

NICE
2016



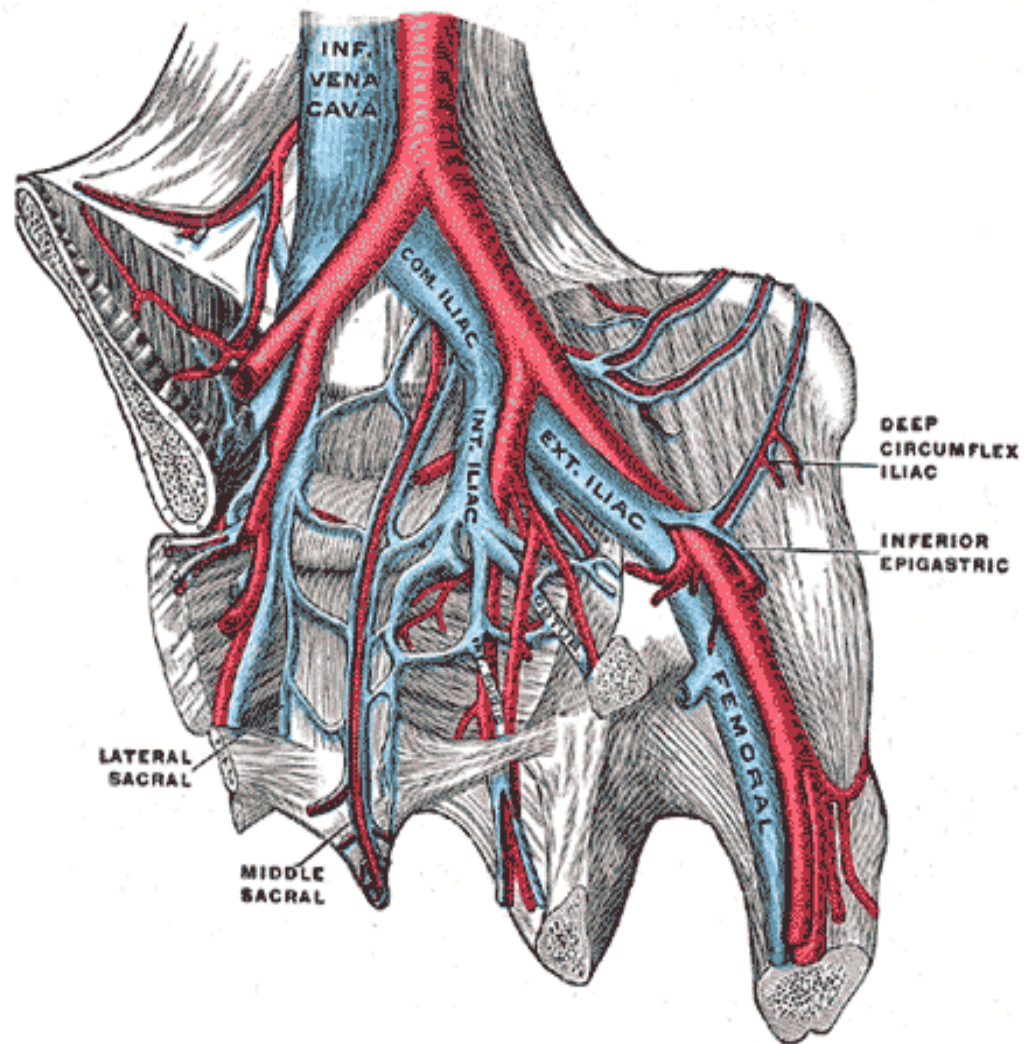
Endovascular treatments of the extended iliac vein occlusion: what are the limits?

