He made a smooth and uneventful recovery. First month CTA showed good patency of the SMA. Six months down the line, he remains asymptomatic and regained his initial weight.

Conclusion: When SMA angioplasty/stenting via the transfemoral or transaxillary approach is not possible, retrograde stenting via a laparotomy is an alternative option.

EPP15

PROTEINS OF VARICOSE VEINS – CAN WE LEARN SOMETHING NEW?

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Objective: The advent of proteomics techniques allows large-scale studies of gene expression at protein level. Although morphological and anatomical studies indicate that venous wall weakening and subendothelial fibrosis characterize varicose veins, the pathogenesis of varicose veins (VV) remains poorly understood. The aim of this study is to obtain protein expression profiles in patients with VV. Finally, the identification of possible biomarkers may open possibilities for pharmacological inhibition of disease progression.

Methods and results: Varicose saphenous veins removed during phlebectomy and normal saphenous veins obtained during vascular surgery were collected for proteomics analysis. The same layers of venous wall from varicose and non-varicose veins were incubated, and the proteins released were analyzed by ion mobility spectrometry (IMS-MS) with Synapt G2. Proteomic analysis of the human vein revealed totally 1387 proteins. 200 proteins demonstrated significant differences in their quantity (more than 1.5 fold) between the two types of venous tissue ($p<0.05$). Among the most differentially expressed proteins 10 were found significantly decreased in the VV tissue, and only two- increased. CXXC-type zinc finger protein was more permanent (38- fold down regulated). This protein is known as receptor for vascular endothelial growth factor. All differentially expressed proteins and their pathways, coexpression and were analyzed in GeneMANIA and AmiGO databases.

Conclusions: This study provides novel insights into the biochemical mechanisms of this disease and provides a basis for further studies. Our proteomics discovery approach suggests that extracellular matrix degradation play a pivotal role in the pathogenesis of venous varicose. The identified proteins suggest that altered connective tissue proteins and increased proteolytic enzyme activity appear to be central to the pathophysiology of varicose veins. Abnormalities in vein wall architecture probably precede the development of valvular incompetence and overt varicosities.

Larger studies are required to confirm the potential and clinical role of the identified proteins.

EPP16

RENAL CARCINOMA WITH TUMOR THROMBUS INVADING THE INFERIOR VENA CAVA: A CASE REPORT

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Renal cell carcinoma is a common malignant tumor of the urinary system. In 4-10 % of the patients, the carcinoma is complicated by renal vein and inferior vena cava tumor thrombus, in 1% of such cases, patients may have tumor thrombus extended as high as into right atrium. Because of the poor results obtained with any kind of alternative therapy (e.g. radiation, hormonal, chemotherapy and immunotherapy), operation with complete removal of the vena cava tumor thrombus continues to be the major method of treatment. The operative procedure necessary for this stage of the disease carries an increased probability of complications, depending usually on the extent of the vena cava thrombus, and requires familiarity with vascular surgery techniques, the most challenging of which may demand cardiac bypass facilities for the management of extension of the tumor into the right atrium. The aim of this article is to present one case of surgical treatment of renal carcinoma and tumor thrombus in inferior vena cava.

EPP17

SECONDARY AORTO-DUODENAL FISTULA TREATED WITH STAGED ENDOVASCULAR AND EXTRA-ANATOMIC PROCEDURE. PRESENTATION OF A CASE

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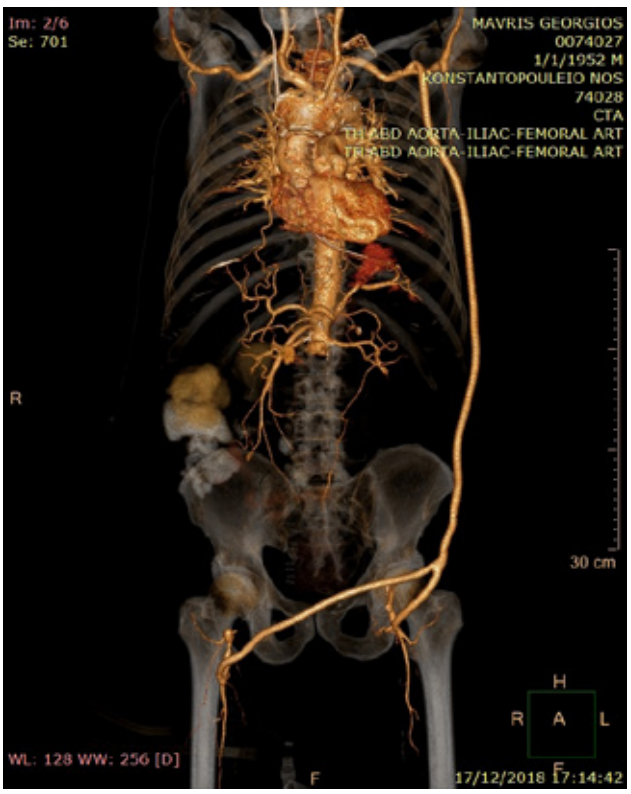
Background: Secondary Aorto-enteric fistula (AEF) is a potentially lethal complication following aortic bypass graft surgery. This report presents a patient treated for an AEF following a staged bridging therapy.

Material and methods: Collection and presentation of peri-operative data.

Case Report: A 69-year-old male patient was admitted to our department because of hematemesis and fluid discharge from both the femoral countries. He was operated twice before with a femoro-popliteal and an aorto-bi-femoral bypass. Emergency endoscopy revealed gastrointestinal bleeding and ulceration in the fourth portion of the duodenum. CTA control revealed an infected aortic graft and a secondary AEF was suspected. The patient was operated in an emergency setting, using aortic cuffs which covered the ostium of the AEF. The patient discharged on the 6th postoperative day with request for permanent antibiotic treatment. One year thereafter he re-admitted with gastrointestinal blood loss and anemia. Emergency endoscopy showed an aorto-duodenal fistula treated with a Thoracic endograft. Two months later, he presented with pain in the upper abdomen. Emergency CTA revealed a 4 cm symptomatic pseudoaneurysm of the proximal anastomosis and caudal migration of the cuffs. An extra-anatomic axillary to bifemoral bypass performed. Then, we proceeded with extraction of the infected aortic grafts and ligation of the aorta below the renal arteries **(Fig. 1)**. Four months later, the patient remains well.

Conclusions: Endovascular treatment of AEF is the first line therapeutic option in patients with acute bleeding in the setting of a staged bringing therapy followed by an open-label aortic reconstruction.

Figure 1



EPP18

STENOSIS OF SUBCLAVIAN ARTERY CAUSING MYOCARDIAL ISCHEMIA

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Introduction: The internal mammary artery, a branch of subclavian artery, is an artery which is frequently used as a graft to restore coronary circulation.

