Medium-term results of venous stenting for acute ilio-femoral vein thrombosis

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Deep vein thrombosis (DVT) occurs in about 100,000 patients a year in the United Kingdom. Post-thrombotic syndrome (PTS) is a major long term complications which develops in about 50% of the patients and is associated with significantly decreased quality of life. Catheter directed thrombolysis (CDT) with stenting of the stenosed segment improves the outcomes.

Patients with acute ilio-femoral DVTs in whom a venous stent was inserted after CDT between April 2012 and December 2015 were included. Demographic details, number and type of stents were recorded as well as stent patency, re-interventions, complications and clinical outcomes. Primary patency was defined as stenosis of <50%, primary assisted - incomplete occlusion requiring intervention, and secondary patency - successfully treated complete occlusion.

In total, 165 stents were placed in 73 patients. The median age was 43 years. 44 patients (60.3%) were female and 14 (19%) were diagnosed with a clotting disorder. 79% of patients had a DVT on the left side and in 11% of the cases it was bilateral. 28.8% (21) of the patients required a re-intervention and of those 16 patients required a further procedure. After at least 1 year follow-up primary, primary-assisted and secondary patency were 66%, 85% and 90% respectively.

It is now widely accepted that stenting of significant flow limiting stenoses should be considered to avoid long term complications of proximal DVTs. We have shown that this can be done successfully in 90% of the cases. However, patients should be counselled about a significant rate of re-intervention.
Stenting across the inguinal ligament in post thrombotic syndrome using nitinol venous stents: one-year patency outcomes

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Endovenous stents can be used for deep venous reconstruction to treat patients with post-thrombotic syndrome (PTS). Guidelines on iliocaval stenting suggest stenting across the inguinal ligament should be avoided, however stenting from a normal peripheral inflow segment is more important, therefore stenting across the ligament may be necessary. The aim of this study was to examine patency rates when stenting across the inguinal ligament using nitinol venous stents.

Consecutive patients in whom a venous stent was inserted for symptomatic PTS between 2012-2015 were included. All patients had a minimum of one-year follow-up, with pre-operative Villalta scores taken before intervention and at one-year. Patency was assessed peri-operatively using intravascular ultrasound and post-operatively using duplex ultrasonography.

Of 168 patients, 102 (61%) were treated for post-thrombotic obstruction; 94/102 (92%) had a nitinol venous stent of which 71 (76%) crossed the inguinal ligament. Primary, primary-assisted and secondary patency rates were significantly better in stents placed above the inguinal ligament compared with across it (72%, 100%, 100% vs. 52%, 80%, 82%, respectively; P<0.05). There was a significant improvement in Villalta scores of both patients with patent stents in those placed above the inguinal ligament (median improvement of 9 points, range 0-18) and those with stents placed across it (median improvement of 11, range 0-25).

Maintaining stent patency when the stents cross the ligament can be challenging and close surveillance is required as re-intervention may be required. However, nitinol venous stent patency is good at one-year in both groups and significant clinical improvement can be achieved.
Quantifying potential radiation exposure in real life endovascular cases - implications for practice
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Our objective was to use live dosimeters to quantify actual radiation exposure to primary operators during endovascular procedures and evaluate the success of our current practice in radiation protection. The limits on effective dose are set out by the Health and Safety Executive (HSE) in the Ionising Radiations Regulations (1999). Employees are limited to 20 millisieverts (mSv - 1 mSv = 1000 μSv) to body or eye in a calendar year, with investigation triggered at 2 mSv and the operator becoming a classified worker at 6 mSv.

The potential radiation dose to primary operators was quantified by monitoring 5 procedures over a 3 week period. These included 3 endovascular aneurysm repairs, 1 aortic cuff and 1 aorto-uni-iliac graft. Phillips live dosimeters were placed in several locations through the operating theatre for the duration of the procedures evaluated.

Cumulative doses for each location are shown in brackets. The locations were as follows: primary operator shin (3017 μSv); primary operator chest under leads (2 μSv); primary operator chest over leads (13445 μSv); inside the lead skirt (3171 μSv); and at the radiographer control station (327 μSv).

Extrapolating the results to a year-long period for one operator indicates the radiation dose outside leads could reach 200 mSv, vastly exceeding HSE limits if lead gowns or eye protection were inadequate. This has consequences for both personal safety and workforce availability due to classified worker restrictions. It is important we recognise this and ensure lead gowns and eye protection are correctly worn and maintained, lead shields and lead skirts used, and film badge dosimeters are worn.
Supervised Exercise Therapy versus Percutaneous Angioplasty versus Combined Angioplasty and Exercise for Intermittent Claudication: Systematic Review and Bayesian Network Meta-Analysis of Randomized Controlled Trials
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The authors report the results of a Bayesian network meta-analysis of randomized controlled trials (RCTs) comparing supervised exercise therapy alone (SET), percutaneous tranluminal angioplasty (PTA) alone, or a combination of SET and PTA for the treatment of intermittent claudication.

