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REUNIÃO DO NÚCLEO DE

ACESSOS VASCULARES E TRANSPLANTAÇÃO DA SPACV

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APEDT

RESUMOS DA REUNIÃO DO NÚCLEO DE ACESSOS VASCULARES DA

Sociedade Portuguesa de ANGIOLOGIA E CIRURGIA VASCULAR

Patrocínio Científico

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COMUNICAÇÕES LIVRES 1
11H30 – 12H00

C01

ENDOVASCULAR THROMBECTOMY: A GOOD AND ACCESSIBLE TREATMENT

Rui Filipe Nogueira[1], Nuno Afonso Oliveira[1], Emanuel Ferreira[1], Luís Rodrigues[1], Pedro Fragoso[1]

[1]*Centro de Acessos Vasculares Sanfil Medicina*

Background: There is no single best treatment for arteriovenous vascular access thrombosis, either fistula or graft, with similar success rates and patencies for both surgical and endovascular treatment. We proposed to evaluate the results of endovascular thrombectomy in our unit.

Methods: We retrospectively selected patients referred to our vascular access treatment unit due to arteriovenous access thrombosis, between 01/06/2017 and 01/02/2022. All patients were submitted to endovascular manual thrombo-aspiration using an 8F guiding catheter (Vista Brite Tip® from Cordis), as well as culprit stenotic lesion angioplasty, whenever applicable. Minimum follow-up period required was 6 months. Demographic data and comorbidities, as well as post-intervention patencies, were extracted from clinical records. Patencies were only analysed in initially salvaged accesses. Vascular accesses were divided in four groups for further analysis: grafts and radial-cephalic, humeral-cephalic fistulas and humeral-basilic fistulas.

Results: We included 96 patients, comprising a total of 145 thrombectomies. Mean age was 71,8 ± 12,1 years and most were male (n=52; 54,2%). There were 51 arteriovenous fistulas (53,1%) and 45 grafts (45,8%). Arm fistulas were more common (n=38; 74,5%). Overall intervention success rate was 85,4% (n=82), without differences across vascular access groups. Re-intervention rate was 47,6%, which differed significantly across the different groups: RC fistulas-9,1%, UC fistulas-45,5%, UB fistulas-50% and AV grafts-58,5% (p=0,036). Median follow-up was 13 months (IQR: 17 months). Twenty patients (20,8%) died with a functioning vascular access. Overall primary and secondary patencies were 64,5% vs. 87,0% and 43,4% vs. 81,5%, at 6 and 12 months, respectively. Arteriovenous grafts had a better secondary patency than AV fistulas (95% vs. 78,3% and 88% vs. 74,4%, at 6 and 12 months, respectively; p=0,045), but primary patency differences did not reach statistical significance. Forearm fistulas had a better primary patency (81,8% vs. 47,9% and 81,8% vs. 32,7%, at 6 and 12 months, respectively; p=0,023) and a lower re-intervention rate (9,1% vs. 46,7%; p=0,027) than arm fistulas; secondary patencies did not

differ significantly. Further subdivision in AV fistula groups did not result in statistically significant differences concerning patencies. The presence of DM was associated with a worse primary patency (36,4% vs. 71% and 22,8% vs. 51,1%, at 6 and 12 months, respectively; p=0,011) and a higher re-intervention rate (68,2% vs. 40%; p=0,024), but secondary patencies did not differ.

Conclusion: We report a success rate, as well as primary and secondary patencies that are in line with what has been published on this subject. Accordingly, these results confirm that endovascular thrombectomy is a valid approach for thrombosed dialysis accesses. Diabetes seems to have a deleterious effect in terms of vascular access survival. Thrombosed arm fistulas have the worst long-term prognosis, reflecting the high relapse rate of the culprit stenosis.

C02

HEMODIALYSIS VASCULAR ACCESS IN ELDERLY PATIENTS: MAIN OUTCOMES OF A CENTER.

Bruno Fraga Dias[1], José Queirós[1], Joana Freitas[1], Fernanda Silva[1], Isabel Fonseca[1], Paulo Almeida[2], António Cabrita[1].

[1]Centro de Acessos Vasculares Sanfil Medicina
[2]Serviço de Angiologia e Cirurgia Vascular – Centro Hospitalar Universitário do Porto.

Background: The number of elderly patients starting hemodialysis (HD) is increasing with challenges in choosing the appropriate vascular access (VA). Arteriovenous fistula (AVF) is classically the preferred approach; however, in elderly patients, worse outcomes are described, namely longer AVF maturation times, high risks of primary failure and higher risk of patency loss. Preoperative mapping with doppler ultrasound (DU) has been shown to be a useful tool.

The aim of the study is to assess the main outcomes related to VA in an elderly population and compare them with a younger population.

Materials and Methods: This is a retrospective study. All patients were evaluated by nephrologist with physical examination and DU prior to VA creation followed by a proposal to the vascular surgeon. Follow-up was performed up to 1 month after the start of HD. Demographic data, complications and interventions were recorded; statistical evaluation was performed after dividing the patients into two groups (Y-less than 75 years old and O-greater than or equal to 75 years old).

Results: We evaluated 131 patients (58.8% males/ 41.2% females) in "Y group" and 36 patients (63.9% males/ 36.1% females) in "O group". No differences were identified in comorbidities or etiology of kidney disease.
The VA constructed in Y and O group was, respectively: distal AVF in 40.9%/38.7%, proximal cephalic AVF in 38.2%/38.7% and proximal basilic AVF in 18.2%/22.6%; AVG was created in 3 patients (only in Y group). No differences were identified in the location of VA in the two groups
Primary failure was documented in 22 patients, with no differences in two groups (Y- 17.3% vs O- 9.7%; p=0.047)
Maturation failure was identified in 8 patients at eight weeks (Y-5,6% vs O-10,7%, p=0.407). Primary patency (PP) at 6, 12 and 24 months in Y/O groups were, respectively: 75.6%/80,0%, 70,7%/72.0% and 51.6%/54.0% (p=0.674). Primary assisted patency (PAP) at 12 months was 84.3% and 88.1% (Y/O) (p=0.326).

Conclusions: Our study does not show differences between the main outcomes related to VA in older patients compared to younger patients. This study showed a lower number of adverse events by comparison with literature. Systematic vascular assessment and DU may contribute to these results.

C03

VASCULAR ACCESS CREATION IN A SINGLE CENTER COHORT: CAN WE IMPROVE?

Bernardo Marques Silva[1], João Oliveira[1], Marta Pereira[1], Marta Neves[1], Gonçalo Sobrinho[2], Augusto Ministro[2], Alice Fortes[1], Luís Mendes Pedro[2], José António Lopes[2], Joana Gameiro[1]

[1]Serviço de Nefrologia e Transplantação Renal, Centro Hospitalar Universitário Lisboa Norte
[2]Serviço de Cirurgia Vascular, Centro Hospitalar Universitário Lisboa Norte

Introduction: The creation of a vascular access (VA) for hemodialysis (HD) is of primordial importance given its influence on morbidity and mortality. CKD patients should be referred for VA creation when estimated glomerular filtration rate (eGFR) is 15-20ml/min/1.73m2 so that timely VA placement is ensured.

Methods: Retrospective analysis of all VA created on adult patients at tertiary centre from January to December of 2019. We assessed clinical characteristics at VA placement and type of VA. Primary outcome was VA primary failure. We also analyzed time of HD start and type of VA at HD start.

Results: A total of 180 VA were created. The majority 147 VA were placed at the Ambulatory Surgery Center of the Vascular Surgery Department (n=147, 81.7%). Most patients were male (n=118, 65.6%) and caucasian (n=154, 85.6%). Mean age at surgery was 66.2 ± 14.7 years old. 100 patients (55.6%) were on HD at the time of VA creation. The remaining had an eGFR of 13.0 ±5.0 mL/min/1.73m2. Seven patients (3.9%) died before HD and 28 (15.6%) had not started HD. Most patients started HD with a CVC (n=128, 71.1%), arteriovenous fistula (AVF) was used in 22 patients (12.2%) and arteriovenous graft (AVG) in 2 patients (1.1%). The majority of patients had an AVF placed (91.6%, n=165), and AVG were placed in 9.4% of patients (n=15). Umeral-cephalic was the most common location for access creation (n=93, 51.7%), followed by radial-cephalic (n=38, 21.1%), umeral-basilic (n=33, 18.3%), umeral-axilar (n=10, 5.6%) and umeral-umeral (n=6, 3.3%). Primary failure occurred in 55 patients (30.6%) and it was more common in patients not on HD (50% vs 27.6%, p=0.005) and with AVFrather than AVG (40.6% vs 6.7%, p=0.007). No differences were found regarding the location of the created VA or other demographic characteristics.