Stenosis of proximal subclavian artery can cause retrograde blood flow in the vertebral arteries causing dizziness or syncope. However, a significant stenosis or occlusion of proximal subclavian artery can cause deterioration in coronary circulation supplied by internal mammary artery, causing angina or myocardial infarction.

Case report: A 68-year-old man with coronary artery disease (CABG fifteen years ago) and arterial hypertension, presented with angina pectoris. Owing to the severity of symptoms, cardiologist performed an angiocardiogram which revealed patency of the coronary artery bypass grafts, yet, a significant coralloid stenosis of proximal subclavian artery. A consultation by vascular surgeon was asked and the patient eventually underwent a percutaneous transluminal angioplasty of subclavian artery (9x19mm). The patient discharged with complete resolution of his symptoms and increase in his left brachial artery blood pressure.

Conclusion: Long-term follow up and meticulous clinical examination is mandatory for CABG patients. Coronary - subclavian steal syndrome in patients with an internal mammary to epicardial coronary artery (principally involving the left anterior descending artery) is related to significant stenosis of ipsilateral subclavian artery.

EPP19

VIRTUAL PARTIAL FOOT AMPUTATION BASED ON FINITE ELEMENT ANALYSIS

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Background: Finite Element Analysis (FEA) is an important tool to show different pressures on a surface. The analysis is based on a CAD (computer aided design) file. As the medical acquisition is from tomography imaging, is mandatory to create a link between them.Diabetic foot who will be submitted to a partial amputation has no rule of pressure distribution after surgery, leading to decreasing quality of life of the patients.

Methods: Acquisition of the DICOM file through abdominal angiotomography and processing for CAD analysis. Sequencing and finalization generating files compatible with finite element analysis. In specific engineering programs, we are able to show the different pressures in the foot surface. After that, is possible to make a partial exclusion of the foot (virtual amputation) and redo the pressure dots.

Results: The virtual amputation helps of determination of the best surgical practice, increasing the capacity of healing. This experiment can be done as many times as necessary and is replicable to any kind of amputation.

Conclusions: The use of FEA before partial amputation of diabetic foot offer better surgical strategies, increasing the quality of life.

EPP20

CAROTID ARTERY ENDARTERECTOMY VS. STENTING: MORPHOLOGICAL AND HEMODYNAMIC CHARACTERIZATION OF THE CAROTID BIFURCATION

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Background: Carotid artery stenosis is partially triggered by atherogenic hemodynamic conditions regulated by the bifurcation region morphology. The predictive potential of morphological and hemodynamic features was recently examined in the post-carotid endarterectomy (CEA) setting, suggesting that a long arteriotomy may result in flow disturbances leading to higher restenosis risk. Here, we study the impact of carotid stenting (CAS) vs. CEA with patch-plasty on the carotid bifurcation geometry supported by patient-based hemodynamic simulations.

Methods: After digitally reconstructing CT data of patients treated with CAS (n=2) or CAE (n=2), we segmented the 3D carotid geometries. A centerline-based analysis was carried out in terms of tortuosity and flare parameters. Complementary computational hemodynamic simulations were performed to determine the extent of areas exposed to low and oscillatory wall shear stress.

Results: A different reshaping of the carotid bifurcation was observed as a consequence of CAS vs. CAE. Particularly, stent implantation led to reduced tortuosity, while no significant variation was observed for flare. Conversely, CEA led to a significant increase of flare and to minor variation of tortuosity. Larger risk areas exposed to disturbed shear stress were found in stented cases.

Conclusion: The results suggest that different restenosis evolutions are possible in the long term after CAS or CEA. The larger risk areas after CAS might be a sign of deficiency but the decrease of tortuosity could counteract the possible flow disturbances. A geometric analysis can provide useful indications on (1) the best treatment strategy, and (2) the stratification of post-intervention restenosis risk.

EPP21

ENDOVASCULAR TREATMENT OF PERSISTENT SCIATIC ARTERY ANEURYSMS WITH COVERED STENTS: A SYSTEMATIC REVIEW OF THE LITERATURE

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Background-Aim: Persistent sciatic artery (PSA), a rare vascular anomaly, is an embryologic remnant of the internal iliac artery. PSA undergoes aneurysmal degeneration in 45% of the cases. In this study, we evaluated the presenting symptoms, safety, efficacy and outcomes of the endovascular treatment of PSA aneurysms.

Methods: This systematic review was conducted according to the PRISMA guidelines and eligible studies were identified through search of the PubMed, Scopus and Cochrane Central databases.

Results: Fifteen case report studies, comprising 15 patients overall, were included in this systematic review. The median age of the patients included in these studies was 64 years old and 47% of the patients were women. The PSAA was located at the left side in 57% of the reported cases, right side in 36% and bilaterally in 7%. The majority of patients presented with progressive limb claudication, palpable and pulsatile buttock mass. The onset of symptoms was sudden in 78% of the reported cases. Additionally, the distal pulses on PSAA side were diminished or absent in 91% of the patients. Acute limb ischemia was the primary diagnosis in 75% of the cases. All patients underwent endovascular repair of the PSAA with a covered stent. Procedural outcome was favorable in all patients demonstrating no symptoms recurrence, aneurysmal regression or total obliteration evaluated by angiographic studies. Periprocedural imaging evaluation was determined either with CT angiography or Duplex Ultrasound. Periprocedural complications included only one endoleak with distal dissection. This endoleak was identified after stent deployment and dissection distal to the aneurysm. Mean follow up was 22 months, with all patients being asymptomatic with no symptoms recurrence.

Conclusion: The endovascular treatment of PSAA with covered stent is safe and effective. PSAA is associated with high procedural success, low periprocedural compilations and favorable mid-term follow up.