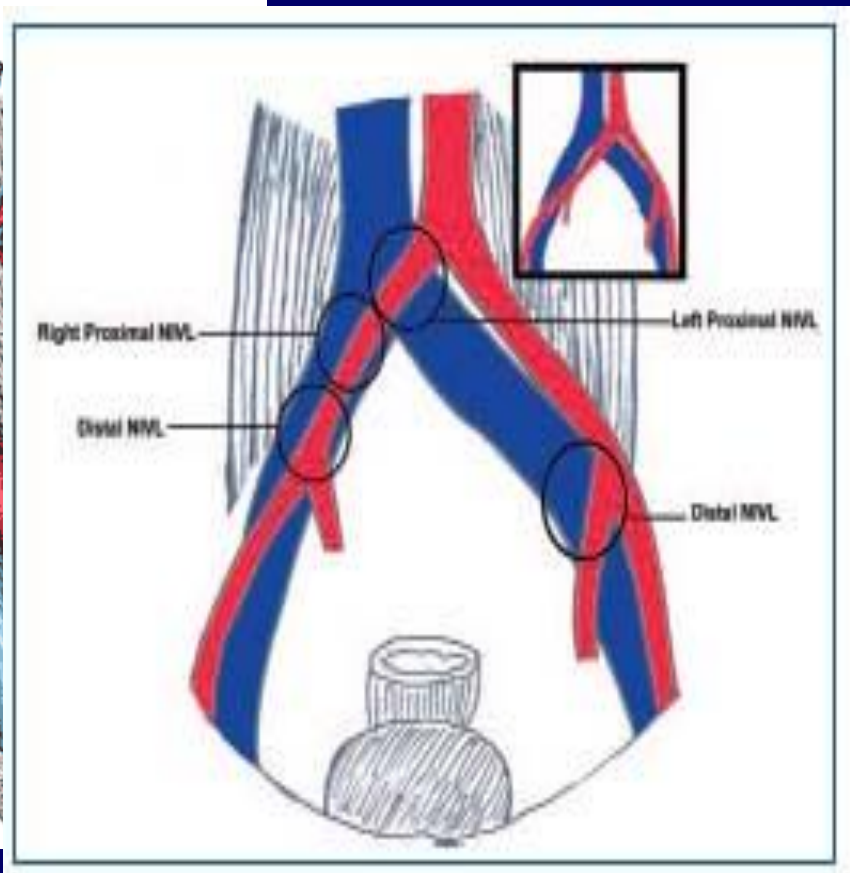
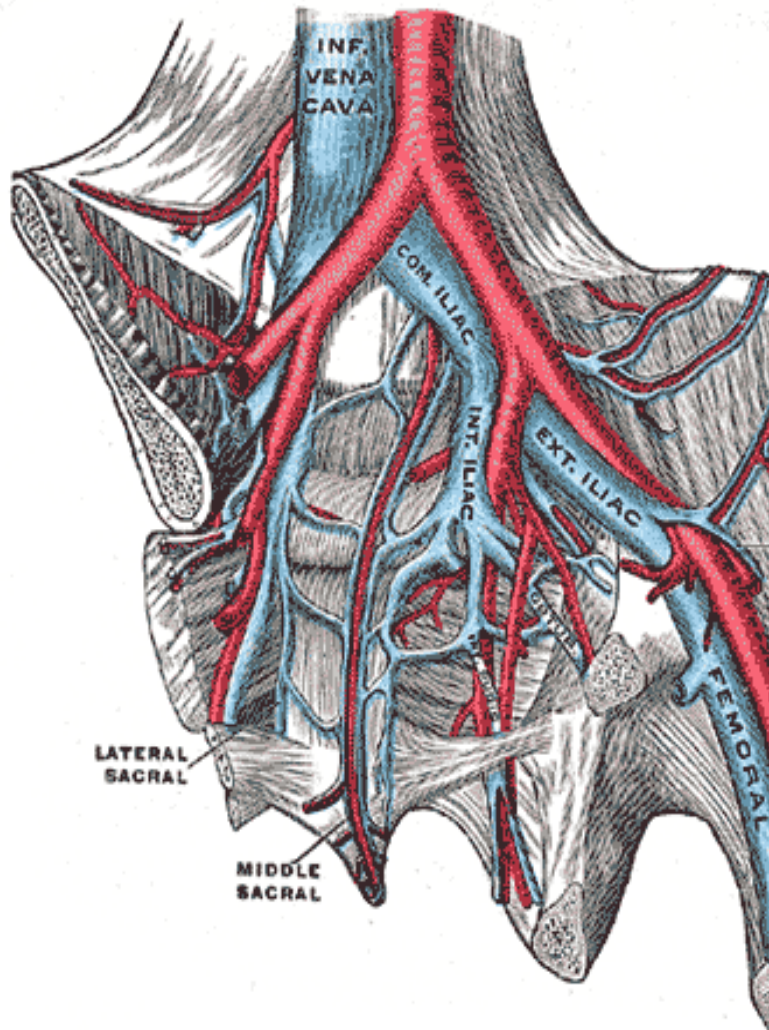
Professor Alun H Davies