Conclusion: Most patients were already on HD at the time of VA creation, and a significant rate of primary failures was reported. Strategies to optimize VA creation were implemented, such as routine vascular mapping prior to VA placement and multidisciplinary evaluation. Improving timely referral and increasing operating room periods to increase the number of patients who place VA prior to starting HD could be promising to decrease the number of CVC at HD start and ultimately improve patient outcomes.

C04

RESULTS OF THE DRUG-ELUTING STENT ELUVIA® FOR THE TREATMENT OF HEMODIALYSIS ACCESS OUTFLOW STENOSIS

Andreia Pinelo[1,2,5], Luís Loureiro[1,2], Paulo Almeida[1,2], Sérgio Teixeira[1,2], Duarte Rego[1,2], Gabriela Teixeira[1,3], Carlos Veiga[1,4], António Norton de Matos[1]

[1] *Grupo de Estudos Vasculares, GEV*

[2] *Serviço Angiologia e Cirurgia Vascular, Centro Hospitalar Universitário do Porto*

[3] *Serviço Angiologia e Cirurgia Vascular, Centro Hospitalar do Tâmega e Sousa*

[4] *Serviço Angiologia e Cirurgia Vascular, Hospital de Braga*

Introduction: Vascular accesses for hemodialysis are prone to recurrent stenosis requiring multiple interventions to maintain patency. Plain balloon transluminal angioplasty is the most widely accepted treatment but still with

high reintervention rate. Drug-eluting balloons and stents have shown favorable outcomes in other vascular territories, but data are scarce regarding their use in vascular hemodialysis accesses. The purpose of this study is to evaluate the results of the Drug-eluting Stent (DES) Eluvia® in the treatment of arteriovenous fistulas/grafts outflow stenosis.

Material And Methods: We performed a single-center retrospective analysis of all the patients with hemodialysis vascular access outflow stenosis treated with the drug-eluting stent Eluvia® between January 2020 and July 2022. Primary stent patency and comparison between the time free from Target Lesion Reintervention (TLR) before and after stenting were the main outcomes considered.

Results: A total of 34 DES were implanted to treat outflow stenosis on 32 patients (27 arteriovenous fistulas and 5 arteriovenous grafts). 81.3% (n=26) of patients had previously undergone at least one plain balloon angioplasty of the target lesion with a median time free from TLR of 3.9 months. Only 20% of the target lesions were free from reintervention by the 6th month of follow-up with a drop in primary patency to 2% at 12 and 18 months. After stent implantation, the median time free from TLR was 11.9 months and the stent primary patency at 6, 12, and 18 months was 63.1%, 47.6%, and 41.7%, respectively (log rank <0.001). The mean number of total and target lesion interventions per patient per year, was, respectively, 1.89 and 1.29 before Eluvia implantation, comparing with 0.64 and 0.44 after stenting (p<0.001).

Conclusion: The results demonstrate a statistically significant increase in the time free from TLR after treatment of outflow AV Fistulas/Grafts stenosis with DES implantation, when compared to plain balloon angioplasty. Also, there was a statistically significant decrease in the total number of reinterventions after the stent implantation as a result of the decreased TLR.

C05

A REVIEW ABOUT HEROGRAFT

João Diogo Castro[1], Duarte Rego[1], Daniel Mendes[1], Carlos Veterano[1], Henrique Rocha[1], Andreia Pinelo[1], Henrique Almeida[1], Miguel Queirós[1], Maria Sameiro Caetano Pereira[1], Rui Almeida[1]

[1]*Centro Hospitalar Universitário Do Porto – Angiologia e Cirurgia Vascular*

Introduction: Nowadays with the improved survival of dialysis patients, more clinicians will encounter more complex arteriovenous fistulas (AVFs), AVFs complications and exhausted upper arm options leading to central venous stenosis. To overcome these situations, the Hemodialysis Reliable Outflow (HeRO) graft allows the possibility to obtain hemodialysis access for patients with a severe central venous occlusive disease.

Objectives: This work pretends to review the described HeRO graft complications, patency and costs.

Methods: Research from 2012 to 2022 was performed on Pubmed with the association of the following terms: HeRO graft, HeRO graft and dialysis, and Hemodialysis Reliable Outflow. From results, we include retrospective studies and case reports in English, Portuguese and Spanish that mentioned HeRO grafts patency, complications and costs.

Results: In our research, a total of 67 articles were obtained. Of those, 36 presented our selection criteria.
The 36 articles referred to a total of 1544 patients corresponding with a total of 1546 HeROgrafts.
Twenty-two were retrospective studies, 10 case reports, 1 randomized trial, 1 observational study and 2 cost-analysis.
The patency rates are described in 20 articles being: the primary patency for 6 months between 13%-89% and 0%-72% for 12 months. The secondary patency was between 53%-95% for 6 months and 32%-95% for 12 months.
Regarding the complications, we obtained data from 30 articles and emphasize the number of infections related to the HeRO graft or surgical site (n=116). All complications described are presented in table 1.
About the intervention rate, the articles showed values between 1.2-3 per year.
Related to the costs, HeRO graft showed a marginal net positive cost compared with tunneled dialysis catheters (TDCs). However, 1 study points out that this relation does not happen when the TDCs infection rate is less than 16%.

Conclusion: HeRO graft offers a long-term option for end-stage kidney disease. However, it has its complications and like other vascular accesses, there is the need for re-intervention to maintain its patency.

Complications related with HeRO graft (*n=1254*)	
Thrombosis	241
Graft or surgical site Infection	116
Steal syndrome/ischemia	48
Hematoma	11
Hemorrhage	10
Seroma	7
Edema	6
Pseudoaneurysm	4
TEP	3
TVP	1
Graft dissection[1]	1
No wound wealing	1
Vascular Iatrogenic lesion	1
Graft fracture	1
Anastomosis dehiscence	1
Superior Vena Cava Syndrome	1
Paradoxal Embolism [2]	1

Table 1 – Described complications related to HeRO graft.
[1]Related with a modified HeROgraft using ACUSEAL graft.
[2]After HeRO graft thrombectomy.

C06

ACESSO ARTERIAL NA INTERVENÇÃO ENDOVASCULAR DE ACESSOS VASCULARES DISFUNCIONANTES – EXPERIÊNCIA DE UM CENTRO

Lara Dias[1,2], Leandro Nóbrega[1,2], Luís Coentrão[3,4], Jorge Costa Lima[1], José Oliveira-Pinto[1,2], Armando Mansilha[1,2]

[1]Departamento de Angiologia e Cirurgia Vascular, CHUSJ, Porto, Portugal
[2]Departamento de Cirurgia e Fisiologia, FMUP, Porto, Portugal
[3]Serviço de Nefrologia, CHUSJ, Porto, Portugal
[4]Departamento de Medicina, CHUSJ, Porto, Portugal

Background: A intervenção endovascular para manutenção de permeabilidade de acessos vasculares é tipicamente realizada por punção direta da veia arterializada. No entanto, o acesso por via arterial tem vantagens na potencial melhoria da visualização da porção anastomótica e justa-anastomótica, assim como em situação de veias imaturas de difícil punção. Permite adicionalmente a utilização de menos contraste e radiação, assim como a utilização de um único acesso percutâneo para a visualização de todo o acesso vascular.

Materiais e métodos: Foi realizada uma análise retrospetiva de todos os procedimentos endovasculares efetuados em acessos vasculares disfuncionantes entre março de 2021 e julho de 2022, identificando-se os casos em que foi utilizado um acesso arterial braquial.

Resultados: Entre março de 2021 e julho de 2022 foram 20 procedimentos com acesso arterial braquial. O acesso vascular intervencionado foi fístula radio-cefálica em 55% e úmero-cefálica em 45%. A maioria dos acessos por via arterial foram realizados em doentes que ainda não se encontravam em programa de hemodiálise (65%). Em relação às lesões intervencionadas, a maioria foram lesões na porção venosa do acesso (40%), seguido de lesões combinadas anastomóticas e na porção venosa (30%). De ressalvar que 20% dos procedimentos foram realizados em fístulas com sub-oclusão venosa. Não se registaram complicações intra-operatórias. Dois doentes foram submetidos a procedimentos nos 30 dias pós-operatórios: um doente realizou a construção de uma prótese para acesso vascular por trombose do acesso e outro doente foi submetido a tromboembolectomia braquial por trombose aguda da artéria braquial pós-operatória.