EPP22

THE ROLE OF PRE-OPERATIVE EMBOLIZATION IN CAROTID BODY TUMOR SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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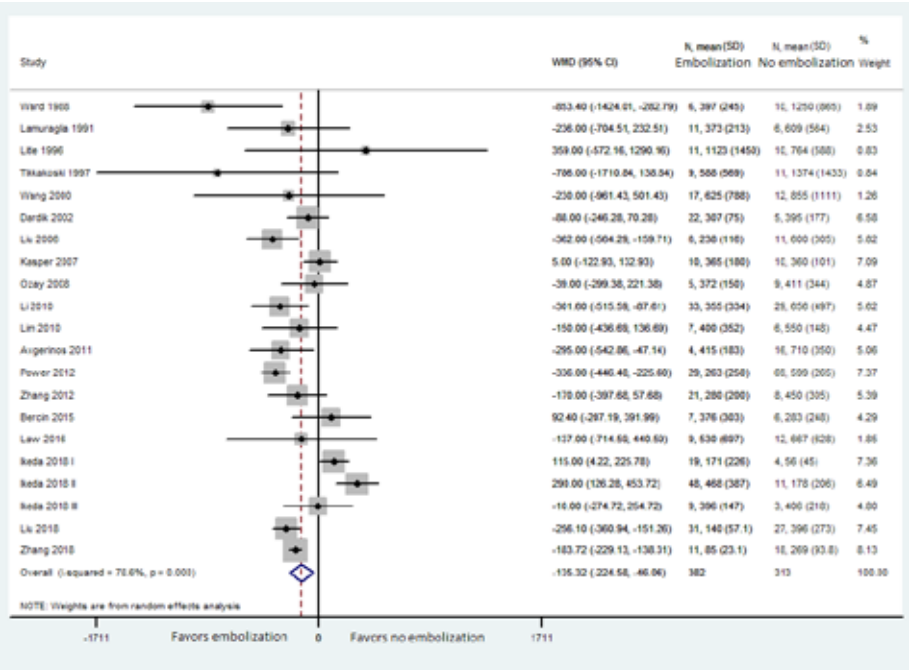
Background-Aim: Carotid body tumors (CBTs) are highly vascularized tumors which can render tumor resection surgery challenging. There is evidence suggesting that pre-operative selective embolization may reduce blood loss during surgery and decrease the risk of perioperative complications; however recent reports have questioned the benefits that pre-operative embolization may provide. The aim of this study was to investigate the impact of pre-operative embolization on CBT surgical resection.

Methods: This study was performed according to the PRISMA guidelines. Eligible studies were identified through a search of PubMed, Scopus and Cochrane until March 2019. A random effects model meta-analysis was conducted and the I-square statistic was used to assess for heterogeneity.

Results: Twenty-five studies comprising 1,326 patients were included. Patients who received pre-operative embolization had statistically significant lower intra-operative blood loss (WMD: -135.32; 95%CI: -224.58- -46.06; I^2: 78.6%). Duration of the procedure was statistically significant shorter in the pre-embolization as compared to the non-embolization group (WMD: -38.61; 95%CI: -65.61- -11.62; I^2: 71.9%). There were no differences in the rates of CN injuries (OR: 1.13; 95%CI: 0.68-1.86; I^2: 12.9%), stroke (OR: 1.75; 95%CI: 0.70-4.36; I^2: 0%), transient ischemic attacks (TIA) (OR: 0.55; 95%CI: 0.11-2.65; I^2: 0%) and length of stay (WMD: 0.32; 95%CI: -1.35- 1.98; I^2: 96.4%) between the two groups.

Conclusions: Patients who received embolization prior to carotid body tumor resection had statistically significant lower blood loss and shorter duration of operation. The rates of cranial nerve palsy, stroke, TIA and length of stay were similar between patients who had pre-operative embolization and those who did not.



EPP23

INITIAL EXPERIENCE WITH THE BALLON-EXPANDABLE STENTGRAFT (GORE VIABAHN VBX) AT BRANCHED AND FENESTRATED ENDOGRAFTING

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Background-Aim: The purpose of our study was to evaluate the initial performance of the new ballon-expandable stentgraft (Gore Viabahn VBX) at branched and fenestrated endografting.

Methods: Retrospective analysis of prospective collected data was performed. Patients treated with fenestrated or branched endografting for complex aortic pathologies and received at least one VBX stentgraft as distal bridging stent at one of the target vessels and received a CT-scan postoperatively were included into the study. Procedural- and postoperative data were analyzed. The primary endpoint of the study was technical success, defined as placement of the stentgraft at the desired position with absence of endoleak at the final angiography. Secondary endpoints were perioperative complications, perioperative- and 30-day all-cause mortality.

Results: During December 2017 and October 2018 fifty patients (41 male, mean age 72 years) fulfilled the inclusion criteria. A total of 166 VBXs were implanted, followed by 65 Advantas, 30 Viabahns and 21 bare-metal stents. 122 branches (renal arteries: 74, superior mesenteric artery: 25 and celiac trunc:21) sealed exclusively with VBX. Absence of type III endoleak recorded at all cases. There was a single stent-related reintervention due to stent occlusion of a left renal postoperatively, which was treated successfully with aspiration thrombectomy and a bare-metal stent. The perioperative- and 30-day all-cause mortality was 0%.

Conclusions: The new ballon-expandable VBX showed promising results, as bridging stent for branched and fenestrated endografting. On the other hand, further evaluation in the long run is mandatory to exclude safe conclusions.

EPP24

ENDOVASCULAR MANAGEMENT OF AORTIC OCCLUSION AND RENAL ARTERY STENOSIS WITH THE CHIMNEY TECHNIQUE

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Background-Aim: Aortic occlusion due to calcification in the level of the renal arteries can pose a serious challenge during management of critical limb ischemia. Although open surgery offers a viable solution, patient's comorbidities and unique anatomy may necessitate the application of advanced and complex endovascular techniques in order to minimize perioperative morbidity and mortality.

Methods: A CTA scan on a 63-year old patient suffering from critical limb ischemia revealed an aortic occlusion at the level of the renal arteries, and an additional stenosis of the right renal artery. Extreme obesity, oxygen therapy due to severe COPD and impaired renal function excluded the patient from open repair via laparotomy. An endovascular approach was decided with implantation of a balloon expandable stentgraft in the aorta and transaxillary deployment of 'chimney' stentgrafts in both renal arteries, due to the pararenal extension of the calcification.

Results: The procedure was uneventful and technically successful. A postoperative CTA showed an increase of the aortic lumen size, while ultrasound demonstrated good perfusion of both renal arteries, and an improved renal function. Patient's symptoms subsided, while he was discharged on the 7th day.

Conclusion: Pararenal aortic occlusion is a challenging clinical scenario especially in patients unfit for open surgery. Chimney technique in combination with a large diameter balloon expandable stentgraft can offer a viable treatment alternative.