Section of Vascular Surgery

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London

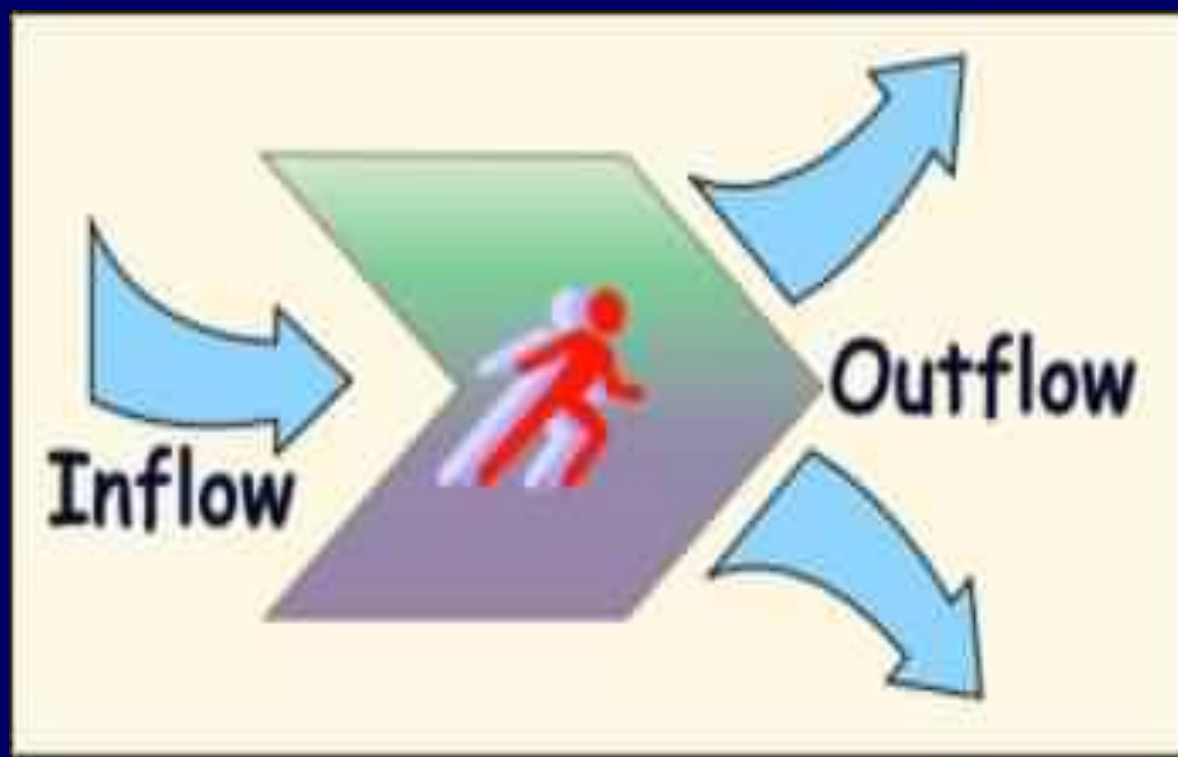




Iliac Vein Stenting for Chronic Venous Insufficiency

Chronic venous insufficiency has devastating sequelae in terms of patients' lifestyles and negative economic impact on society. Traditional surgical procedures have yielded variable patency results, and follow-up has not always been reported. This review summarizes the current applications, patency rates, stent selection, and complications of balloon angioplasty and stenting in the treatment of chronic venous outflow obstruction in the lower extremity. We conclude that endovenous stenting is the current method of choice in the treatment of chronic venous obstruction. (Tex Heart Inst J 2007;34:60-6)

Firas F. Mussa, MD
Eric K. Peden, MD
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Alan B. Lumsden, MD
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Best management options for chronic iliac vein stenosis and occlusion

Seshadri Raju, MD, FACS, Jackson, Miss

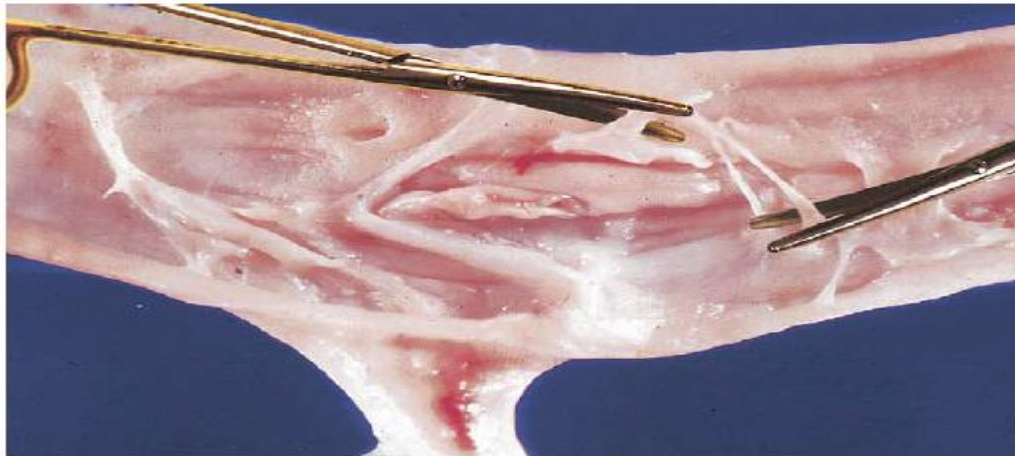
Table II. Techniques of correcting iliac vein obstruction

<i>First author, year</i>	<i>Comments</i>
Halliday, ¹⁷ 1985	Palma bypass; 47 PTS limbs. Venographic cumulative patency of 75% at 5 years
Jost, ¹⁸ 2001	18 Palma bypass • 17 prosthetic bypass • 6 spiral vein bypass • 1 vein patch • 62% overall cumulative patency at 3 years and 83% for Palma bypass at 4 years
Puggioni, ¹⁹ 2004	Technique of endophlebectomy
Garg, ²⁰ 2011	Hybrid and open techniques of correction
Neglen, ²¹⁻²⁵ 2000-2010	Technique of iliac vein stenting; need for large stents and extension into inferior vena cava. Stent extension across inguinal ligament. Bilateral iliac vein stents. Stenting across stenotic/occluded IVC filters. Incidence of ISR after iliac vein stent
Raju, ²⁶ 2009	CTO recanalization technique
Kolbel, ²⁷ 2009	Jugular approach for CTO recanalization; ancillary techniques
Raju, ²⁸ 2009	Different types of stent malfunction and reinterventional techniques to correct them

CTO, Chronic total occlusions; ISR, in-stent restenosis; IVC, inferior vena cava; PTS, post-thrombotic stenosis.

Surgical disobliteration of postthrombotic deep veins—endophlebectomy—is feasible

Alessandra Puggioni, MD,^{a,c} Robert L. Kistner, MD,^{a,b} Bo Eklof, MD, PhD,^{a,b,c} and Fedor Lurie, MD, PhD,^{a,b,c} *Honolulu, Hawaii*



On opening the vein the synechiae attached to the intimal layer are placed on tension and carefully removed with scissors by snipping their attachments to the intimal surface of the vein.

