Real-world experience of Indigo aspiration thrombectomy for acute limb ischaemia

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Background
We evaluated the outcomes of the Indigo aspiration thrombectomy system (Penumbra Inc) in the management of acute limb ischaemia (ALI).

Method
All patients with ALI who were treated with Indigo aspiration thrombectomy at a single large UK tertiary centre between Jan 2021-Aug 2024 were identified via the Radiology Information System (RIS). RIS and Electronic Patient Record were used to record patient demographics, Rutherford score, device, adjunctive procedures, complications, and 30-day and 1-year mortality and amputation rates. Technical success was defined as Thromboaspiration in Peripheral Ischaemia (TIPI) score 2/3 evaluated by an interventional radiologist reviewing the procedural images.

Results
81 patients with ALI were treated with Indigo aspiration thrombectomy over a 3-year period. The mean age was 67 years and 70% were male. Adjunctive techniques included angioplasty (n = 55), stenting (n = 33) and thrombolysis (n = 19). Technical success (TIPI 2/3) was achieved in 85% of patients. No device-related adverse effects recorded. Follow-up data was available on 73 patients. At 30-day follow-up, there were 4 deaths and 18 major amputations. 30-day amputation-free survival was 74%. At 1-year follow-up, there were an additional 10 deaths and 6 major amputations. 1-year amputation-free survival was 59%.

Conclusion
Our results are comparable to TOPAS and STILE data on catheter-directed thrombolysis and surgical embolectomy. Our results are inferior to INDIAN and STRIDE registries, perhaps reflecting the real-world nature of our cohort, and also due to a learning curve with the Indigo system at the start of the study period.

Feasibility phase of Platelet Research in Optimising Response in Treatment for Angioplasty (PRiORiTY) Study

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Background
Lower limb revascularisation is a key treatment for critical limb ischaemia (CLI), aiming to restore perfusion and prevent limb loss. Dual antiplatelet therapy is widely used, yet patient response varies, and poor platelet inhibition is associated with poor outcome. The PRiORiTY study aims to evaluate platelet function testing to optimise treatment.

Methods
As part of feasibility phase of the PRiORiTY study, platelet function test was carried out in 28 patients undergoing revascularisation with the antiplatelet regimens. Platelet function was assessed using a thromboelastography with platelet mapping. An ADP value <42 was classified as poor platelet inhibition (Ferreira et al. 2024). Outcomes including revascularisation rates, amputation, and mortality were assessed.

Results
Poor platelet inhibition was observed in 19/28 patients (68%). Among 10 patients followed for 4–12 months, 6 (60%) required repeat revascularisation, 2 underwent major amputation, and 1 died with a median time of 7 months to repeat procedure. One patient remained event-free. In contrast, patients with optimal platelet inhibition had a 44% repeat revascularisation rate, no major amputations, and rest remained event-free with a longer median time.

Conclusion
Our initial data indicates a significant proportion of CLI patients exhibit resistance to standard antiplatelet therapy, leading to high rates of repeat revascularisation and major amputation. Despite identifying high-risk patients using platelet function testing, the lack of personalised treatment strategies may contribute to poor outcomes. The feasibility phase of the PRiORiTY study demonstrates the practicality of platelet function testing in real-world settings and its potential to guide personalised antiplatelet therapy.

Endovascular vs. Open Surgical Repair of Popliteal Artery Aneurysms: A Meta-Analysis

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Background
Popliteal artery aneurysms (PAAs) are the most common peripheral arterial aneurysms, with endovascular (EVAR) and open surgical repair (OSR) being the primary treatment modalities. The optimal approach remains debated, with concerns regarding long-term durability and reintervention rates. This meta-analysis aimed to compare EVAR and OSR for PAAs, focusing on patency, limb salvage, reintervention, and complications.

Method
A systematic review was conducted using PubMed, Google Scholar, MEDLINE, Embase, Cochrane and Scopus. Studies reporting mid-term (1–5 years) or long-term (>5 years) outcomes of EVAR and OSR for PAAs were included. A total of 1140 records were screened, with 22 studies meeting the inclusion criteria. Extracted data included patient demographics, aneurysm characteristics, intervention type, follow-up duration, and key clinical outcomes. A random-effects model was used for meta-analysis, and heterogeneity was assessed using the I^2 statistic.

Results
The meta-analysis included 22 studies with 1823 patients undergoing EVAR or OSR for PAAs. Primary and secondary patency rates at 12 and 24 months were comparable between EVAR and OSR (ORs: 0.74–1.25, $p > 0.20$). Limb salvage rates remained high (98%–100%) across both groups. EVAR demonstrated a non-significant trend toward reduced reintervention. No significant difference in survival outcomes was observed at 12 and 24 months. Study heterogeneity was noted but did not alter findings.

Conclusion
EVAR and OSR provide comparable outcomes in PAA management. EVAR offers a minimally invasive alternative with faster recovery, whereas OSR remains suitable for complex cases. Treatment should be individualized based on anatomical and patient-specific factors.

The Fate of the Contralateral Limb after Major Lower Limb Amputation for Peripheral Arterial Disease or Diabetes Mellitus

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Background
The contralateral limb (CL) is at risk after major lower limb amputation (MLLA) due to the systemic nature of the underlying disease. Establishing the fate of the CL will determine whether there is a role for clinical surveillance.