EPP25

SYNCHRONOUS CAROTID ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFT VERSUS STAGED CAROTID ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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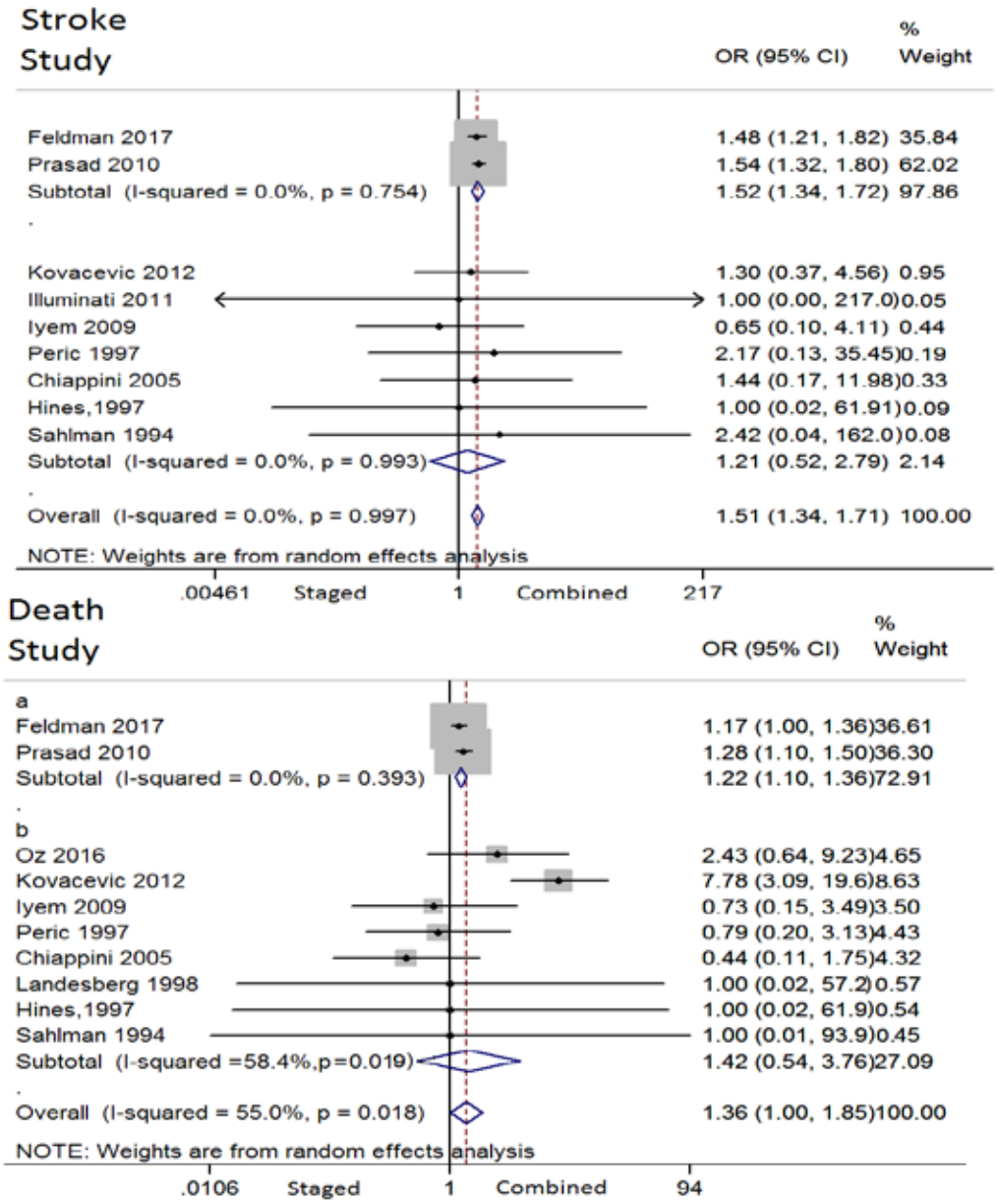
Background: Due to the systemic nature of atherosclerosis arteries at different sites are commonly simultaneously affected. As a result, severe Coronary Artery Disease requiring Coronary Artery Bypass Graft frequently coexists with significant carotid stenosis that warrants revascularization.

Objective: To compare simultaneous CEA and CABG vs. staged CEA and CABG for patients with concomitant CAD and carotid artery stenosis in terms of peri-operative outcomes.

Methods: This study was performed according to the PRISMA guidelines. A meta-analysis was conducted with the use of a random effects modeling. The I-square statistic was used to assess for heterogeneity.

Results: Eleven studies comprising 44,895 patients were included in this meta-analysis (21,710 in the combined group and 23,185 patients in the staged group). The combined CEA and CABG group had a statistically significant lower risk for myocardial infarction (OR:0.15;95% CI:0.04-0.61;I^2=0.0%) and higher risk for stroke (OR:1.51;95%CI:1.34–1.71;I^2=0.0%). Mortality (OR:1.36;95%CI:1.00–1.8;I^2=55%), transient ischemic attacks (OR:1.27;95%CI:1.00-1.61;I^2=0.0%), postoperative bleeding (OR:0.82;95%CI:0.22-3.05;I^2=0.0%) and pulmonary complications (OR:1.52;95%CI:0.24-9.60;I^2=67.5%) were similar between the two groups.

Conclusions: Patients in the simultaneous CEA and CABG group had a significantly higher risk of 30-day stroke and lower risk for MI as compared to staged CEA and CABG group. The rates of TIA, postoperative bleeding and pulmonary complications were similar between the two groups. Future randomized trials or prospective cohorts are needed to validate our results.


Stroke
Study
OR (95% CI)
%
Weight
Feldman 2017 1.48 (1.21, 1.82) 35.84
Prasad 2010 1.54 (1.32, 1.80) 62.02
Subtotal (I-squared = 0.0%, p = 0.754) 1.52 (1.34, 1.72) 97.86
Kovacevic 2012 1.30 (0.37, 4.56) 0.95
Illuminati 2011 1.00 (0.00, 217.0) 0.05
Iyem 2009 0.65 (0.10, 4.11) 0.44
Peric 1997 2.17 (0.13, 35.45) 0.19
Chiappini 2005 1.44 (0.17, 11.98) 0.33
Hines,1997 1.00 (0.02, 61.91) 0.09
Sahlman 1994 2.42 (0.04, 162.0) 0.08
Subtotal (I-squared = 0.0%, p = 0.993) 1.21 (0.52, 2.79) 2.14
Overall (I-squared = 0.0%, p = 0.997) 1.51 (1.34, 1.71) 100.00
NOTE: Weights are from random effects analysis
.00461
Staged
1
Combined
217
Death
Study
OR (95% CI)
%
Weight
a
Feldman 2017 1.17 (1.00, 1.36) 36.61
Prasad 2010 1.28 (1.10, 1.50) 36.30
Subtotal (I-squared = 0.0%, p = 0.393) 1.22 (1.10, 1.36) 72.91
b
Oz 2016 2.43 (0.64, 9.23) 4.65
Kovacevic 2012 7.78 (3.09, 19.6) 8.63
Iyem 2009 0.73 (0.15, 3.49) 3.50
Peric 1997 0.79 (0.20, 3.13) 4.43
Chiappini 2005 0.44 (0.11, 1.75) 4.32
Landesberg 1998 1.00 (0.02, 57.2) 0.57
Hines,1997 1.00 (0.02, 61.9) 0.54
Sahlman 1994 1.00 (0.01, 93.9) 0.45
Subtotal (I-squared =58.4%,p=0.019) 1.42 (0.54, 3.76) 27.09
Overall (I-squared = 55.0%, p = 0.018) 1.36 (1.00, 1.85) 100.00
NOTE: Weights are from random effects analysis
.0106
Staged
1
Combined
94

EPP26

COMPARISON OF DIFFERENT ANESTHESIA TECHNIQUES DURING RADIOFREQUENCY VENOUS ABLATION FROM THE POINT OF PATIENT'S COMFORT

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Background-Aim: Radiofrequency ablation (RF) of the superficial veins is an accepted treatment method for the treatment of venous reflux. Procedures may be performed with various anesthesia methods. In this report we sought to investigate the effects of midazolam + fentanyl combination and propofol + remifentanyl combination on patient comfort.