Surgical disobliteration of postthrombotic deep veins—endophlebectomy—is feasible

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Results: In 10 patients (77%) the treated segments remained primarily patent at median follow-up of 8 months (range, 1-28 months). Early thrombosis near the endophlebectomy site occurred in 3 patients, at 2, 5, and 12 days, respectively, after surgery. In 2 patients with early thrombosis further interventions were carried out with success. In a third patient with early postoperative thrombosis the final outcome was recanalization and reflux. These results yielded an overall secondary patency rate of 93%. No perioperative pulmonary embolism was observed.

their attachments to the intimal surface of the vein.

Surgical disobliteration of postthrombotic deep veins—endophlebectomy—is feasible

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Conclusion: This series demonstrates that surgical disobliteration of postthrombotic deep veins is technically feasible, and led to patency of the segments for the duration of follow-up for up to 28 months (mean, 10.8 ± 8.2 months). We used this technique with the objective of disobstructing postthrombotic veins, to increase flow through a previously narrowed lumen. Postoperative thrombosis at the site of endophlebectomy occurred in 23% of patients. Although this early experience is encouraging, further studies and longer follow-up are necessary to assess the durability of the procedure. (J Vasc Surg 2004;39:1048-52.)

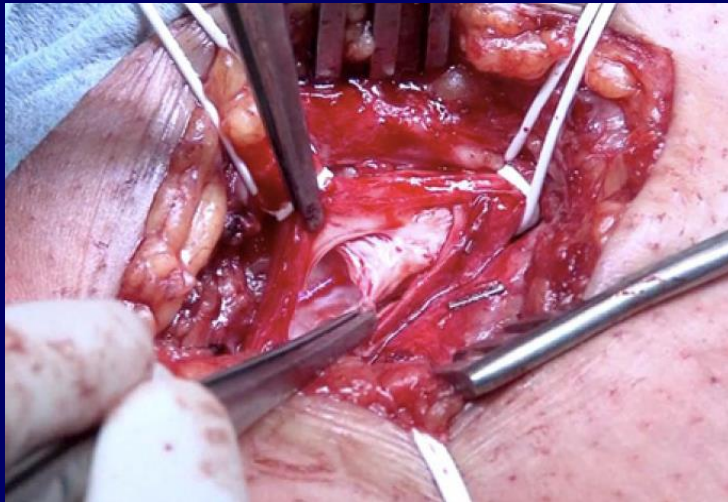
their attachments to the intimal surface of the vein.

Indications for endophlebectomy and/or arteriovenous fistula after stenting

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^{*}Department of General Surgery Maastricht University Medical Center (MUMC), Maastricht, the Netherlands;

[†]Cardiovascular Research Institute (CARIM), Maastricht, the Netherlands; [‡]Department of Radiology MUMC+, Maastricht, The Netherlands; [§]Department of Vascular Surgery University Hospital Aachen, Aachen, Germany



Use additional imaging to quantify inflow.

If extensive disease do AVF as well.



Venous stenting across the inguinal ligament

Peter Neglén, MD, PhD, T. Paul Tackett Jr, BS, and Seshadri Raju, MD, *Flowood, Miss*

(J Vasc Surg 2008;48:1255-61.)

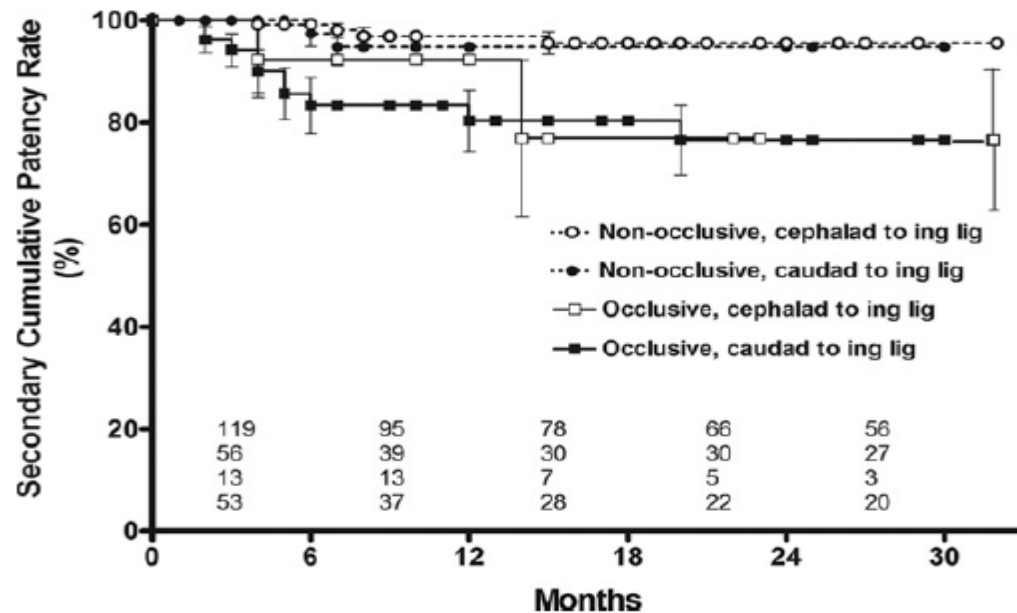
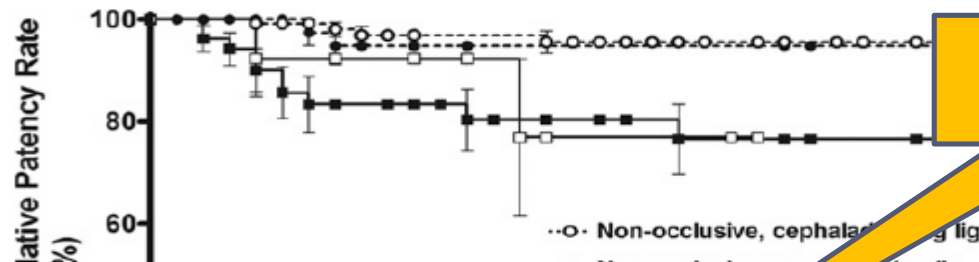


Fig 6. Secondary patency rates of stents placed in thrombotic limbs for non-occlusive obstruction and occlusion with stenting terminating cephalad and caudad to the inguinal ligament (ing lig). The lower numbers represent total limbs at risk for each time interval ($\pm$ SEM).