Discussão: O acesso braquial pode trazer vantagem em fístulas com lesões combinadas anastomóticas e venosas, assim como em casos de oclusão venosa, com baixo número de complicações intra-operatórias e pós-operatórias.

C07

A RETROSPECTIVE COHORT STUDY TO EVALUATE THE TECHNICAL SUCCESS AND POSTINTERVENTION PATENCY OF A HIGH-PRESSURE PTA BALLOON USED TO TREAT THE OUTFLOW OF UPPER ARM HEMODIALYSIS ACCESS

Henrique Rocha[1], Luís Loureiro[1], Paulo Almeida[1], Sérgio Teixeira[1], Duarte Rego[1], Gabriela Teixeira[1], Carlos Veiga[1], Norton de Matos[1]

[1]*GEV — Grupo de Estudos Vasculares*

Background: We aimed to analyze the success rate and vascular access post-intervention patency of vascular accesses whose outflow stenosis were treated with BD® Dorado high-pressure PTA balloon.

Materials and methods: We retrospectively studied all patients who underwent endovascular treatment of significant outflow stenosis with BD® Dorado high-pressure PTA balloon, during the year of 2020 at our center. Patient and vascular access characteristics, prior endovascular treatments, lesion length, balloon sizes, intervention success and complications, ensuing endovascular/surgery interventions and thrombosis events were analyzed.

Results: A total of 127 patients were included, mostly man (61.1%). Mean age was 69.3 years. Autogenous brachial-basilic upper arm transposition was the most treated access (32.3%), followed by autogenous brachial-cephalic upper arm direct access (27.6%). Mean PTA balloon diameter used was 7.5 mm. The overall success rate was 90.6%. Twelve patients, all of whom had previous endovascular treatments, required drug-eluting stent or stent-graft deployment due to immediate recoil. Eight (6.2%) complications were encountered, mostly minor vein rupture, promptly treated with low-pressure endovascular balloon hemostasis. Half the patients required at least one endovascular reintervention to maintain access patency. Mean follow-up time until first endovascular reintervention was 8 months. Almost thirty percent of patients had vascular access surgical revision or abandonment after a mean time of 15.6 months.

Conclusion: High-pressure PTA balloon angioplasty is a safe and effective treatment modality for vascular access significant outflow stenosis. It offers decent technical success and acceptable short-term patency rates. Recurring interventions are necessary to maintain patency.

COMUNICAÇÕES LIVRES 2

15H00 – 16H00

C08

FÍSTULAS ARTERIOVENOSAS DISTAIS PARA HEMODIÁLISE – MAIS CUSTOS QUE BENEFÍCIOS?

Vitória Paes De Faria[1]; Luis Fernandes[2]; Joana Dias[1]; Susana Pereira[1]; Ana Ventura[1]; Victor Martins[2]; Clara Nogueira[2]; Alexandra Canedo[2]; Clara Almeida[1];

[1]Centro Hospitalar Vila Nova de Gaia / Espinho, Nefrologia, Vila Nova de Gaia, Portugal;

[2]*Centro Hospitalar Vila Nova de Gaia / Espinho, Angiologia e Cirurgia Vascular, Vila Nova de Gaia, Portugal*;

Contexto: As FAV distais são preferíveis às proximais, pelo menor risco de complicações, apesar do maior risco de falência de maturação. Nos doentes hemodialisados, a idade e co-morbilidades aumentam o risco de falência destes acessos bem como o número de procedimentos para os manter patentes. Estas premissas tornam a escolha do local para a construção do AV uma decisão difícil, mas desafiante. A obstinação por este AV pode aumentar custos e levar a intervenções excessivas. O objetivo deste trabalho foi determinar o tempo até à FAV RC puncionável e número de procedimentos necessários para alcançar e manter permeabilidade do acesso.

Métodos: Procedeu-se a uma revisão de uma amostra uma coorte de 110 de um total de 528 de doentes submetidos a construção de acesso autólogo distal entre 2015 e 2021, em centro de acessos vasculares hospitalar. A taxa de sucesso foi definida como o inicio de HD com punção de FAV.

Resultados: Avaliamos 110 doentes que construíram FAV radio-cefálicas, 69% do sexo masculino. A idade média à data da construção da primeira FAV foi de 68,5±12,0 anos. Comorbilidades estavam presentes em 80,9% (n=89), sendo a diabetes mellitus (54,6%) e a IC (41,1%) as mais frequentes. A principal causa de DRC foi a doença renal diabética (46,4%). Às 6 semanas, verificou-se maturação adequada em 54,5% (n=59), falência primária em 14,5%(n=16) e falha de maturação em 31,8% (n=35). As causas de não maturação deveram-se a estenoes de inflow e outflow em 12,9% e 64,5%, respetivamente.
Foram necessários 1, 2 e 3 procedimentos para assegurar permeabilidade do acesso após a sua construção em 40%(n=22) , 25,5% (n=28) e 6,4% (n=7) doentes, média de 1,5±0,7 procedimentos por doente.
O tempo até FAV adequada para HD mediano foi de 2,0 (AIQ 2,0 - 6,45) meses. A patência assistida foi de 78,2%. Nos indivíduos >80 anos (n=8), a patência assistida foi menor (48%), embora sem significado estatístico (p= 0,186). Verificou-se uma taxa de sucesso de 72,8%.

Conclusão: A referenciação atempada permite aumentar a patência do acesso com recurso a intervenções vasculares. Contudo, há que ponderar o risco-benefício da intervenção atendendo ao "burden" associado aos cuidados de saúde. No planeamento de um AV para HD, a gestão individualizada é fundamental, e subsequente análise dos resultados das patências, intervenções e até custos.

C09

OUTFLOW RESCUE OF ELBOW BLOCKADE FOREARM ARTERIOVENOUS FISTULAS: RESULTS OF DIFFERENT TREATMENTS

Daniel Mendes[1,2]; Paulo Almeida[1,2]; Clemente Sousa[1]; Sérgio Teixeira[1,2]; Luís Loureiro[1,2]; Duarte Rego[1,2]; Gabriela Teixeira[1]; Inês Antunes[1]; Carlos Veiga[1]; Carlos Veterano[1,2]; Henrique Rocha[1,2]; João Castro[1,2]; Andreia Pinelo[1,2]; Henrique Almeida[1,2]; Marta Machado[1,2]; Rui Almeida[2]; Norton de Matos[1];

[1] *Grupo de Estudos Vasculares*
[2] *Serviço de Angiologia e Cirurgia Vascular, Centro Hospitalar Universitário do Porto*

Background: Forearm autologous arteriovenous fistulas (AFV) are the preferential vascular access for hemodialysis. Venous scarring at the elbow veins is a common problem that decreases forearm AVFs patency. Usually, distal AVFs with this impairment are abandoned, and only a few reports of a surgical resolution are currently available. This study aims to report our experience in recovery of distal AVF with outflow stenosis at the elbow.

Methods: This study corresponds to a retrospective analysis of all patients treated at our institution from January 2011 to March 2022, with forearm fistulas presenting with outflow stenosis or occlusions at the elbow treated by endovascular or open surgery. We evaluated demographics and clinically relevant data. Primary endpoints included primary, assisted primary, and secondary patency rates at one year.

Results: Twenty-six patients with poor outflow forearm fistulas at the elbow have been treated with a mean age of 63±15 years, 88% males. The majority (96%) had a radiocephalic fistula.
In total, we performed 25 surgical procedures and three endovascular procedures. Surgical procedures included four different techniques for bypassing the obstructed venous outflow at the elbow. Endovascular techniques correspond to cubital perforator balloon angioplasty in two patients and covered stent implantation in another. Technical success was achieved in 100% of the endovascular procedures and 96% of the surgically treated patients.
Primary patency at six months was 100% in both groups. In patients undergoing endovascular therapy with plain balloon angioplasty, vascular access was abandoned at 9 and 12 months. The patient undergoing covered stent implantation has primary patency greater than 12 months. Primary and secondary patency rates at one year of the surgically treated patients were 73% and 94%, respectively.

Conclusion: AVFs outflow stenosis at the elbow usually leads to vascular access abandonment. Our study demonstrates multiple possible solutions to avoid this outcome. Placing a doble-covered stent in the cubital perforator vein resulted well despite the high amplitude range of the elbow. Outflow bypass surgery seems effective, although the occurrence of stenosis at the venous anastomosis requires close surveillance for timely endovascular treatment.