Method
A single centre retrospective cohort study inclusive of all patients undergoing MLLA between 01/01/2013 and 01/07/2023 for PAD or DM was performed. Those with previous or concurrent CL MLLA were excluded. Kaplan-Meier survival plots and Cox-proportional hazard ratios were calculated for development of CL disease, and CL amputation-free survival (CL-AFS) was determined for those undergoing CL-revascularisation.

Results
531 patients underwent first unilateral MLLA during the study period. Of these, 175 (33.0%) developed CL disease with 67% of this presenting within the 1st year. Patients primarily presented with CLTI (70.3%) and DFI (13.1%). Disease at presentation was severe with 76.5% of symptomatic patients presenting with tissue loss. Independent predictors of developing CL disease were chronic PAD, DM and significant radiological CL disease. 127/175 patients went on to have intervention, with 95 revascularized (137 procedures; 84.7% endovascular, 13.1% open, 2.2% hybrid) and 50 requiring a CL-MLLA. Two-year CL-AFS after revascularisation was 45.3%, with those representing with Rutherford 3/4 disease having a 2-year CL-AFS of 60.9% compared to 33.9% for Rutherford 5/6.

Conclusion
CL disease after MLLA is common and presents early with severe clinical disease. High risk groups can be defined and intervention at an earlier clinical stage may improve outcome, creating a strong case for surveillance of the CL after MLLA.

Endovascular treatment with intravascular lithotripsy for common femoral artery disease: A safe and feasible alternative to open surgery

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Background
Common femoral endarterectomy (CFAE) is considered the gold standard for common femoral artery (CFA) occlusive disease; however, it carries significant complications, with surgical-site infection reported in almost a third of cases. Endovascular innovations, such as intravascular lithotripsy (IVL) for vessel preparation, may provide an alternative to CFAE.

Method
Patients undergoing endovascular treatment with IVL for CFA occlusive disease at a single tertiary centre from January 2021 to September 2024 were identified, and their electronic records were reviewed. Descriptive analysis was undertaken including co-morbidities, Rutherford status, length of stay, complications, primary patency, freedom from revascularisation, amputation, and mortality rate.

Results
Thirty-two consecutive patients received endovascular treatment with IVL for CFA occlusive disease (male *n*=20; median age=72, IQR 68-79). Most had hypertension (*n*=27, 84%) and diabetes (*n*=18, 56%), followed by hypercholesterolaemia (*n*=13, 41%) and ischaemic heart disease (*n*=10, 31%). Most presented with Rutherford 5 disease (*n*=16, 50%). Fourteen individuals had received previous revascularisation including CFAE (*n*=7, 22%) and CFA stenting (*n*=1, 3%). Median length of stay was 4 days (IQR 1-7). Three complications were reported: bleeding, acute limb ischaemia and infection. Six-month primary patency was 84%, freedom from target vessel revascularisation 94%, amputation rate 19% and mortality rate 54%.

Conclusion
Endovascular treatment with IVL for CFA occlusive disease is safe and feasible with low complication rates, short hospital stays and good freedom from target vessel revascularisation. Given the clinical equipoise, a randomised controlled trial is needed to assess the clinical and cost-effectiveness of CFAE versus endovascular treatment for CFA occlusive disease.

Clinical significance of high on-treatment platelet reactivity in patients taking P2Y12 inhibitors following lower limb revascularisation for peripheral artery disease: A systematic review and meta-analysis

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Background
The effect of P2Y12 inhibitors such as Clopidogrel are known to be reduced in certain individuals due to a phenomenon named High on-treatment platelet reactivity, HTPR. However, the clinical effect of HTPR in patients on P2Y12 inhibitors following lower limb revascularisation for Peripheral Artery Disease, PAD is not clear. The aim of this study was to assess the clinical impact of HTPR following lower limb revascularisation.

Method
Systematic review and meta-analysis of studies assessing platelet function following lower limb revascularisation was done. The primary outcome was all-cause mortality. Secondary outcomes were major adverse cardiovascular events, MACE; major adverse limb events, MALE; and target lesion revascularisation, TLR. Outcome quality was assessed using the Grading of Recommendations Assessment, Development, and Evaluation, GRADE tool.

Results
A total of 24 studies enrolling 3121 patients were included. The pooled incidence of HTPR was 28% (95% CI 26-34). There was a slightly higher risk for all-cause mortality in patients with HTPR (OR 1.77, 95% CI 0.98 – 3.01, p = 0.05), similarly for MACE (OR 5.12, 95% CI 0.72 – 37.61, p = 0.18). HTPR was associated with MALE (OR 7.09, 95% CI 2.27 – 17.24, p = 0.001). Clopidogrel was used in all the studies (either alone, with other P2Y12 Inhibitors, or other antiplatelets). All the outcomes were found to have very low level of evidence.

Conclusion
HTPR was associated with increased risk of clinical outcomes in patients on P2Y12 inhibitors following lower limb revascularisation. Further studies are required to assess tailored antiplatelet therapy in PAD patients.