Venous stenting across the inguinal ligament

Peter Neglén, MD, PhD, T. Paul Tackett Jr, BS, and Seshadri Raju, MD, *Flowood, Miss*

(J Vasc Surg 2008;48:1255-61.)



SAFE

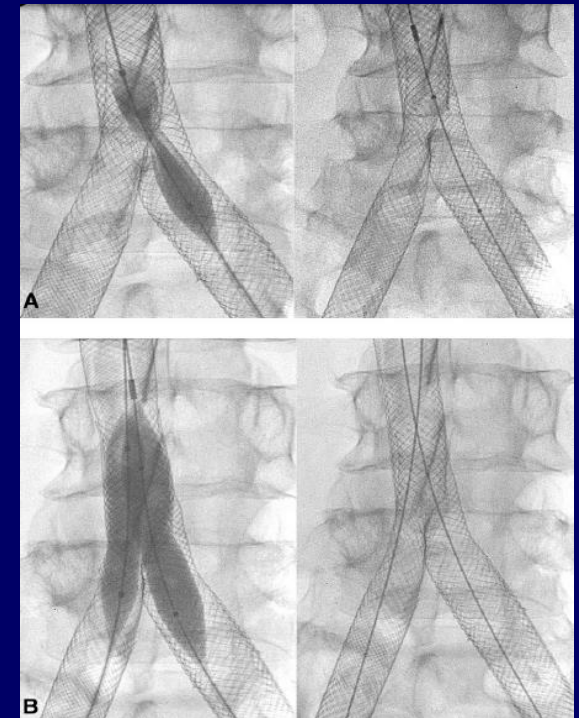
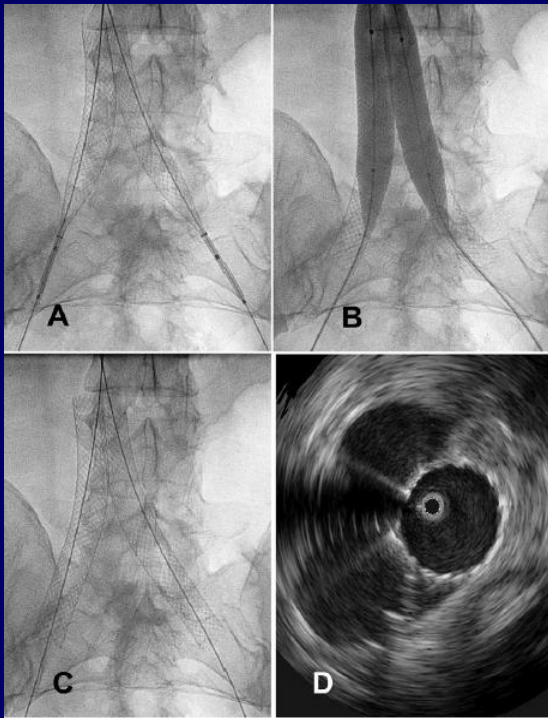
Conclusion: Contrary to arterial stenting, braided stainless stents can be safely placed in the venous system across the inguinal crease with no risk of stent fractures, narrowing due to external compression, focal development of severe in-stent restenosis, and no effect on long-term patency. The patency rate is not related to the length of stented area or the placement of the stent across the inguinal ligament, but is dependent upon the etiology and whether the treated postthrombotic obstruction is occlusive or non-occlusive. (J Vasc Surg 2008;48:1255-61.)

terminating cephalad and caudad to the inguinal ligament (ing lig). The lower numbers represent total limbs at risk for each time interval ($\pm$ SEM).

Bilateral stenting at the iliocaval confluence

Peter Neglén, MD, PhD,^a Rikki Darcey, BS,^a Jake Olivier, PhD,^b and Seshadri Raju, MD,^a *Flowood, Miss; and Sydney, New South Wales, Australia*

(J Vasc Surg 2010;51:1457-66.)



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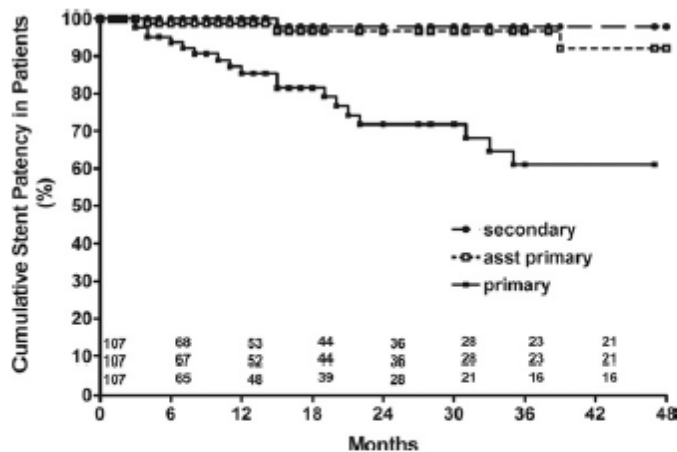


Fig 7. Cumulative primary, assisted primary, and secondary patency rates are shown for 107 patients with a bilateral stent system. The lower numbers represent limbs at risk at each time interval (all standard of means <10%).