Methods: A total of 60 patients scheduled for RF with similar demographic features were divided into two groups. Patients in Group 1 (n: 30) received intermittant sedation anesthesia with midazolam + fentanyl combination while patient in Group 2 (n:30) received continuous propofol + remifentanyl combination. Patient comfort was evaluated with visual analog scale (VAS) for pain and Ramsay Sedation Scale (RSS) for sedation level. Apnea, hypoventilation and various other adverse events were recorded. At the end of the procedure, physician and patient satisfaction were assessed with a scoring system from 1-10.

Results: VAS was calculated in Group 1 and in Group 2 respectively 2,76 ± 1,97 / 2,56 ± 1,02 (p=0,33). There was also statistically significant difference between RSS between groups (Group 1, RSS: 3,46 ± 1,35 and Group 2, RSS: 3,06 ± 0,89, p=0,051). Apnea and hypoventilation occured in 7 patient in Group 1 and 4 patients in Group 2 (p= N/S). At the end of the procedures, there was statistically significant difference between the patients comfort Group 1 in 5,8± 2,01 Group 2 in 6,67±1,59 (p=0,009) and surgent comfort Group 1 in 6,06 ±2,09 Group 2 in 7,67±1,45 (p=0,002) in both groups; however, better patient and physician comfort was achieved with propofol and remifentanyl combination.

Conclusion: Carefully adjusted doses of propofol + remifentanyl combination has been found to be superior to midazolam + fentanyl combination providing better patient and physican comfort during RF ablation of superficial venous disease.

Table 1. Patient features, Visual Analog Scale, Ramsay Sedation Scale, Adverds Events, Patient Sadisfaction, Surgent Sadisfaction mean and standart deviations and p values.

	Group 1	Group 2	p
Visual Analog Scale	2,76±1,97	2,56±1,02	0,33
Ramsay Sedation Scale	3,46±1,35 (1-6)	3,06±0,89 (2-5)	0,051
Adverse Events	1,76±0,42 (7)	1,86±0,33 (4)	0,18
Patient Satisfaction	5,8±2,01	6,67±1,59	0,009
Surgeon Satisfaction	6,06±2,09	7,67±1,45	0,0003

EPP27

FEMORO-FEMORAL BYPASS THROUGH THE PRE-PERITONEAL SPACE IS SAFE AND MAYBE GEOMETRICALLY FAVORABLE COMPARED TO THE TRADITIONAL SUBCUTANEOUS GRAFT POSITION

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Introduction: Femoro-femoral bypass is an important reconstructive option for patients with unilateral iliac occlusive disease. The subcutaneous plane is the typical location to tunnel the graft but a pre-peritoneal position may be advantageous in selected cases (i.e. prior surgery, skin conditions, an unusually thin subcutaneous fat layer, or obesity predisposing to unfavorable geometry). The latter position may be associated with injury to bowel or urinary bladder. Taking into account the inherenttendency of the graft to kink within the sagittal plane in case of a subcutaneous tunnel we have progressively lowered the threshold to opt for a pre-peritoneal graft location. We aim to report our experience with the use of femoro-femoral bypass through the pre-peritoneal space.

Methods: Consecutive patients undergoing femoro-femoral bypass through the pre-peritoneal space were retrospectively reviewed.

Results: Seven patients received the abovementioned procedure during a 12-month period. Concurrently, 7 patients underwent subcutaneous femoro-femoral bypass. Indication was critical limb ischemia in all cases. Mean follow-up was 8 months. One patient died of unrelated causes. Primary patency of the prosthesis was 100%. No cases of infection and no intra-operative complications were recorded. In 4 cases the profunda while in 3 the superficial femoral artery was the outflow vessel. Median preoperative ankle brachial index was 0.2 which increased to 0.7 postoperatively. Limb salvage was 100%.

Conclusion: A pre-peritoneal location for femoro-femoral bypass is a safe alternative to tunneling the bypass subcutaneously which may be geometrically advantageous offering higher patency rates while protecting the graft behind the rectus muscle.

EPP28

ENDOVASCULAR REPAIR OF AORTIC ARCH BRANCHES' PATHOLOGIES

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Background/Aim: Endovascular repair for several pathologies of the aortic arch branches seems to provide a sufficient minimally invasive approach. The aim of this study was to analyze our results using the endovascular approach as the first line option.

Methods: During a two-year period, nine patients (mean age 75, range 43-91 years, 2 females), with acute or chronic pathologies of the supra-aortic vessels were treated by endovascular means. Six patients were symptomatic. Three of them suffered from subclavian (2) or innominate stenosis (1). A female patient presented with common carotid artery ulcer, while two patients presented with upper limb hematoma due to iatrogenic trauma of the left subclavian artery. In all three asymptomatic patients, a common carotid artery severe stenosis was found incidentally during the workflow for internal carotid artery disease. In all cases, computed tomography angiography set the diagnosis.

Results: All patients were treated with 9 covered stent-grafts and one uncovered stent. The technical success was 100%. No stroke or transient ischemic attack was recorded. The early (30-days) morbidity and mortality rate was null. The median postoperative hospital stay was 2 days (range 1-4). During a follow-up period of 13 months (range 3-24 months), patency rate was 100%, with no re-intervention needed. No other complication or death was recorded during that period.

Conclusion: Endovascular treatment of supra-aortic vessels pathologies seems to be safe with good mid-term results. A larger number of patients with longer follow-up could verify those outcomes and the absence of any re-intervention need.

EPP29

ENDOVASCULAR TREATMENT OF ISOLATED INTERNAL ILIAC ARTERY ANEURYSMS. PRESENTATION OF A CASE AND REVIEW OF THE CURRENT LITERATURE

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Background: Isolated internal iliac aneurysms (IIAs) represents 1% of all aneurysms, while only 3% to 16% of them are symptomatic at the time of diagnosis. The aim of the current report is to present a patient with bilateral IIAs treated endovascularly. We also conduct a literature review of patients with isolated IIAs operated endovascularly in order to investigate the efficacy of the method.

Materials and methods: We present peri-operative data. Moreover, medical databases MEDLINE and EMBASE were searched to identify eligible studies referred to the endovascular treatment of isolated IIAs.