C010

COMPARAÇÃO DA EFICÁCIA E PATÊNCIA PRIMÁRIA DOS BALÕES MUSTANGTM COM POWERFLEX® NO TRATAMENTO DE ESTENOSES DO ACESSO VASCULAR - ESTUDO RETROSPETIVO

Miguel Queirós[1], Luís Loureiro[1], Paulo Almeida[1], Sérgio Teixeira[1], Duarte Rego[1], Gabriela Teixeira[1], Carlos Veiga[1], Norton de Matos[1]

[1]*GEV — Grupo de Estudos Vasculares*

Contexto: A angioplastia transluminal percutânea com recurso a balões de alta-pressão é uma das opções no tratamento de estenoses do acesso vascular. Atualmente, existem diversas empresas que produzem balões para este fim.

Objetivos: O objetivo deste estudo prendeu-se com a avaliação e comparação da taxa de eficácia e patência primária dos balões Mustang™ (Boston Scientific) com os balões Powerflex® (Cordis) no tratamento de estenoses do acesso vascular.

Metodos: Foram estudados, retrospetivamente, todos os doentes tratados com estes balões durante o ano de 2020, no nosso centro. De um total de 36 doentes intervencionados, 22 foram tratados com o balão Mustang™ (A) e 12 com o balão Powerflex® (B). Os doentes foram avaliados no que diz respeito às características do acesso vascular, tratamentos endovasculares prévios e sucesso da intervenção imediata e até 18 meses de follow-up.

Resultados: Foram incluídos um total de 36 doentes, maioritariamente do sexo masculino (A 60% e B 55%) com uma média de idades de 72 anos no grupo A e 76 anos no grupo B, sem diferença significativa entre ambos os grupos.
No grupo A, o tipo de acesso mais tratado foi a fistula arterio-venosa RRC (47,7%) seguida da UC (21.1%). Contrariamente, no grupo B, a fístula UC foi a mais frequentemente intervencionada (50%), seguida da RRC (33,3%).
O tipo de estenose mais intervencionado foi diferente nos dois grupos. O grupo A incluiu 68,4 % de estenoses de inflow, enquanto que o grupo B incluiu 66.7% de estenoses de outflow.

Em ambos os grupos, tratou-se da primeira intervenção terapêutica para a maioria dos doentes (A 63,7 % vs B 58,3 %).
A taxa de sucesso imediato do procedimento foi 90,9 % no grupo A e 100% no grupo B. Em termos de patência primária aos 3, 6, 12 e 18 meses foram respetivamente nos grupos A e B: 100-83,3 %, 90-83,3%, 75-41,6% e 55-33,3%. Por fim, o tempo até haver necessidade de realizar uma nova intervenção foi, em média, de 13 meses no grupo A e 6,5 meses no grupo B.

Conclusões: Os resultados demostram uma eficácia e taxa de patência primária superior para o grupo A (balões Mustang™). Porém, o numero de doentes, tipo de estenose e tipo fistula intervencionada é diferente nos dois grupos, o que contribui para um viés importante nesta analise. Independentemente da superioridade dos balões Mustang™, este estudo demonstra que o uso de angioplastia transluminal percutânea com balões de alta pressão é um método eficaz e que garante uma patência primária favorável a curto/médio prazo.

CR1

CHOCOLATE SCORING BALLOON AS AN ALTERNATIVE TO HIGH PRESSURE BALLOONS FOR AVF STENOTIC LESIONS

Carlos Veterano[1], Paulo Almeida[1,2], Rui Almeida[1,2,3]

[1]Angiology and Vascular Surgery Department, Centro Hospitalar Universitário do Porto, Porto, Portugal
[2] Kidney Transplantation Unit, Centro Hospitalar Universitário do Porto, Porto, Portugal
[3] Instituto Ciências Biomédicas Abel Salazar, Porto, Portugal

Arteriovenous fistula (AVF) stenotic lesions are a frequent complication of haemodialysis accesses. Inadequate AVF maturation may occur in relation to an inflow or outflow stenosis, hindering its use for haemodialysis. Percutaneous transluminal angioplasty (PTA) is currently the standard treatment for AVF stenosis, often requiring repeated procedures for adequate function and patency. High-pressure PTA balloons provide better results compared to standard PTA balloons, despite maintained concerns related to delayed elastic recoil and neointimal hyperplasia.

Chocolate is a semi-compliant balloon, encased in a nitinol-constraining structure or cage. During inflation the caging shapes the balloon in a series of segmented pillows and grooves. This design theoretically provides focal

concentrations of dilation forces, allowing for more effective luminal expansion. The scoring characteristics of the balloon may reduce elastic recoil.

We report a 53-year-old male patient, diagnosed with stage 5 chronic kidney disease (CKD). A brachiocephalic AVF was constructed but proper maturation of the cephalic vein was not obtained. Doppler ultrasound revealed an inflow stenosis of the proximal cephalic vein. Retrograde 6F access of the cephalic vein was obtained. Using standard 6mm PTA balloons, stenotic dilation was unattainable despite above rated burst pressure (RBP). A 6mm Chocolate scoring balloon was then used, allowing for satisfactory lesion dilation. Adequate AVF maturation was obtained and the patient initiated haemodialysis one month later. Follow-up at 6 months reveals a good clinical result.

The use of scoring balloons for AVF stenosis management is still in its infancy. The rationale behind its design may allow for reduced recurrence of stenotic lesions related to elastic recoil, however large-scale high-quality studies are needed to establish its efficacy.

CR2

ENDOVASCULAR TREATMENT OF RENAL ARTERY THROMBOSIS IN LIVING-DONOR KIDNEY TRANSPLANT RECIPIENT ASSOCIATED WITH COVID-19

Carlos Veterano[1], Andreia Coelho[1], Ivone Silva[1,2,3], Pedro Sá Pinto[1,2], Rui Almeida[1,2,3]

[1] Angiology and Vascular Surgery Department, Centro Hospitalar Universitário do Porto, Porto, Portugal
[2] Kidney Transplantation Unit, Centro Hospitalar Universitário do Porto, Porto, Portugal
[3] Instituto Ciências Biomédicas Abel Salazar, Porto, Portugal

Coronavirus disease 2019 (COVID-19) patients have a higher prevalence of micro and macrovascular thrombotic events. However, the underlying mechanism for the increased thrombotic risk is not completely understood. Solid organ transplant recipients infected with SARS-CoV-2 may have an exponential increase in thrombotic risk and the best management strategy is unknown.

We report a 56-year-old female patient previously submitted to a living donor left kidney transplant in the right iliac fossa. The surgical procedure required

renal vessels elongation using great saphenous vein (GSV), spiralized for the renal vein reconstruction and end-to-end for the renal artery. The patient presented with allograft's renal artery thrombosis after a recent COVID-19 infection. Due to the risk of kidney failure or exclusion, catheter directed thrombolysis was performed and residual thrombus was excluded using an endoprosthesis with an excellent result. There were no adverse events and kidney function improved.

This case report presents an off-label treatment for renal artery thrombosis in a COVID-19 kidney transplant recipient with a successful outcome.

CR3

PROXIMALIZATION OF ARTERIAL INFLOW FOR THE TREATMENT OF LIMB ISCHAEMIA IN A TRANSPOSED FEMORAL ARTERIOVENOUS FISTULA

Carlos Veterano[1], Paulo Almeida[1,2], Duarte Rego[1,2], Luís Loureiro[1,2,3], Rui Almeida[1,2,3]

[1]Angiology and Vascular Surgery Department, Centro Hospitalar Universitário do Porto, Porto, Portugal
[2]Kidney Transplantation Unit, Centro Hospitalar Universitário do Porto, Porto, Portugal
[3]Instituto Ciências Biomédicas Abel Salazar, Porto, Portugal

Vascular access induced limb ischemia (VAILI) is an uncommon complication after arteriovenous fistula (AVF) creation for haemodialysis. Femoral vein transposition (FVT) is one of the final resorts for vascular access (VA) in patients with exhaustion of upper limb venous patrimony. However, VAILI and infection are severe complications of FVT that may lead to limb threatening ischaemia.

We report a 59-year-old male with stage 5 chronic kidney disease, with a non-functioning kidney allograft since 2005. The patient underwent multiple surgeries for upper limb VA and required numerous central venous catheters for haemodialysis. This eventually exhausted upper limb venous patrimony and hindered further VA in this location. A new kidney transplant and peritoneal dialysis were not considered due to obesity and severe eventration. After multidisciplinary discussion, a right femoral AVF was constructed in 2018. A previously undetected inferior vena cava stenosis became symptomatic post operatively requiring respective angioplasty and venous stenting. In 2019,

chronic limb threatening ischaemia (CLTI) developed and moderate popliteal-distal disease was treated with plain balloon angioplasties and good clinical result. Finally, in 2021 further CLTI symptoms (despite the absence of severe morphological disease) prompted new treatment. Proximalization of arterial inflow (PAI) procedure was used with a bypass from the profunda femoris artery to the arterialized femoral vein using a 6mm ePTFE graft. A 6 months follow-up exposed good clinical result and effective haemodialysis.