Fenestrated stents do worse

Double barrel preferred

Iliocaval Confluence Stenting for Chronic Venous Obstructions

Rick de Graaf • Mark de Wolf • Anna M. Sailer •
Jorinde van Laanen • Cees Wittens •
Houman Jalaie

Results Recanalization was achieved for all patients. In 15 (38 %) patients, a hybrid procedure with endophlebectomy and arteriovenous fistula creation needed to be performed because of significant involvement of inflow vessels below the inguinal ligament. Mean follow-up was 443 ± 438 days (range 7–1683 days). For all patients, primary, assisted-primary, and secondary patency rate at 26 months were 70, 73, and 78 %, respectively. Twelve-month patency rates in the SECS group were 85, 85, and 95 % for primary, assisted-primary, and secondary patency. In the BECS group, primary patency was 100 % during a mean follow-up period of 134 ± 118 (range 29–337) days.

Conclusion Stenting of chronic bi-iliocaval obstruction shows relatively high patency rates at medium follow-up. Short-term patency seems to favor confluence stenting with balloon-expandable stents.

Good
secondary
patency

Open and hybrid deep vein reconstructions: to do or not to do?

P Gloviczki*, M Kalra*, A A Duncan*, G S Oderich*, T J Vrtiska[†] and T C Bower*

*Division of Vascular and Endovascular Surgery; [†]Department of Radiology, Mayo Clinic, Rochester, MN, USA

Hybrid reconstructions

KEY is inflow

When to do it?

- (1) The main indication for hybrid procedures, that we first reported on in 2001,¹ is extensive thrombosis of the common femoral vein that prevents primary iliofemoral venous stenting. If these patients have good inflow at least through the profunda femoris vein, a groin incision is performed, the femoral veins and saphenous vein are exposed and endophlebectomy of the chronically occluded common femoral vein is done. The procedure is finished with saphenous vein or bovine pericardial patch angioplasty. Once inflow is assured, iliofemoral stenting is done with standard techniques.

When not to do it?

- (1) Poor inflow even to the profunda femoris vein;
- (2) If there are other contraindications for stenting and indications for open repair as listed above.

But ...

REVIEW

Editor's Choice — A Systematic Review of Endovenous Stenting in Chronic Venous Disease Secondary to Iliac Vein Obstruction

M.J. Seager, A. Busuttil, B. Dharmarajah, A.H. Davies *

Department of Surgery and Cancer, Imperial College London, Charing Cross Hospital, London, UK

	Selection bias	Performance bias	Detection bias	Attrition bias	Selective reporting bias	Other bias
Blanch Alerany 2014	+	+	+	+	+	+
Catarinella 2014 and 2015	+	+	+	+	+	?
Delis 2007	+	+	+	+	+	+
De Wolf 2013	+	+	+	+	+	+
Hartung 2009	+	+	+	+	+	+
Kolbel 2009	+	+	+	+	+	+
Liu 2014	+	+	+	+	+	+
Meng 2011	+	+	+	+	+	+
Neglen 2007	+	+	+	+	+	+
Raju 2009	+	+	+	?	+	+
Raju 2014	+	+	+	?	+	+
Rosales 2010	+	+	+	+	+	+
Sang 2014	+	+	+	+	+	+
Sarici 2014	+	+	+	+	+	+
Ye 2012	+	+	+	+	+	+
Ye 2014	+	+	+	+	+	+

Figure 2. Risk of bias summary. Green symbols represent low risk, red represent high risk, and for yellow the risk is unclear.

Table 2. GRADE assessment of the evidence.

Outcomes	Relative effect (95% CI)	No of events (studies)	Quality of the evidence (GRADE)
Severity of chronic venous disease			
Validated measures of CVD severity (CEAP, Villalta if post-thrombotic, etc.) Follow-up: 6–38 months	Not estimable	295 patients stented (5 studies ^{24,26,30,31,39})	⊕ ⊕ ⊕ ⊕ very low ^{a,b}
Other signs/symptoms of CVD			
See Table 3 Follow-up: 6–48 months	Not estimable	1984 patients stented (14 studies ^{24–26,29–36,38–40})	⊕ ⊕ ⊕ ⊕ very low ^c
Ulcer healing			
Complete healing (re-epithelialization) Follow-up: 0–46 months	Not estimable	400 ulcers (12 studies ^{24–26,30,31,33–36,38–40})	⊕ ⊕ ⊕ ⊕ low ^{d,e}
Quality of life			
SF-36, CIVIQ-2, CIVIQ-20, VEINES-QOL and VEINES-Sym Follow-up: 6–48 months	Not estimable	340 patients or limbs stented (3 studies ^{24,27,36})	⊕ ⊕ ⊕ ⊕ very low ^f
Stent patency			
% patent Follow-up: 6–48 months	Not estimable	2410 limbs stented (15 studies ^{24–27,29,31–40})	⊕ ⊕ ⊕ ⊕ very low ^g
Complications			
Incidence (%) Follow-up: 6–48 months	Not estimable	599 complications (15 studies ^{24–26,29–40})	⊕ ⊕ ⊕ ⊕ very low ^{h,i}

