



## Content Submissions for VASBI 2020 - Abstract Submission System

OP000141

**Title** Early Cannulation Graft: A single centre Experience

**Category:** Oral

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**Aims:** Aim of this study was to assess the outcomes of early cannulation AV grafts

**Materials & Methods:** This retrospective, observation study included ESRD patients who had early cannulation ePTFE graft (Acuseal) from March 2015 to December 2018. Data including access summary, days to cannulation, complications and reinterventions were collected from the electronic patient record of the hospital. All the variables were measured at the time of index procedure and the outcomes at 3, 6 and 12 months were analysed. The patency rates were calculated using Kaplan,ÄiMeier survival curve.

**Results:** 112 patients underwent 133 AV Graft procedures with a mean age of 63.65 years (30-87 years). Most, 87% (116/133) of grafts were implanted as a secondary AV access after multiple (Mean1.98) failed access. The median number of days to cannulation was 7 days from the day of insertion. 35 patients died during the study period and 10 had their grafts explanted. Primary and cumulative patency was observed to be 26.90% and 61.34%% at 12 months. There was a high re-intervention rate with average rate of 2.27.

**Conclusions:** ECG is a practical and appealing solution for patients who require urgent haemodialysis and the patency rates are in congruence with other series. However, ECG,Äs suffers from lower primary patency rates and frequent reinterventions.

**Score Average** 36.20

OP000140

**Title** Early-Cannulation Arteriovenous Grafts Are Safe and Effective in Avoiding Recurrent Tunneled Central Catheter Infection

**Category:** Oral

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**Aims:** Tunneled central venous catheter infection (TCVCi) is a common complication that often necessitates removal of the TCVC and a further TCVC. Theoretically, insertion of an early-cannulation graft (ecAVG) early after TCVC infection is possible but not widely practiced with concerns over safety and infection. The aim of this observational study was to compare the outcomes after TCVC infection comparing replacement with TCVC (TCVCr) with immediate ecAVG ( ecAVGr).

**Materials & Methods:** A retrospective analysis was performed using data abstracted from a prospectively completed electronic patient record. Data were collected on patient demographics, TCVC insertion, duration and infection, including culture proven bacteremia and subsequent access interventions from two contemporaneous cohorts.

**Results:**

18/299 patients identified from 2012-2020 had an ecAVG implanted as treatment for a TCVCi. During the period 1/2015 - 12/2015 out of 222 TCVC inserted, 39/222 patients underwent TCVC replacement after a TCVCi. No patient with an ecAVGr developed a subsequent infection nor complication from the procedure. A subsequent vascular access infection was significantly more frequent for those with a replacement TCVC than with an ecAVG (0.6 vs. 0.1/patient/1000 HDdays,  $p < 0.000$ ). The number of further TCVC required was significantly higher in the TCVCr group (7.1 vs. 0.4/patient/1000 HD days,  $p < 0.000$ ).

**Conclusions:**

An ecAVG early following a TCVC infection is safe, reduces the incidence of subsequent infectious complications and reduces the number of TCVC required, with a better functional patency.

**Score Average**

38.40

OP000135

**Title**

Effects of haemodialysis arteriovenous fistula creation on cardiac structure and function

**Category:**

Oral

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<b>Aims:</b>	Arteriovenous fistula (AVF) is considered the preferred type of access for maintenance haemodialysis. The creation of an AVF may contribute to maladaptive cardiovascular remodelling, which depends on AVF blood flow. We conducted a study to evaluate the effect of AVF creation on cardiac structure and function in patients with end-stage renal disease (ESRD).
<b>Materials &amp; Methods:</b>	In this prospective cohort study, patients with ESRD listed for AVF creation underwent cardiac magnetic resonance (CMR) imaging at baseline and at 6 weeks. All participants had ultrasound measurements of AVF blood flow at 6 weeks. The primary outcome was the change in left ventricular (LV) mass. Secondary outcomes included changes in LV volumes, LV ejection fraction, N-terminal-pro B-type natriuretic peptide (NT-proBNP) levels, cardiac output/index, and LV global longitudinal strain.
<b>Results:</b>	A total of 55 patients were enrolled, of whom 40 had AVF creation and completed both scans. Patients were divided into 2 groups based on AVF blood flows: 22 in the high flow group ( $\geq 600$ mL/min) and 18 in the low flow group ( $< 600$ mL/min). On the second CMR scan, a mean increase of 7.4 g (95% CI, 1.1–13.7, $P=0.02$ ) was observed in LV mass; in the high flow group the mean increase was 15.5 g (95% CI, 7.3–23.8) compared with a small decrease of 2.5 g (95% CI, -10.6 to 5.6) in the low flow group ( $P=0.003$ ). Significant increases in LV end-diastolic volumes, cardiac output, and cardiac index were also
<b>Conclusions:</b>	Creation of AVF for haemodialysis in adults with ESRD resulted in significant increase of LV myocardial mass within weeks after surgery, which was more pronounced in high flow AVF.
<b>Score Average</b>	47.00
OP000134	
<b>Title</b>	Arteriovenous Fistula Creation During Covid – An Opportunity to Streamline Pathways
<b>Category:</b>	Oral
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<b>Aims:</b>	Patient assessment for an arteriovenous fistula (AVF) and subsequent creation is a process that can involve multiple hospital appointments. With reduced clinic appointments during the COVID pandemic, a streamlined pathway was developed; patients suitable for radiocephalic or brachiocephalic AVF creation