Patients with exhaustion of venous patrimony for haemodialysis VA require inventive solutions despite its associated risks and consequences. Complex VAs such as FVT mandate tight follow-up and prompt approach due to its high rates for VAILI and infection.

CR4

THE ROLE OF EGFR IN TIMING OF REFERRAL FOR VASCULAR ACCESS ASSESSMENT

João Oliveira[a]; Bernardo Marques da Silva[a]; Onassis Silva[a]; Mariana Dores[b]; Gonçalo Sobrinho[c]; Augusto Ministro[c]; Alice Fortes[a]; José António Lopes[a]; Joana Gameiro[a]

a – Department of Nephrology and Renal Transplantation, Centro Hospitalar Universitário Lisboa Norte
b – Clínica Universitária de Nefrologia, Faculdade de Medicina da Universidade de Lisboa
c – Department of Vascular Surgery, Centro Hospitalar Universitário Lisboa Norte

Introduction: Current guidelines suggest that patients with chronic kidney disease (CKD) should be for vascular access (VA) planning when eGFR is 15-20ml/min/1,73 m2 or when hemodialysis (HD) is foreseeable in 6 months. The purpose of this work was to assess the clinical characteristics, timing of referral for VA planning, VA construction and HD initiation.

Methods: A retrospective analysis of all adult patients referred to the multidisciplinary VA consult, referred for the first VA placement, at tertiary center in Portugal, between January 2018 and December 2019. Follow up was continued until 31st December 2021. According to eGFR at timing of referral participants were divided in (1) eGFR<16 and (2) eGFR≥16 ml/min/1,73 m^2. Time since VA consult until VA construction and HD initiation was observed. The main outcomes were functional HD access at time of HD initiation and the requirement of HD.

Results: 256 patients were included and 64.5% were male. At the time of VA consult, mean age was 70.4±12.9 years and mean eGFR was 16.09±10.43ml/min/1.73m2. The VA was constructed in 244 (95.3%) patients. The most frequent VA created was umero-cephalic fistula (n=107; 43.8%). There were 63 (25.8%) primary failures of VA.
One hundred fifty-nine patients required KRT (62.1%) of which only 40.9% (n=65) had a functional VA. The reasons for not having a functional access were primary failure (67), failure to VA maturation (5) and waiting construction (30). The mean time to VA construction was 6.18±5.01 months and time to HD initiation was 12.5±10.4 months.
Majority of patients (58.6%) had eGFR <16 mL/min/1.73m2 (mean eGFR between groups 11.3±2.6 vs 22.3±11.0 mL/min/1.73m2, p<0.001). These had VA placed more frequently (88 vs 77.4%, p=0.024) but less frequently had functional VA at HD initiation (35.7% vs 54.5%, p=0.030). Mean time to construction was significantly lower in this group (5.1±5.0 vs 7.9±5.4 months, p=0.004)

Conclusion: Despite following current guidelines concerning referral for VA assessment less than 50% had a functional VA at HD initiation. Those with eGFR >16mL/min/1.73m^2 more frequently had a functional VA. Therefore, it is essential to improve referral and
assessment procedures strategies to optimize the timely creation of VA.

CR5

CATÁSTROFES EM CIRURGIA DE ACESSOS VASCULARES

M José Ferreira, Gonçalo Sousa, Ana Afonso, Antonio Gonzalez

Hospital Garcia de Orta- Serviço de Angiologia e Cirurgia Vascular

Introdução: Apesar da trombose ser a complicação mais frequente dos acessos vasculares, a rotura constitui a complicação mais perigosa, ao pôr em risco a vida por hemorragia. Constitui ainda uma complicação difícil de resolver pela distorção da anatomia vascular normal e por estar frequentemente associada a infeção.
Desta forma, torna-se essencial ter uma estratégia definida de abordagem cirúrgica destas situações, que se deparam nos serviços de urgência vascular, muitas vezes perante elementos escalados não familiarizados com cirurgia do acesso vascular.

Material e métodos: Apresentamos 3 casos clínicos) de catástrofes de acessos vasculares, com diferentes formas de apresentação, procurando sistematizar o protocolo de atuação. Um dos doentes tinha falso aneurisma em rotura de

prótese do antebraço infetado; o segundo falso aneurisma em pré- rotura de anastomose arterial de enxerto axilo-axilar com PTFE e o terceiro tinha falso aneurisma da artéria umeral com rotura contida em dois tempos, pos laqueação de fistula arterio venosa do sangadouro.

Conclusão: A rotura de um acesso vascular é uma emergência cirúrgica que ocorre num doente particularmente vulnerável, dadas as co morbilidades e status hemorreológico, assim como hemodialise.
Deve ser abordada em Hospital que disponha de apoio anestésico permanente e serviço de sangue e os cirurgiões vasculares devem ter formação nesta área cirúrgica.
Seria também desejável que existisse informação sobre o historial cirúrgico dos doentes, que fosse passível de ser consultável em qualquer dia e hora.

CR6

UPPER LIMB EDEMA IN A PATIENT WITH ARTERIOVENOUS ACCESS: A RARE CAUSE OF VENOUS HYPERTENSION

Henrique Almeida[1], Sérgio Teixeira[1,2], Paulo Almeida[1,2], Luís Loureiro[1,2], Duarte Rego[1,2], Andreia Pinelo[1], Daniel Mendes[1], Carlos Veterano[1], João Castro[1], Miguel Queirós[1], Rui de Almeida[1]

[1]*Centro Hospitalar Universitário do Porto*
[2]*Grupo de Estudos Vasculares*

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

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

pharyngeal mass with invasion the left internal jugular vein. An oncology appointment was scheduled for follow-up. For symptomatic control of upper limb edema arteriousvenous fistula was ligated.

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

CR7

PROCEDIMENTO ENDOVASCULAR LIFESAVING PARA O TRATAMENTO DA SÍNDROME DA VEIA CAVA SUPERIOR E INFERIOR EM DOENTE HEMODIALISADO: CASO CLÍNICO

Daniela Alferes[1], Susana Pereira[1], Ana Ventura[1], Victor Martins[2], Nuno Henriques Coelho[2], Ricardo Gouveia[2], Clara Almeida[1], Alexandra Canedo[2]

[1]Serviço de Nefrologia, Centro Hospitalar Vila Nova de Gaia/Espinho, Portugal; [2]Serviço de Angiologia e Cirurgia Vascular, Centro Hospitalar Vila Nova de Gaia/Espinho, Portugal.

A síndrome da veia cava (SVC) pode ser encontrada em doentes hemodialisados. A utilização de cateteres venosos centrais (CVC) e pacemakers aumentam o risco desta entidade. Pode ser assintomática ou manifestar-se com edema, circulação colateral e em casos graves comprometer o retorno venoso, colocando a vida do doente em risco.

Descrevemos um homem de 53 anos com DRC secundária a glomerulonefrite crónica. Iniciou hemodiálise (HD) em 2006 por CVC na veia jugular interna direita (VJID). Apresentava edema ligeiro da face e circulação colateral do tórax. A angio-TAC mostrou estenose da veia cava superior (VCS). Manteve o CVC durante 3 anos por impossibilidade de construir acesso arteriovenoso. Foi transplantado em 2009 e retomou HD em 2018 por CVC na VJID. Apresentou CVC disfuncionante e realizou AngioTAC que mostrou extremidade do CVC na veia ázigos e oclusão/estenose da veia cava superior (VCS). O CVC foi alterado para a veia femoral direita.

Em agosto de 2019, construiu-se fistula arteriovenosa (FAV) femoro-femoral (FF) esquerda, que permaneceu funcionante, mas de difícil punção por edema marcado. Cerca de 2 meses depois, o doente foi admitido no internamento de Nefrologia por clínica de insuficiência cardíaca (IC). Apresentava-se hipotenso, taquicárdico, com estase pulmonar e edema periférico marcado. O

ecocardiograma transtorácico (ecoTT) mostrou colapso do ventrículo direito (VD). A AngioTAC confirmou a suspeita de trombose/estenose da veia cava inferior (VCI). Iniciou hipocoagulação e removeu o CVC presente na veia femoral. Por manter clínica de IC, hipervolemia e hipotensão persistente foi proposto correção endovascular da estenose da VCI. Foi realizada angioplastia e colocado stent revestido. Após a intervenção, o doente recuperou totalmente a condição clínica e o ecoTT mostrou preenchimento do VD. Teve alta ao 4º dia pós-procedimento, com punção da FAV FF sem intercorrências. A patência do acesso foi de 33 meses. O doente veio a falecer por choque séptico secundário a enterocolite aguda.