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

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Quality of life			
SF-36, CIVIQ-2, CIVIQ-20, VEINES-QOL and VEINES-Sym Follow-up: 6–48 months	n = 3 3 sQoL + 1 gQoL	patients or limbs stented (15 studies ^{24,27,36})	⊕ ⊕ ⊕ ⊕ very low ^f
Stent patency			
% patent Follow-up: 6–48 months	Not estimable	2410 limbs stented (15 studies ^{24–27,29,31–40})	⊕ ⊕ ⊕ ⊕ very low ^g
Complications			
Incidence (%) Follow-up: 6–48 months	Not estimable	complications	

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

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Low quality: Further research is very likely to have an important impact on our confidence in the estimate.

Very low quality: We are very uncertain about the estimate.

n = 15
Primary
patency
32 - 99%

REVIEW

Editor’s Choice — A Systematic Review of Endovenous Stenting in Chronic Venous Disease Secondary to Iliac Vein Obstruction

M.J. Seager, A. Busuttil, B. Dharmarajah, A.H. Davies *

Department of Surgery and Cancer, Imperial College London, Charing Cross Hospital, London, UK



WHAT THIS PAPER ADDS

This review demonstrates that quality of evidence behind the use of deep venous stenting to treat obstructive chronic venous disease is weak. However, the consistent effects and marked changes to disease course mean that it should be considered as an acceptable treatment. This review intended to influence clinical practice so vascular teams are aware of this, and it will serve to guide the future research that is needed.

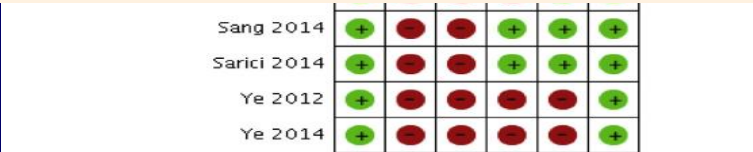
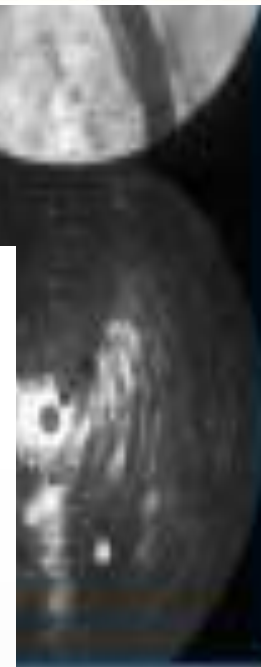
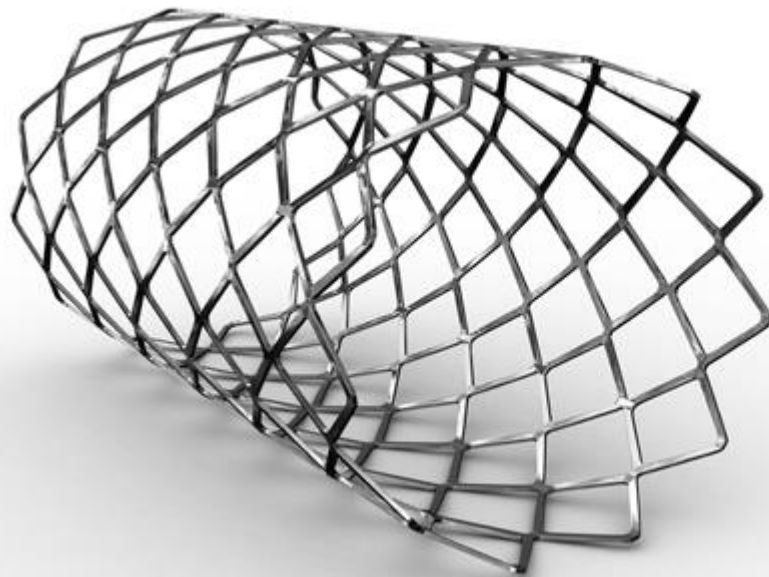


Figure 2. Risk of bias summary. Green symbols represent low risk, red represent high risk, and for yellow the risk is unclear.



Deep vein reconstruction

There is no level 1 evidence

Axillary vein transfer in trabeculated postthrombotic veins

Seshadri Raju, MD, Peter Nordin, MD, Jeffery Doodittle, BS, and Edward E. Meydrech, PhD, Jackson, TN

Purpose: This study assessed the use of the axillary vein in the treatment of venous insufficiency in the lower extremities. The axillary vein is a large, deep vein that can be used as a conduit for the treatment of venous insufficiency in the lower extremities. The axillary vein is a large, deep vein that can be used as a conduit for the treatment of venous insufficiency in the lower extremities.

Conclusion: Axillary vein trypsinolysis, when indicated, is safe, effective, and requires no postoperative therapy or other treatment.

Neovale construction in postthrombotic syndrome

Oscar Maleti, MD, and Marzia Lugli,

Objective: The purpose of this study was to describe the prevalence of this syndrome. The surgical procedure is described. From December 2000 to June 2001, 10 patients with this condition, age, 55.5 years

Methods: From December 2000 to June 2002, 16 patients (8 male and 8 female; median age, 55.5 years) with postthrombotic syndrome. Surgical treatment was performed according to the C6 classification. Preoperative duplex scanning and air plethysmography were routinely performed. Valvular cusps were routinely replaced to fashion a new monocuspid or bicuspid valve. The results of the treatment were assessed by duplex scanning and air plethysmography.