Results: A 63 years-old male patient presented in our department with a 3.47 asymptomatic aneurysm of his right IIA and a 4.17 cm of his left. We used a balloon expandable stent-Graft for the right IIA, while the left one covered with an endovascular limb. The procedure was uneventful, and the patient six months thereafter is doing well **(Fig. 1)**. After a review of the current literature we recorded 11 patients with 15 isolated IIAs treated endovascularly **(Table 1)**. The age of patients ranged from 36 to 84 years old. Four lesions were related to both IIAs, four to the right and three to the left. Endovascular treatment was offered using an IBE endograft, a stent – graft endoprosthesis and embolization with coils, plug or microspheres with successful results **(Table 2)**.

Conclusions: Endovascular surgery may be the first line treatment for isolated internal iliac artery aneurysm, as it is associated with high rates of technical success and low rates of complications.

Figure 1

Table 1. Demographics		
Gender	Male	10(90,91%)
	Female	1(9,09%)
Age		~70(36-84)
Risk factors	Hypertension	6
	Hypercholesterolemia	6
	Diabetes	4
	Coronary disease	4
	Kidney disease	2
	Bechet disease	1

Table 2: Treatment strategy	
Endoprosthesis (stent graft)	1
Embolization (coils, plug or microspheres)	4
Endoprosthesis and coil embolization	4
Iliac Branch Endoprosthesis (IBE) and endoprosthesis (stent graft)	1
Iliac limb	1
Iliac limb and coil embolization	3
Iliac limb, coil embolization and thrombi**n**	1

EPP30

COMBINED DIRECTIONAL ATHERECTOMY AND DRUG COATED BALLOON ANGIOPLASTY FOR TREATMENT OF FEMOROPOPLITEAL STENOTIC LESIONS: HOW WELL DOES IT WORK? A SYSTEMATIC REVIEW OF LITERATURE

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Background-Aim: A current popular strategy of addressing femoral/popliteal occlusive disease, involves the combined debulking action of atherectomy with the potentially beneficial antirestenotic effects of drug-coated balloon angioplasty. In this study, we sought to evaluate the safety and efficacy of the combined use of directional atherectomy followed by drug coated balloon angioplasty for the treatment of femoropopliteal stenotic lesions.

Methods: This systematic review was conducted according to the PRISMA guidelines and eligible studies were identified through search of the PubMed, Scopus and Cochrane Central databases.

Results: Four studies comprising 167 patients with lesions located in superficial femoral artery (92 lesions), in distal SFA/popliteal artery (23 lesions) and in popliteal artery (57 lesions) were included in this systematic review. 67.4% were men, 83% hypertensive, 37.7% diabetic and 70.6% had dyslipidemia. Of the lesions 28.1%, 44.8%, 24% and 3% were TASC A, B, C and D respectively. All patients underwent directional atherectomy followed by DCB angioplasty. The overall mean length of the treated lesions was 103.3mm, while 40.1% of the lesions showed severe calcification based on angiographic, fluoroscopic and radiographic evaluation. Pre-operative angiography demonstrated a mean diameter stenosis of 87.3%. Procedural success was achieved in 93.6% of all cases with an associated 80.8% and 72.9% primary patency rate at 6 months and 12 months respectively. Periprocedural complication rates were 2.3% for embolization and 1.1% for dissection. Three out of four studies that were included in this systematic review were comparative. In these studies, this combined strategy was associated with superior event-free survival at 12 months of follow up, higher primary patency rate and technical success.

Conclusions: The combined use of directional atherectomy and DCB angioplasty for femoropopliteal stenotic lesions seems safe and effective with high procedural success, primary patency rates and low periprocedural complications. Future studies are warranted to validate our results.

EPP31

SYNCHRONOUS CAROTID ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFT VERSUS STAGED CAROTID ARTERY STENTING AND CORONARY ARTERY BYPASS GRAFT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background-Aim: Due to the systemic nature of atherosclerosis, medium and large arteries at different sites are commonly simultaneously affected. As a result, severe coronary artery disease (CAD) requiring coronary artery bypass graft (CABG) frequently coexists with significant carotid stenosis that warrants revascularization. The aim of this study was to compare synchronous carotid endarterectomy (CEA) and CABG vs. staged carotid artery stenting (CAS) and CABG for patients with concomitant CAD and carotid artery stenosis in terms of peri-operative (30-day) outcomes.

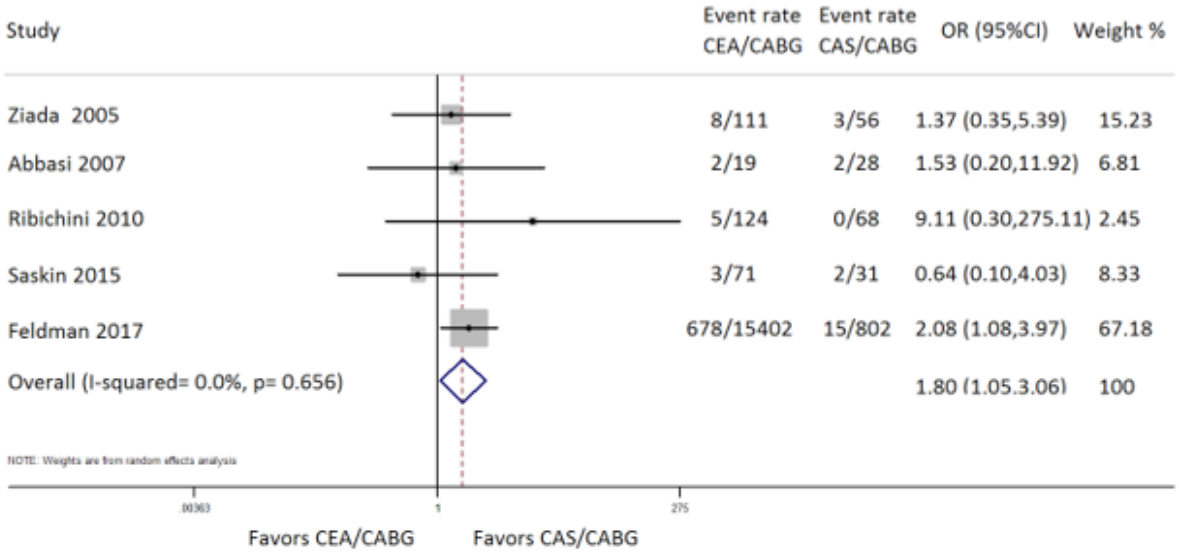
Methods: This study was performed according to the PRISMA guidelines. Eligible studies were identified through a search of PubMed, Scopus and Cochrane until July, 2018. A meta-analysis was conducted with the use of a random effects model. The I-square statistic was used to assess heterogeneity.