O tratamento das oclusões/estenoses da SVC é limitado, atendendo à dificuldade técnica no seu tratamento e limitação da patência. Este caso salienta o sucesso do tratamento endovascular de estenose da VCI. A construção atempada de acesso vascular e evicção máxima de CVC deve ser privilegiada, sobretudo em doentes jovens.

CR8

COLAPSO DE STENTS GRAFT COVERA: UM PESADELO COM DIFERENTES SOLUÇÕES TERAPÊUTICAS

Marta Machado, Paulo Almeida, Luís Loureiro, Duarte Rego, Daniel Mendes, Norton de Matos

GEV: Grupo de Estudos Vasculares

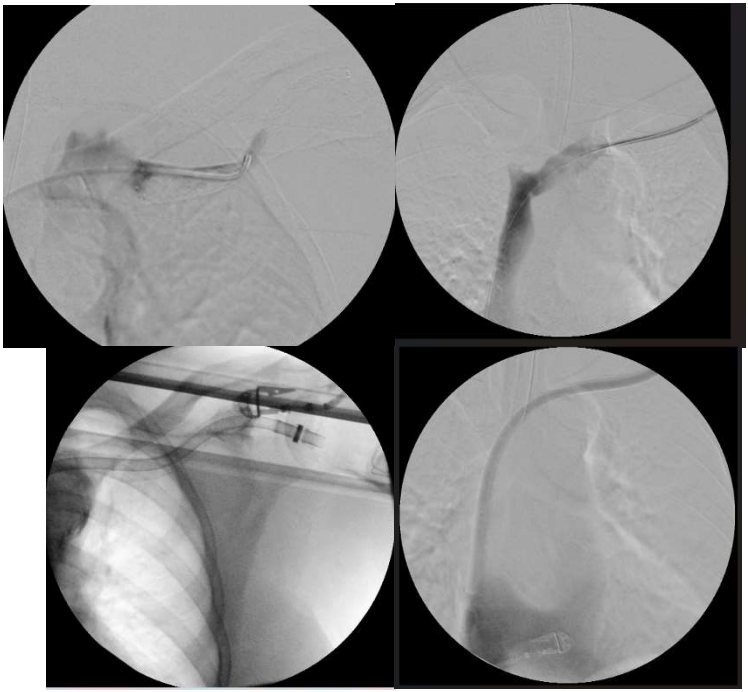
Introdução: As estenoses da crossa cefálica são uma causa de disfunção repetida do acesso arteriovenoso. As opções de tratamento são várias, não existindo atualmente um tratamento gold-standard.
Os autores apresentam dois casos de estenoses da crossa cefálica corrigidas com stent graft que posteriormente colapsaram, tendo sido corrigidos com diferentes estratégias terapêuticas.

CASO CLÍNICO 1: Homem, 70 anos
A 08.10.2021 enviado por FAV UC disfuncionante, avaliada por ecodoppler com evidência de falso aneurisma no terço superior e estenose crossa cefálica**.** Submetido a tratamento do falso aneurisma com enxerto interposição TT PTFE 8mm e ATL da crossa e colocação de stentgraft COVERA 10mm.
A 01.02.2022 recorre por FAV UC disfuncionante**,** avaliação com ecoDoppler com débito de 500cc/min na artéria umeral e estenose na anastomose ePTFE8mm-veia cefálica. Submetido a angioplastia de estenose anastomose. Angiografia da crossa da cefálica a demonstrar esmagamento da porção intracefálica do COVERA. Tentativa de recanalização do stentgraft pela FAV e

pela veia femoral sem sucesso. Procedeu-se a colocação de novo stentgraft COVERA 10x100 paralelo ao anterior com compactação do mesmo, com sucesso.

CASO CLÍNICO 2: Mulher, 69 anos
Enviada a 19.11.2021 por FAV UC disfuncionante com evidência no ecodoppler de reestenose precoce da crossa da veia cefálica. ATL crossa cefálica e colocação Stentgraft COVERA 10x80mm. Frémito em toda a FAV.
Recorre a 1/12/2021 ao serviço urgência hospitalar por dor e edema do MSE tendo efetuado ecodoppler que revelou colapso do stent. Recuperação da FAV através da colocação HeroGraft através do stent, após sucessivas angioplastias, com sucesso. (Figuras1 A-D)

Conclusão: O sucesso técnico do tratamento endovascular da crossa cefálica implica angioplastia da lesão e a colocação selectiva de stent/stentgraft em situações de mau resultado técnico (recoil imediato persistente, rotura ou reestenose precoce). O colapso dos stentsgrafts colocados nesta topografia é um fenómeno raro e, na interpretação dos autores, em caso de insuficiente juxtaposição, poderá resultar numa compressão da coluna de sangue entre o stentgraft e a parede da veia, vencendo a força radial do stentgraft e provocando o seu colapso.



´Figura 1 A-oclusão do stentgraft; B: repermeabilização stent graft; Ce D : colocação Herograft

POSTERS EM EXPOSIÇÃO

P1

ENDOVASCULAR THROMBOASPIRATION IN THE MANAGEMENT OF ACUTE KIDNEY ISCHEMIA: CASE SERIES

Francisco Basilio[1], Ana Carolina Semião[1], Ricardo Gouveia[1], João Peixoto[1], Luís Fernandes[1], Marta Machado[1] , Alexandra Canedo[1]

[1]*Centro Hospitalar de Vila Nova de Gaia/Espinho*

Introduction: Acute renovascular ischemia is defined as a sudden interruption of arterial and/or venous renal blood flow.
Because the renal arteries are considered "end arteries," acute ischemia can rapidly progress to irretrievable loss of renal function if it goes unrecognized or untreated.

Methods: We present 3 cases of acute renal ischemia treated with endovascular thrombectomy in the emergency setting.

Results: We present 3 different patients of both genders aged between 46 and 76 yo. They all presented to the emergency department with an abdominal or lower back pain with few hours of evolution. Only one of them had a Lab workup revealing an acute kidney injury (AKI). CT Angiography revealed occlusion of one of the renal arteries in all cases.
Heparin anticoagulation was immediately initiated and then all patients were treated in the angio suite. They were submitted to endovascular thromboaspiration with *Penumbra* system through a brachial access and followed by catheter-directed thrombolysis (CDT). At the end of the procedure, renal perfusion was restored and pain relieved.

Conclusions: We present 3 cases of acute renal ischemia in patients with very distinctive medical history. In one of the patients, cardiac embolism was the presumed cause of renal artery occlusion, but in the others no embolic sources were determined.

One of the fears in evaluating and treating patients with acute renal ischemia is the possible worsening of AKI due to the use of contrast medium during angio-CT and Digital Subtraction Angiography (DSA), but it can be reduced by using few technical precautions.
Aspiration thrombectomy and CDT for acute renal artery occlusion is a safe modality of therapy and should be attempted for the purpose of kidney

salvage, even in the setting of prolonged ischemia. Although consensus exists to affirm that early diagnosis and treatment could reduce the ischemic injury, there are currently no guidelines on the timing of treatment, but revascularization may be considered in patients presenting with acute ischemia and potentially salvage- able renal function.

P2

ELBOW ARTERIOVENOUS FISTULA: SIDE-TO-SIDE ANASTOMOSIS LEADING TO SIDE-BY-SIDE COMPLICATIONS

Francisco Basilio[1], Ricardo Gouveia[1], Vitor Martins[1], Ana Carolina Semião[1], João Peixoto[1], Luís Fernandes[1], Marta Machado[1] , Alexandra Canedo[1]

[1]Centro Hospitalar de Vila Nova de Gaia/Espinho

Introduction: For long term hemodialysis (HD), an AVF is the preferable access. A good AVF is one that allows the longest length of vein for needling and preserves sites for future accesses.
Although the most common type of anastomosis in AVF nowadays is end-to-side (ETS) we also can do it in side-to-side (STS) configuration. There is no definitive consensus on this matter. STS anastomosis can be related to increased risk of complications such as hand ischemia, hyper debit and venous hypertension.
Venous aneurysms, thrombosis and stenosis are some of the common complications of AVF and can be seen simultaneously.