on ultrasound assessment by a nephrologist were listed directly for surgery.

**Materials & Methods:**

Retrospective analysis of electronic records was performed for all patients who underwent AVF creation during April to July 2020. Referrals were received from all 5 Northern Ireland renal units. AVF surgeries were performed by 4 renal surgeons.

**Results:**

39 fistulas (38 patients) created. Demographics: median age 62 years, 42% diabetes, 26% ischaemic heart disease, median BMI 31 Kg/m<sup>2</sup> (range 27-46). 50% remained on an antiplatelet. 48% brachiocephalic AVF. 84% had pre-surgery ultrasound mapping by a nephrologist; median diameters were arterial 0.4cm (range 0.15-0.61) and venous 0.28 cm (range 0.07-0.57). 26% were listed by a nephrologist without surgical review. AVF outcomes (87% available): 65% patent, 20% incident use, 15% failed. There was no statistically significant difference in success rate of AVF formation in the streamlined pathway

**Conclusions:**

Patient selection and mapping performed by a nephrologist allowed the process of AVF creation to be optimised during the Covid pandemic. There was no statistically significant difference in success rate of fistula formation in the streamlined pathway versus the surgeon-assessed group. The process minimised hospital attendances and a functioning AVF was achieved for the majority of patients.

**Score Average**

31.00

OP000133

**Title**

The Arterio Venous Access Stage (AVAS) Classification

**Category:**

Oral

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**Aims:**

Key anatomical factors mean that individuals needing arteriovenous access are unique and have different possibilities for fistula creation. A prior classification of haemodialysis vascular access was focused on patients who had exhausted all access options. The aim of the present paper is to describe a new classification system for all patients needing hemodialysis vascular access in the upper extremity.

**Materials & Methods:**

According to the patient's vascular anatomy in right and left superior extremities, patients can be separated into an Arterio Venous Access Stage (AVAS). The purpose of the classification system is to simplify sharing of information about suitability for surgical access creation depending on vascular anatomy, to highlight future problems with new access creation in patients considered for fistula ligation or de-clotting, and to facilitate evaluation of patients for research and audit purposes. The AVAS was validated by three blinded observers using a sample of 70 upper limb arteriovenous maps.

**Results:**

A sample size calculation was performed and calculated that for three observers a minimum of 67 maps were required to confirm significant agreement at a Kappa value of 0.9 (95% confidence interval 0.75-0.99). Three blinded observers (two from Czech Republic and one from the United Kingdom) rated a sample of 70 upper limb arteriovenous maps with AVAS with a Kappa value of 0.94 for inter rater reliability using Fleiss's Kappa coefficient. All patients fitted into the classification system.

**Conclusions:**

The AVAS classification is a simplified way of sharing the information about suitability for access creation depending on vascular anatomy that demonstrates high inter-rater reliability.

**Score Average**

38.75

OP000132

**Title**

Ultrasound assessment of Intimal hyperplasia in Haemodialysis Arteriovenous fistula stenosis; what is a significant intimal medial thickening?

**Category:**

Oral

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**Aims:**

It is considered that the most important contributor to stenosis of Haemodialysis arteriovenous fistula (AVF) is intimal thickening although it is not clear what percentage of it results in significant flow limitation and how much of flow reduction is attributed directly to intimal thickening. A retrospective analysis of Duplex data from patients who presented with AVF dysfunction was performed to establish whether there is a correlation between degree of intimal hyperplasia and volume flow.

**Materials & Methods:**

We analysed Duplex US reports and images from Haemodialysis patients who presented to the radiology department at East and North Hertfordshire NHS trust.  
We retrieved the data on location and type of AVF, Volume flow measured within the brachial artery, Location of stenosis, lumen diameter at the site of stenosis (inner to inner and outer to outer diameter), thickness of near and far wall intimal-medial thickening (IMT) and calculated percentage of IMT.