Results: Five studies comprising 16,712 patients were included in this meta-analysis. Peri-operative stroke (odds ratio (OR): 0.84; 95% confidence interval (CI): 0.43– 1.64; I^2= 39.1%), transient ischemic attack (TIA) (OR: 0.32; 95% CI: 0.04– 2.67; I^2= 27.6%) and myocardial infarction (MI) rates (OR: 0.56; 95% CI: 0.08– 3.85; I^2= 68.9%) were similar between the two groups. However, patients who underwent simultaneous CEA and CABG were at a statistically significant higher risk for peri-operative mortality (OR: 1.80; 95% CI: 1.05– 3.06; I^2= 0.0%).

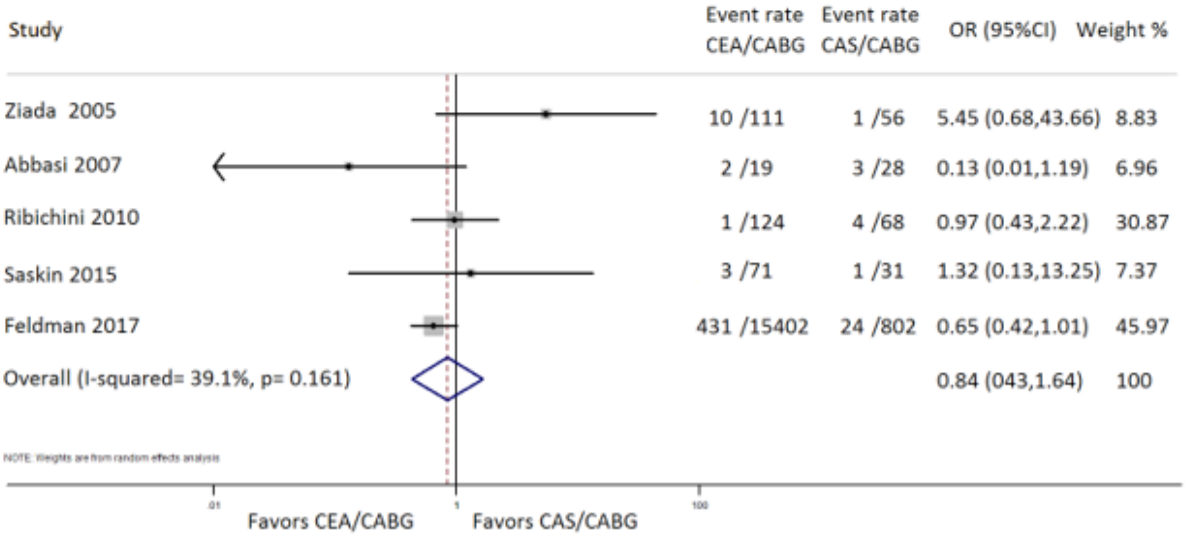
Conclusions: The current meta-analysis did not detect statistically significant differences in the rates of peri-operative stroke, TIA and MI between the groups. However, patients in the simultaneous CEA and CABG group had a significantly higher risk of 30-day mortality. Future randomized trials or prospective cohorts are needed to validate our results.

This forest plot presents the comparison between simultaneous CEA & CABG and staged CAS & CABG in patients with concomitant severe coronary and carotid stenosis in terms of 30-day:

A. Death



B. Stroke



EPP32

ANTICOAGULATION STRATEGY IN PATIENTS WITH ATRIAL FIBRILLATION AFTER CAROTID ENDARTERECTOMY

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Aim: Carotid artery stenosis and atrial fibrillation are diseases of the aging patient population. The literature lacks about anticoagulant therapy modality for the patients with atrial fibrillation after carotid endarterectomy. We present our experiences and anticoagulant therapy strategy in this paper.

Patients and Methods: Between June 2001-September 2017, 165 patients with chronic or paroxysmal atrial fibrillation out of 1594 cases from three different institutions whom received Coumadin and aspirin and required carotid endarterectomy were reviewed respectively. Mean age was 63.4 ± 7.9 years. Male / female ratio was 102/63. 67 patients were diabetic and 138 patients were hypertensive.

Results: Patients are followed a mean of 64.4±16.9 months. Early mortality occurred in two patients due to intracranial bleeding and heart failure. One patient was lost due to intracerebral hemorrhage and 16 other patients died due to various causes in the late follow up. Three patients required exploration against bleeding.

Conclusion: Literature lacks about medical treatment in patients with atrial fibrillation who underwent carotid endarterectomy. Our therapy protocol includes combination of warfarin with an aim to keep the INR value between 2-3 and aspirin at a dosage of 100mg per day . However, more extensive studies are needed for the certain therapy protocols.

EPP33

IMPACT AND IMPLICATIONS OF VASCULAR SURGERY SOCIAL MEDIA REGULATORY GUIDELINES

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Aim: This paper reviews available national regulatory body and specialist surgical society guidelines on Social Media from the perspective of vascular surgery and comments on their impact upon the nature of clinician contributed online content.

Methods: Peer reviewed literature and the world wide web were reviewed for Social Media guidance from surgical societies and national boards across Europe, North America, Australia & New Zealand and India. Utilising the same data sources, the interactive portals most frequented by clinicians engaging in social media were identified. Regularly active profiles were interrogated for content quality and regulatory compliance.

Results: All agencies stipulated that real life professional standards of confidentiality and ethics applied undiluted to virtual content. Additional tenets specific to Social Media guidance from professional organisations emphasised the maintenance of personal boundaries by participating clinicians, the infinite timeline and unlimited audience served by uploaded material and the concept of cumulative identifiability from collective data points. Specificity of guidance in terms of practical considerations in the workplace, comprehensiveness of regulations with respect to the multiple avenues of prevalent online interactions and compliance of users with certain stated principles were incomplete. These limitations negatively affected content quality.

Conclusions: Current Social Media guidelines relatable to vascular surgery are incomplete in remit and uptake, with a detrimental impact upon content quality. Two different models of engagement – one predicated upon prescriptive regulatory guidance and the other dependent on patient controlled data - are proposed to address these deficiencies.

EPP34

DISTAL FENESTRATION TECHNIQUE FOR MANAGEMENT OF ACUTE SUPERIOR MESENTERIC ARTERY DISSECTION: CASE REPORT

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Introduction: The acute dissection of the superior mesenteric artery (SMA) without aortic involvement is a rare clinical entity. It is typically characterized by acute abdominal pain and diagnosis is made by CTA and selective angiography.Sakamoto and Zerbit categorized in six types of dissection.