Case report: We present the case of a 72yo woman with stage V CKD secondary to polycystic kidney disease on routine HD by AVF. She had a left braquial to median vein fistula in a STS configuration draining to both basilic and cephalic veins, the latter being used for needling.
Due to thrombosis, she was previously submitted to a thromboaspiration of the cephalic vein and angioplasty of two stenosis. She had signs of restenosis in the last month.
She now presented with failure of the AVF after being submitted to open valvular surgery and hemorrhagic shock. The ultrasound scan showed thrombus in the cephalic vein and a perianastomotic median basilic gigantic vein aneurysm (never used for HD).
She underwent a surgical thrombectomy. Due to perianastomotic arterial calcifications with significant stenosis, a surgical angioplasty of the anastomosis had to be done and aneurismectomy and ligation of the basilic vein. We chose to use a segment of arterialized vein to perform the wall

angioplasty. We ended up with a functional ETS braquial to cephalic vein fistula.

Conclusion: This challenging case of a patient undergoing a common fistula with an unusual anastomotic technique allowed the application of different reconstructive techniques outside the box.

P3

FUNCTIONAL PATENCY OUTCOMES OF ARTERIOVENOUS FISTULAS AND GRAFTS IN A HEMODIALYSIS CENTER

Joana Freitas[1]; Bruno Fraga Dias[1]; Fernanda Silva[1]; José Queirós[1]; António Cabrita[1];

[1]*Serviço de Nefrologia, Centro Hospitalar Universitário do Porto*

Background: Vascular access (VA) preservation for patients undergoing chronic hemodialysis (HD) is considered the patient's lifeline and its maintenance and optimization is of vital importance for the continuation of a life saving treatment. Complications associated with HD vascular access represent one of the most important sources of morbidity among end-stage renal disease patients.
The aim of this study was to investigate VA functional patency rates for autogenous arteriovenous fistulas and grafts in a retrospective descriptive nonrandomized Hemodialysis´s center study.

Methods: Data from a Computerized Patient Record System of patients undergoing VA from January 2019 to December 2021were reviewed for type of VA and functional patency rate.
All access procedures were planned on the basis of preoperative duplex scans of arm and forearm vessels. Functional patency was defined as ability to cannulate and hemodialyze patients successfully.

Results: 194 dialysis access procedures were performed at Centro Hospitalar Universitário do Porto. Follow-up data were available for 93 procedures - 33 radiocephalic (RC), 36 brachiocephalic (BC) and 18 brachiobasilic (BB) fistulas and 4 AVGs – perfomed in 72patients.
The average age was 59,4 ± 16,1 (range 19-85) years old and mean follow-up was 16,2 ± 12,1 (range 0-43)months. Over half of the patients were male(n=38) and comorbid conditions were common. Causes of chronic kidney disease were: diabetic nephropathy (27%), chronic glomerulonephritis (3%), reflux nephropathy r(9%), autosomal dominant polycystic kidney disease (9%), other genetic disorders (4%), primary glomerulonephritis (22%),

amiloidosis (3%), multifatorial (4%), unknown (15%) and kidney allograft dysfunction (3%). The mean time in hemodialysis was 23,7 ± 10,2 months and 54% (n=39) of patients had used a central venous catheter (CVC) previously.
After evaluation, all patients in our sample were fit to be proposed for an arteriovenous fistula or graft.
Functional patency rate was 70%, 78% and 84%, - for RC, BC and BB fístulas, respectively. Primary failure rate was 16%.

Conclusion: This study showed that in our sample, preoperative vascular mapping with a patient-centered approach contributed critically to vascular access planning, facilitating to achieve good outcomes in all types of autogenous VA.

P4

COMPARISON BETWEEN ONE- AND TWO-STAGE BRACHIOBASILIC FISTULA: MATURATION, PATENCY AND COMPLICATIONS

Eduardo Silva[1], Celso Nunes[1], Leonor Baldaia[1], Miguel Castro[1], Vânia Constâncio-Oliveira[1], Joana Moreira[1], Manuel Fonseca[1]

[1]*Serviço de Angiologia e Cirurgia Vascular, Centro Hospitalar e Universitário de Coimbra (CHUC)*

Introduction: In recent years the number of patients undergoing haemodialysis has increased worldwide, thus choosing the best access to secure long term patency of the arterio-venous fistula (AVF) is essential. Although brachiobasilic fistulas (BBF) pose as a second line access option, after radiocephalic and brachiocephalic fistulas, there is an ongoing debate on whether they should be performed as a one-stage or two-stage procedure. The aim of this study was to review the published literature regarding this matter and assess patency, maturation and postoperative complications with each technique.

Methods: This review was performed through *Pubmed* database and manual online search; all articles published in the last decade comparing or analyzing the outcomes of both procedures were included.

Results: A total of 22 articles were included: 16 retrospective studies, 5 systematic reviews and 1 review article. A total of 4309 BBF were performed (1941 one-stage; 2368 two-stage). Eleven studies seemed to favor the two-stage procedure, 2 favored the one-stage while 9 studies suggested that there were no significant differences between these procedures. Reported successful maturation rate (33%-100% vs 58%-100%), 1 year primary patency

(26%-92% vs 13-100%) and secondary patency (44%-93% vs 76%-96%) respectively for one- and two-stage, were similar, with only one systematic review favoring maturation rate and another favoring 1 year secondary patency, both for the two-stage approach (p<0,05). Although most studies reported more postoperative complications on the one-stage group, with a trend towards access thrombosis, none of the systematic reviews achieved statistical significance on overall complications. Overall, there was a trend for two-stage procedures in basilic veins with small caliber (<3-4mm). Older age, obesity, smoking and small brachial artery diameter were identified as potential causes for failed access maturation.

Conclusion: Despite an overall trend towards favoring the two-stage procedure, most studies failed to show significant differences between one- and two-stage brachiobasilic fistula construction. Clinical decision should be made on a case-by-case basis taking into account patient characteristics as well as urgency to start dialysis.

P5

TROMBECTOMIA ASPIRATIVA COMO ESTRATÉGIA DE RECUPERAÇÃO DE ACESSOS – UMA SÉRIE DE CASOS

Leandro Nóbrega [1,2], Lara Dias [1,2], Luís Coentrão [3], Pedro Paz Dias [1], Jorge Costa Lima [1], José Oliveira-Pinto [1,2], Armando Mansilha [1,2]

[1]*Departamento de Angiologia e Cirurgia Vascular, CHUSJ, Porto, Portugal*
[2]*Departamento de Cirurgia e Fisiologia, FMUP, Porto, Portugal*
[3]*Serviço de Nefrologia, CHUSJ, Porto, Portugal*

Background: A trombose de acesso vascular representa um dos insucessos a curto e longo prazo, sendo que a trombectomia cirúrgica ou endovascular representam a tentativa última de manutenção de acesso vascular permeável. O objetivo deste trabalho é descrever uma série de casos de trombectomia mecância aspirativa endovascular para repermeabilização de acesso na nossa instituição.

Materiais E Métodos: Este estudo representa uma série descritiva de casos de trombectomia mecânica aspirativa realizados na nossa instituição entre janeiro e agosto de 2022.

Resultados: Durante o período supramencionado, foram realizados seis procedimentos num total de quatro doentes. Todos os doentes eram do sexo masculino e a média de idades era de 67,3 (± 14,3) anos. De entre os quatro doentes, 3 apresentavam trombose de shunt braquio-axilar e um outro doente

trombose de FAV úmero-basílica com tempo de utilização superior a 5 anos. Em todos os procedimentos foi realizada trombectomia mecânica aspirativa com cateter *Large Bore* 8F, através de canulações anterógrada e retrógrada com utilização concomitante de trombólise local com alteplase. Em todos os procedimentos foi realizada angioplastia de ambas as anastomoses com balão de alta pressão e em duas das recanalizações protésicas foi necessário colocação de stent na anastomose venosa. O sucesso técnico imediato foi de 100%. A mediana de follow-up foi de 47 dias com uma patência pós-recanalização de 75%. Todos os acessos foram canulados com sucesso após o procedimento, contudo um trombosou posteriormente.

Conclusão: Apesar de tecnicamente exigente, a trombectomia endovascular de acessos vasculares para hemodiálise permite prolongar a vida útil do acesso, evitando a colocação de um cateter venoso central e riscos associados.

