Bitesize Research:
DEEP VENOUS STENTING

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INTRODUCTION

In 1995, Berger et al. were one of the first teams to successfully carry out iliac vein stenting for treatment of iliofemoral deep vein thrombosis. The first dedicated deep venous stents became available around 2012, and since then endovascular stenting has been increasingly used to treat patients with deep venous obstruction, with research showing it can be safe and effective. This article aims to summarise recent research into deep venous stenting and the potential impact on practise.

PAPER 1

Razavi MK et al. (2019) VIRTUS Investigators. Pivotal Study of Endovenous Stent Placement for Symptomatic Iliofemoral Venous Obstruction. Circ Cardiovasc Interv. doi:10.1161/CIRCINTERVENTIONS.119.008268

SUMMARY

Prospective, international, single- arm pivotal study of endovenous stent placement in patients with symptomatic iliofemoral venous obstruction. Inclusion criteria selected for patients with ≥50% obstruction on venography, CEAP ≥3 and moderate leg pain.

PROS

At the time of publication, this was the largest prospective multicentre study to date. Due to the international participation, the results were generalisable to the real-world population. Data was collected for five years post publication.

CONS

No control group was used, which may have created bias, and means we are unable to draw comparisons to other treatment methods such as conservative management.

IMPACT ON PRACTICE

Use of dedicated venous stents to treat symptomatic iliofemoral venous obstructions can be safe and effective, with reductions in clinical symptoms and improvements in quality of life through 12 month follow up.

PAPER 2

Hügel U et al. (2023) Criteria to predict midterm outcome after stenting of chronic iliac vein obstructions (PROMISE trial) J Vasc Surg Venous Lymphat Disord. doi: 10.1016/j.jvsv.2022.05.018.

SUMMARY

Retrospective analysis of 108 patients to identify factors associated with loss of patency to facilitate patient selection for endovenous stenting.

PROS

Moderate sample size. Patients were followed up for 41+/- 26 months, allowing for data collection.

CONS

Single-centre, retrospective analysis may limit accuracy of data. A multi-centre trial would be useful to further assess findings. Possible selection bias as only 51% of eligible patients were included in analysis. Only pre-interventional characteristics were assessed. Post-interventional characteristics could have provided even more information.

IMPACT ON PRACTICE

Endovascular stenting is an effective and safe method for treatment of chronic venous outflow obstructions. Selecting patients with inadequate venous inflow, measured by PSV in the FV and CFV, may be associated with higher risk of stent occlusion. Risk of stent occlusion and clinical deterioration must be weighed against potential benefits.

PAPER 3

Razavi M et al. (2025) The VIVID trial 12-month outcomes of the venous stent for the iliofemoral vein using the Duo venous stent system. J Vasc Surg Venous Lymphat Disord. doi: 10.1016/j.jvsv.2024.101995.

SUMMARY

International, prospective, multicentre single- arm study to investigate the safety and efficacy of the Duo Venous Stent System for the treatment of patients with non-malignant iliofemoral venous obstructive disease. Patients with symptomatic non-thrombotic, post-thrombotic or acute deep venous thrombotic iliofemoral venous outflow obstruction were assessed. Patient reported outcomes were measured with the Venous Clinical Severity, Villalta, and quality of life scores.

PROS

International multicentre style study ensures results are reproducible. The effect of COVID-19 on hypercoagulability was considered and the study protocol was modified to prevent skewing of results by excluding patients that had experienced severe acute respiratory syndrome coronavirus.

CONS

Single arm study design with non- randomised patient selection. Patients have currently only been followed up for 12 months, however, follow up is planned for 36 months. Small sample size for acute deep venous thrombotic group.

IMPACT ON PRACTICE

disease, the Duo Venous Stent System is safe and effective. Patients presenting with all the above groups showed meaningful clinical and quality of life improvements after treatment.

PAPER 4

Abramowitz SD et al. (2025) Rationale and design of the DEFIANCE study: A randomized controlled trial of mechanical thrombectomy versus anticoagulation alone for iliofemoral deep vein thrombosis. Am Heart J. doi: 10.1016/j.ahj.2024.10.016

SUMMARY

An actively recruiting, prospective, multicentre randomised controlled trial of an interventional strategy using the Clot-Triever System to achieve and maintain vessel patency in patients with symptomatic unilateral iliofemoral DVT versus conservative medical therapy of using anticoagulants alone. The study aims to recruit 300 patients over 60 centres. Patients will have duplex ultrasound assessment, and severity of post-thrombotic syndrome will be evaluated using the Villalta scale.

PROS

Clear and detailed inclusion/exclusion criteria. Study requires vascular scientists to carry out ultrasound assessment, and it's nice to be involved!

CONS

No anticoagulation regimen is specified in the trial protocol, which gives physicians more flexibility but could also introduce variability into the study.

IMPACT ON PRACTICE

This will be the first randomised control trial to compare an interventional, mechanical thrombectomy treatment with anticoagulation alone for DVT. This will help to guide future treatment of these patients and provide further information on post thrombotic syndrome related morbidity.

OTHER REFERENCES

Berger, Alan et al. (1995) Iliac compression syndrome treated with stent placement.

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