Case presentation: A 79-years-old male is admited in our hospital with symptoms of acute abdomen. Emergency diagnostic laparoscopy was performed in which no abnormal findings were found. Due to worsening of the clinical condition within 12 hours, CT angiography (CTA) of the upper and lower abdomen and retroperitoneum is performed. There was extensive separation of SMA without aortic involvement. Immediate selective digital angiography was performed and an attempt was made to restore the SMA dissection endovascularly and to manage the mesenteric ischemia respectively. However the procedure was impossible due to technical difficulties. Due to the worsening of the clinical signs of the patient, urgent laparotomy was performed. Preoparative diagnosis is confirmed with extented dissection of the SMA up to the ileotcoecal artery with extended ischemia of small bowel. Next, preparation of ileotcoecal artery at the level of its bifurcation and control with vessel loops. Arteriotomy and local excision of the dissection membrane are performed. Peripheral thrombectomy with Fogarty catheter and extraction of a small thrombus was made. The central part of membrane was removed with the Rififi technique (combination of Fogarty catheter & Vollmar rings). Good in-flow was achieved. Half an hour later gangrenous demarcation of approximately 80 cm jejunum was observed and enterectomy was performed and restored by end-to-end entero-anastomosis by the General Surgeon. The postoperative follow-up was free of further complication and the patient was discharged 12 days after surgery. During the FU period of 24 months the patient was free of any clinical and angiographical (CTA) complications.

Conclusion: Acute mesenteric isch: emia due to isolated SMA dissection is a rare entity. In case of failure of endovascular management the open repair is a real option in order to avoid extended enterectomies and complications which are associated with disabled conditions (short bowel syndrome etc)

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EPP35

MANAGEMENT OF ARTERIO-ENTERIC (ILIAC-COLONIC) FISTULA WITH TRANSANAL MASSIVE BLEEDING: CASE REPORT

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Introduction: Aorto-intestinal fistulas are result from communication of the aorta or its branches with the digestive system. They are characterized by massive bleeding that usually leads to shock and death. Their most common cause is abdominal aortic aneurysms. Neoplasms, peptic ulcer and pancreatic pseudocysts are rarely responsible. The purpose of this case report is to present an incident with iliac-intestinal communication and transanal massive bleeding that has been treated surgically.

Case presentation: A 79-year-old female patient was admitted to our Clinic with hemorrhagic shock due to a massive anal blood loss. From history(2-years ago) endometrial adenocarcinoma (T4N2M0, G1 differentiation) was reported. The patient was operated on and because of local recurrence (sigmoid infiltration 11 months ago) a redo-surgery (Hartman) was needed. At admittion laboratory testing reveals Hb 6, Hct 19, WBC: 4,000 and a high CRP value (6,805). The patient was subjected to CT scan and recto-sigmoidoscopy. Emeegency laparotomy for massive hemorrhage control was performed. During the procedure, infiltration and encasing of iliac vessels and direct communication (fistula) between external iliac artery and Hartmann stump respectively was observed. The patient was treated by tumor removal and primary left external iliac artery ligation. On the 2nd postoperative day, the patient showed improvement of her general condition but she developed signs of subacute ischemia of the left lower limb. Thrombectomy at the level of femoral bifurcation and femoro-femoral crossover bypass was performed in order to restore the perfusion in the left lower extremity . The patient recovered and was discharged on the 10th day. During the FU period of 24 months the patient was free of any vascula and oncological complications.

Conclusion: Direct communication (fistula) between external iliac artery and Hartmann stump is rarely reported in the literature. Interdisciplinary approach is necessery to manage this dificult cases. In order to avoid bad clinical outcomes and other consequencies the involvement of a vascular surgeon is essential.

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EPP36

IS OXIDATIVE STRESS IMPORTANT IN AAA PATHOGENESIS?

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Objective: Active investigations continue to identify markers other than size that would predict a risk of AAA rupture. Circulating biomarkers could also indicate optimal intervals between the surveillance intervals. Finally, the identification of biomarkers also may identify potential pathogenic pathways, and thus may open possibilities for pharmacological inhibition of growth. In the search of novel biomarkers of AAA progression, serum and wall material proteins were analyzed by a differential proteomic approach.

Methods and Results: Same layers of AAA wall from ruptured (rAAA) and non-ruptured AAA were incubated, and the proteins released were analyzed by 2-dimensional difference in-gel electrophoresis. Proteins from serum were analyzed and correlated with AAA annual expansion rate. Several differentially expressed proteins involved in main AAA pathological mechanisms (proteolysis, oxidative stress, and thrombosis) were identified by mass spectrometry. Among the proteins identified, peroxiredoxin-2 (PRX-2) was more permanent, which was further validated by Western blot and immunohistochemistry. We demonstrated increased PRX-2 serum levels in rAAA patient wall material compared with AAA subjects and also positive correlation in serum among PRX-2 and AAA diameter and annual expansion rate. Finally, a prospective study revealed a positive correlation between PRX-2 serum levels and AAA expansion rate.

Conclusions: Several proteins associated with AAA pathogenesis have been identified by a proteomic approach. Protein profiles identified in the serum would appear to be a convenient monitoring tool that has the ability to be both sensitive and specific for AAAs. Among them, PRX-2 serum levels are increased in AAA patients and correlate with AAA size and growth rate, suggesting the potential use of PRX-2 as a biomarker for AAA evolution.

EPP37

OPEN VERSUS ENDOVASCULAR LOWER LIMB INTERVENTION FOR PERIPHERAL ARTERIAL DISEASE COST ANALYSIS

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Background/Aim: The endovascular revolution saw a shift in the treatment approach for occlusive vascular disease. The role of open surgery is well established. It is thought to be less expensive and more durable than newer endovascular interventions requiring expensive technology and increased rates of re-intervention. A review was conducted to assess all costs associated with elective open versus endovascular peripheral interventions and re-interventions.

Methods: From 2015-2017, all financial, demographic and procedural data relating to each admission (initial and re-intervention within 12 months of index procedure) for elective peripheral bypass and endovascular interventions were recalled. Cases were sorted into aorto-iliac, femoro-popliteal and femoro -distal intervention. Costs analysis was performed and reported.

Results: Aorto-bifemoral bypass had an increased length of stay (LOS) and cost compared to aorto-iliac stenting ($34004 vs $17831, p=0.02, 7.3 vs 1.7 days, p= 0.03) as did femoral-popliteal bypass ($47793 vs $18933, p=0.0004, 15.9 vs 3.6 days, p=0.001) and femoral-tibial bypass ($45026 vs $25825, p=0.03, 17.5 vs 9.0, p=0.03) compared to their corresponding endovascular intervention. 12 month re-intervention rates were comparable, however, cumulative LOS and cost for all admissions associated with the index procedure was decreased with endovascular approach ($119365, N=38, 40 days vs $114067, n=1, 31days).

Conclusion: Endovascular approach at our institution has a decreased length of stay and cost with similar re-intervention rates to an open procedure. This work questions the misconception that endovascular surgery is less durable and more expensive than more traditional open surgery. Longer term prospective data is needed to further substantiate these findings.

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