P6

NEPHROLOGY REFERRAL AND TIMELY VASCULAR ACCESS EVALUATION: A RETROSPECTIVE STUDY

Rui Duarte[1], Ivan Luz[1], Karina Lopes[1], Flora Sofia[1], Hernâni Gonçalves[1], Paulo Santos[1]

[1]*Centro Hospitalar do Médio Tejo, Torres Novas, Portugal*

Introduction: Late nephrology referral remains a national and international challenge. It has been associated with worse kidney care including worse survival on dialysis and lower chances of being integrated into transplant programs. Furthermore, progressive CKD demands timely care including choice of kidney replacement therapy, education on CKD and evaluation for vascular access, like the arteriovenous fistula (AVF) creation. This study aims to study the effect of late referral on vascular access evaluation in the real-world setting.

Materials: Retrospective observational study on maintenance hemodialysis patients in a portuguese middle-sized Nephrology Center. Incident patients on hemodialysis from 2017 through 2021 were included in a systematic fashion, restricting recruitment to progressive etiologies of CKD (diabetes, hypertension or multifactorial). The sample was divided into two groups: a) with timely vascular access evaluation (vascular surgeon appointment at least 8 weeks before dialysis start, even if the decision was made not to create an AVF) and b) Late access evaluation (LAE). The two groups were compared for demographic variables, estimated glomerular filtration rate (eGFR) at nephrology referral, time to hemodialysis from referral and survival on dialysis.

Results: This study resulted in the recruitment of 212 patients, of which 120 were diabetic. Patients on the LAE group were older (75 vs. 70 years, p = 0.01). Estimated glomerular filtration rate on referral was lower in the LAE group (21 vs. 25 ml/min/1.73 m^2, p = 0.03) with shorter time from referral to HD (33.8 vs. 43.6 months, p<0.01). Non-diabetic patients associated with LAE (51.2 vs. 21.7 %, OR 3.8 – 6.8, 95% CI, p < 0.01). Survival analysis computed for 1 year after dialysis start was remarkable for a lower survival on the LAE group, but a difference that did not reach statistical significance (mean survival time: 10.9 vs. 11.5 months, p = 0.1)

Conclusion: This study shows that patients who are referred later to nephrology later (with lower eGFR) are at greater risk of late vascular access assessment. Diabetic patients appear to benefit from better vigilance, which may be explained by the presence of other biomarkers of disease progression (proteinuria) or clinical signs of severe microvascular involvement (retinopathy, among others). Other biomarkers for non-diabetic CKD are necessary to better predict CKD evolution in these patients and take appropriate measures. Further programs aiming to educate and improve literacy across the portuguese national health system, mostly the primary care, and population directed health education policies are warranted to further improve outcomes to facilitate the transition into hemodialysis.

P7

FÍSTULA ARTERIO-VENOSA ÚMERO-BASÍLICA/ÚMERO-UMERAL: O (IN)DESEJADO PRIMEIRO ACESSO

Joana Dias[1]; Vitória Paes Faria[1]; Susana Pereira[1]; Ana Ventura[1]; Clara Nogueira[2]; Victor Martins[2]; Ricardo Gouveia[2]; Nuno Coelho[2]; Clara Almeida[1]; Alexandra Canedo[2]

[1] Centro Hospitalar Vila Nova de Gaia/Espinho, Nefrologia, Vila Nova de Gaia, Portugal;
[2] Centro Hospitalar Vila Nova de Gaia/Espinho, Cirurgia Vascular, Vila Nova de Gaia, Portugal;

Introdução: A vantagem do acesso vascular (AV) autólogo é bem reconhecida. O aumento crescente da população em hemodiálise mais idosa e mais doente limita o património vascular e obriga à utilização de veias profundas, basílicas ou umerais. Neste trabalho procuramos rever os resultados da transposição da veia basílica ou umeral para avaliar o seu valor como uma opção de acesso arteriovenoso primário em doentes pré-diálise ou em doentes que iniciaram hemodiálise por cateter venoso central (CVC).

Métodos: Procedeu-se à revisão dos doentes propostos para a construção de fístulas úmero-basílicas e úmero-umerais no período entre Janeiro de 2019 e Setembro de 2022, após avaliação na consulta de Acessos do CHVNG, incluindo o mapeamento vascular por ecodoppler.

Resultados: Identificaram-se 18 doentes, 12 do sexo masculino, com idade média à data de construção do AV de 64 anos. 38,9% dos doentes tinham antecedentes de cardiopatia isquémica e 27,8% tinham diabetes mellitus.
A fístula úmero-basílica foi o primeiro acesso autólogo em 66,6% (n=12) dos doentes, umero-umeral em 11% (n=2). 61,1% (n=12) tinham história de uso de CVC e 22,2% (n=4) tinham história de falência de outro acesso autólogo. Durante o *follow up* médio de 19 meses (máximo de 47 e mínimo de 6), antes da transposição, 1 doente faleceu e 1 doente foi transplantado. Após a transposição 2 doentes faleceram.
A patência primária e secundária foram, respectivamente, em média, de 15,3 meses e 16,6 meses. A análise dos dados permitiu ainda documentar que 72% das fístulas arteriovenosas construídas permaneceram patentes no período de *follow up.* 50% (n=9) dos doentes iniciaram punção com sucesso.

Conclusão: Reconhece-se a superioridade do acesso autólogo como a melhor opção de acesso vascular para hemodiálise. A transposição da veia basílica ou da veia umeral é subutilizada devido às exigências técnicas e necessidades logísticas. Apesar da pequena amostra e do curto período de *follow up,* atendendo à percentagem de fístulas que se mantêm patentes é possível perceber que esta é uma opção válida como acesso primário de hemodiálise. Uma equipa vascular treinada e dedicada a este este acesso vascular complexo permite bons resultados.

P8

ACESSOS VASCULARES PARA HEMODIÁLISE: EXISTE DISTAL DEMAIS?

Luís Diogo Fernandes[1], Vitoria Paes de Faria[2], Diogo Silveira[1], Carolina Semião[1], João Peixoto[1], Marta Machado[1], Francisco Basílio[1], Vítor Martins[1], Clara Nogueira[1], Susana Pereira[2], Ana Ventura[2], Clara Almeida[2], Alexandra Canedo[1]

[1]Serviço de Angiologia e Cirurgia Vascular do Centro Hospitalar de Vila Nova de Gaia/Espinho
[2]Serviço de Nefrologia Centro Hospitalar de Vila Nova de Gaia/Espinho

Introdução: Um acesso vascular viável é uma ferramenta fundamental para hemodiálise (HD) eficaz. As recomendações atuais visam a fístula arteriovenosa (FAV) autóloga como primeira opção para acesso vascular para HD; no entanto nem todas a FAV é funcionante e viável para a realização de

HD. A criação de uma FAV distal preserva o património vascular proximal, mas está associada a maior risco de falência. Embora com dados discordantes na literatura, é aceite que idade avançada, fatores de risco como diabetes e tabagismo, assim como a ausência de medicação antiagregante plaquetar têm impacto negativo nas taxas de permeabilidade do acesso.

Métodos: Foi identificada uma coorte aleatória de doentes submetidos a criação de FAV autóloga entre os anos de 2015 e 2021 num centro terciário. O *outcome* primário foi a taxa de permeabilidade primária e primária assistida das FAVs proximais (braço) e distais (antebraço). Os *outcomes* secundários incluem uma análise dos fatores de risco para falência do acesso. Em todos os doentes foi realizado mapeamento do património vascular com ecodoppler em consulta especializada. Foi considerada FAV puncionável, aquela com débito superior a 600ml/s, com veia de drenagem de fácil acesso e calibre adequado.

Resultados: Dos 146 doentes estudados, 64,4% eram do sexo masculino, com média de idades 68,6±11,4 anos de idade. A principal etiologia para a doença renal crónica foi a nefropatia diabética (40,4%). As FAVs distais representaram a maioria dos acessos (75,3%). A taxa de permeabilidade primária e primária assistida até à indicação de FAV puncionável foi, respetivamente, para as FAVs distais de 55% e 84% e para as FAVs proximais de 78% e 92%. Embora a taxa de permeabilidade primária seja diferente entre FAVs proximais e distais (p=0,019), não houve diferença na taxa de permeabilidade primária assistida (p=0,236), ainda que à custa de um maior número de procedimentos adjuvantes em FAVs distais (p=0,044). Não foram identificados fatores pré-operatórios indicativos de falência do acesso ou necessidade de maior número de procedimentos adjuvantes.

Conclusão: As FAVs do antebraço mantêm-se, sempre que exequível, como o acesso preferencial inicial para os doentes que necessitam de hemodiálise. As elevadas taxas de permeabilidade primária assistida permitem a preservação de património proximal assim como minimizam as possíveis complicações.