Medical databases were searched with the PRISMA statement and 39 RCTs (including five 3-arm studies) comprising 2,983 patients with 12 months median follow-up (range, 3-24 months) were analysed in total. Outcome measures included improvements of Maximal Walking Distance capacity (MWD; meters on treadmill) and Quality of Life (QoL; SF-36 and EQ-5D instruments) compared to best medical therapy (BMT) as the anchor control treatment. Bayesian random effects models were employed (WinBUGS).

There were significant improvements of MWD with PTA (+85m, 95%CrI: +4 to +170), SET (+180m, 95%CrI: +130 to +230) and PTA+SET (+290m, 95%CrI: +180 to +390). SET was better than PTA alone (MWD difference +85m, 95%CrI: +16 to +170). PTA+SET were the best treatment with an MWD difference over SET of +110m (95%CrI: +16 to +200). Quality of life was significantly and strongly improved only in case of PTA+SET (QoL Cohen's d standardized effect size 1.8; 95%CrI: 0.21 to 3.4).

Results were stable on sensitivity and consistency analyses without any significant publication bias. Healthcare systems need to invest in supervised exercise programmes as the first standalone treatment for intermittent claudication and in order to augment the results of peripheral revascularization.
An Anatomical and Morphological Assessment of Common Femoral Disease and Potential Suitability for Endovascular Intervention
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Open surgery for common femoral artery stenosis is safe and effective in the long-term. Endovascular interventions of the common femoral artery (CFA) is becoming more common. This study determines the anatomy and lesion morphology relevant for endovascular management of CFA atherosclerosis.

We assessed a consecutive series of patients who underwent a common femoral endarterectomy over a one-year period. Where possible, CT imaging was assessed for the following relevant finding (a) contralateral iliac TASC scoring (b) angulation of the aortic bifurcation (c) CFA length and PFA (to the first bifurcation) length (d) presence of significant plaque within the ipsilateral proximal SFA (e) calcium burden within the CFA.

A total of 56 patients underwent CFA endarterectomy of which 36 patients (32 men; median age 73 [68-76] years) had suitable CT imaging for analysis. Seven patients had contralateral iliac TASC C lesions, 10 TASC B and 19 TASC A. Eight patients underwent concomitant ipsilateral iliac angioplasty. The mean angle of the aortic bifurcation was 53.7°. 42% of patients had a CFA stenosis >75%. Median CFA length was 39 mm, PFA length 57 mm and 19% of patients had significant SFA disease (TASC C/D). Overall median CFA calcium score was 1543 (747 - 2047).

While the endovascular enthusiasts suggest angioplasty / stent of the CFA has low peri-procedural morbidity, & study suggests that there are a number of anatomical challenges that may provide challenges for its widespread use.
Perioperative blood glucose levels influence outcome after infrainguinal bypass and endovascular therapy

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Poor perioperative blood glucose management is associated with increased morbidity and mortality after infrainguinal and coronary artery bypass surgery. The influence of perioperative hyperglycaemia on restenosis and patency following infrainguinal revascularisation among diabetic patients is largely unknown.

Consecutive diabetic patients undergoing primary infrainguinal bypass surgery (BS) or endovascular therapy (EV) for critical limb ischaemia were identified. Daily capillary blood glucose (CBG) data was collected retrospectively up to 7 days post operatively along with pre and 3 month post procedural haemoglobin A1C levels and analysed against the study endpoints (primary, assisted primary and secondary patency and binary restenosis).

In patients undergoing infra-inguinal bypass (N=42) a mean peri-operative CBG level greater than 7mmol/L was associated with reduced primary patency (P=0.01) and a higher level of binary restenosis (P=0.042), with no significant difference in assisted primary patency (P=.36) and secondary patency (P=.46). A lower primary patency was also found in patients with a HbA1C level of greater than 48mmol/mol both pre (P=0.027) and 3 months post operatively (P=0.047). The EV group consisted of 76 patients with 160 vessels treated. A high perioperative CBG level (>7) and HbA1C level (>48) was associated with lower primary patency (P=.011 and P .004), assisted primary patency (P=.019 and P=.004), secondary patency (P=.047 and P=.018) and a higher binary restenosis rate (P=0.042 and P=.032). Cox regression analysis showed high pre-procedural HBA1C levels (P=0.001) and CBG level (P=.02) to be an independent predictor of patency.

Poor perioperative glycaemic control is associated with lower patency and higher incidence of restenosis after infrainguinal revascularisation in diabetic patients.