**Results:**

156 Consecutive duplex US were analysed. 81 were proximal AVF and 75 were distal AVF. Of these, 79 had stenosis in the outflow vein, 67 had juxta-anastomotic stenosis and 10 had stenosis at the graft-vein anastomosis. Ninety two of these lesions were recurrent lesions post angioplasty. Mean intimal thickening was 50%. Median volume flow was 722 ml/min. There was a significant but moderate inverse correlation between percentage intimal thickening and volume flow ( $p=0.0003$ ,  $Rho -0.28$ ). On ROC analysis, intimal hyperplasia of 51.7% predicted low flow with 65% sensitivity and specificity

**Conclusions:**

Intimal thickening is significantly correlated with volume flow and 52% intimal thickening has a fair accuracy of predicting low flow and could be used as a cut-off for significant intimal thickening. Intimal thickening was not the only factor contributing to low flow and significant stenoses were identified with no IMT.

**Score Average**

40.00

OP000126

**Title**

Fistuloplasty of arteriovenous fistulae for haemodialysis with Paclitaxel-coated balloons does not confer an increased risk of mortality

**Category:**

Oral

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**Aims:**

1. Evaluate the effects of arteriovenous fistula (AVF) fistuloplasty with or without a drug-coated balloon (DCB) on mortality using a 6-year retrospective analysis.
2. Utilise the Charlson Comorbidity Index (CCI), validated for use in haemodialysis patients, to investigate the medical characteristics of patients undergoing AVF fistuloplasty with uncoated balloon (UB-fistuloplasty) or DCB (DCB-fistuloplasty).

**Materials & Methods:**

All AVF fistuloplasties performed at a single centre between April 2013 - March 2017 were retrieved from the Computerised Radiology Information System. Patients were categorised by procedure: UB-fistuloplasty or DCB-fistuloplasty (Lutonix (BARD BD) and Ranger (Boston Scientific)). Clinical data were collected from patient electronic records (RenalPlus) and anonymised prior to analysis in Microsoft Excel, GraphPad Prism and SPSS.

**Results:**

There were 250 patients (400 procedures) in the UB-fistuloplasty group and 63 patients (81 procedures) in the DCB-fistuloplasty group. DCB is utilised for recurrent stenosis and intimal hyperplasia, leading to increased procedure numbers and median dialysis duration of 26 (0-214) versus 13 (0-292) months.

Equal mortality was observed at 52% at 80 months by Kaplan-Meier analysis: Gehan-Breslow-Wilcoxon  $p=0.43$ ; HR 1.2 (0.85-1.69). Independent mortality predictors by Cox regression analysis were duration of dialysis ( $p<0.0001$ ), age ( $p=0.001$ ) and CCI ( $p=0.003$ ).



**Conclusions:** Increased mortality has been associated with peripheral arterial intervention using drug coated devices [Katsanos, 2018]. Our data demonstrates paclitaxel-coated DCB-fistuloplasty did not confer increased mortality; mortality correlated to co-morbidity and haemodialysis duration. Utilising DCB in preserving adequate vascular access remains important for those reliant on haemodialysis. Results of prospective randomised control trials with extended follow up beyond 2-3 years are awaited.

**Score Average** 43.80

OP000124

**Title** Surgical Banding for the Management of Hyperfunctioning Arteriovenous Fistulas

**Category:** Oral

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**Aims:** Patients with arteriovenous fistulas can suffer a number of complications including high output cardiac failure and arteriovenous access induced steal (AVAIS). Banding is one of a number of surgical techniques that can be employed to manage complications associated with hyperfunctioning arteriovenous fistulas. The primary aim of this study was to investigate the efficacy of banding. The secondary aim of the study was to investigate patient factors affecting the success of the banding procedure.

**Materials & Methods:** 60 patients (mean age 57.6 years) who had undergone a banding procedure on a brachiocephalic or brachio basilic fistula were included in this retrospective cohort study. Patient symptoms in conjunction with arterial volume flows were recorded pre- and postoperatively in all patients.

**Results:** Banding elicited significant symptomatic relief in 68.2% of patients ( $p=0.000$ ) while significantly reducing volume flows (mean reduction = 0.73L/min,  $p=0.000$ ). No factors investigated significantly altered the efficacy of banding: indication for banding ( $p=0.347$ ); diabetes mellitus status ( $p=0.341$ ); patient age ( $p=0.107$ ); and patient sex ( $p=0.942$ ).

**Conclusions:** Banding is a safe and effective surgical management option for patients suffering the complications of hyperfunctioning arteriovenous fistulas. Patient comorbidities do not appear to negatively impact the efficacy of banding, indicating it is a suitable management option regardless of comorbidity. We recommend banding as the first line surgical management option to manage patients with hyperfunctioning arteriovenous fistulas.

**Score Average** 36.60