Results: In 16 lower extremities (89%), duplex scanning and air plethysmography showed a significant improvement in muscle pump function. In 17 limbs (93%) early thrombosis below the knee occurred. A late occlusion occurred in 17 limbs (93%).

muscle pump function. Early thrombosis occurred in 3 patients (15%). A late occlusion occurred in 2 patients (10%). A total of 17 patients (85%) was observed. A late occlusion (17%) occurred in three patients (15%).

Conclusions: Neovale construction se

Although these preliminary results are

technique. (J Vasc Surg 2006;43:794-799).

Deep Venous Reconstruction Primary or Post-thrombotic

A. Lehtola,^{1,a} A. Oinonen,^{1,a}

²Department of Vascular and Applied Dental

Objectives. To evaluate long-term durability and clinical insufficiency as a part of routine workload at a university. **Study design.** Retrospective analysis of clinical cases. **Patients.** Between 1996 and 2000, 43 patients underwent. **Of these,** 29 had secondary valve disease. Median follow-up was 4.5 years. **Results.** Severity of the disease was assessed by echocardiography. **Methods.** Selection criteria for clinical success were: no duplex evaluation. **Conclusions.** Overall results were unsatisfactory.

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Effect of external valvuloplasty of the deep vein in the treatment of chronic venous insufficiency of the lower extremity

Shen-Ming Wang, MD, PhD, Zuo-Jun Hu
and Cai-Sheng Ye, MD, PhD, *Guangzhou,*

Objective: This study was conducted to verify the presence of PCVI in the presence of the bilateral

Objective: This study was conducted to evaluate the results of primary chronic venous insufficiency (PCVI) of the bilateral lower extremities treated with endovenous laser treatment (EVLT).

Methods: Forty patients with CEAP C2 to C4, 80 limbs were classified as two groups according to randomized into one of two groups according to A, regardless of whether it was the right or left side of the femoral vein was combined with the great saphenous vein alone was performed.

A, regardless of the femoral vein was performed. Superficial venous system alone was performed by color duplex scanning, a color Doppler ultrasound. At 1 year, and 3 years postoperative, no significant changes were observed.

Results: Within each group of limbs, there was no significant difference in the varicose veins resolved. The varicose veins were relieved completely in 1

Results: Within each group, the varicose veins resolved in all cases. Leg heaviness was achieved in 100% of cases, respectively. The amount of improvement in both groups improved.

Venous valve competency was assessed postoperatively, respectively. The difference between the two groups preoperative and muscle pumping indices did not

different between the two groups ($P < .01$); muscle pumping indices did not differ between the two groups ($P > .05$); and muscle pumping indices did not differ between the two groups ($P > .05$).

limbs at 1 month and 1 year post-operation. There was no significant difference between group A and B limbs 3 years post-operation.

Conclusions: External valvuloplasty of the aortic valve in the hemodynamic status of the patient with aortic regurgitation repair of the superior

External Venous Valve Plasty (EVVP) in Patients with Primary Chronic Venous Insufficiency (PCVI)

A. Rosales,^{1*} C.E. Slagsvold,² A.J. Kroese,¹ E. Stranden,² O. Risum¹ and J.J. Jorgensen¹

¹Oslo Centre for Vascular Surgery, and ²Department of Vascular Surgery, Aker University Hospital, Oslo, Norway

¹Oslo Centre for Vascular Surgery, and Aker University Hospital, Oslo, Norway

Objectives. To evaluate the patency of EVVP and its effect in symptoms associated with PCVI. A total of 609 patients from January 2002 and April 2004 were evaluated and seventeen with PCVI who had undergone EVVP before were excluded. The CEAP classification was used to group the patients according to clinical severity and ambulatory venous pressure measurement (AVP), colour duplex ultrasound examination and ankle brachial index (ABI) were performed. All levels of AVP (>70 mmHg) within 3 months. All ABI values were normal (≥ 0.8) except one patient (ABI = 0.77) (range 0.7-0.9).

Methods. Between 1993 and 2004, 1800 patients with venous pressure measurement and ambulatory video venography. The CEAP classification was used. They were all investigated with ambulatory video venography. The CEAP classification was used. They were all investigated with ambulatory video venography. The CEAP classification was used.

[illegible]

Results. All procedures were improved. Six patients were... patients experienced symptom improvement... 122) months. The C5 group had a median ulcer free period of... Single valve plasties (4) reached a median competence period of... median 78 months (63–122) and 10 multilevel repairs median... (10 multilevel repairs) performed on the C4 group seemed to yield the long...

at the same level showed a median 78 months (63–122). Single valve plasties (47) performed at the same level (multi-station plasties) performed at the same level (84–122).

Conclusion. EVVP with an ulcer healing rate of 100% is a safe and effective treatment for selected patients with PCVL. The duration of the treatment is short and the morbidity of repairs.

Conclusion: The results of this study suggest that the use of the PPH procedure for the treatment of hemorrhoids is a safe and effective surgical treatment for hemorrhoids, and the multiplicity of repairs.

Keywords: Venous insufficiency; reflux.

RCT vs Registry

RCTs

- Randomized
- Controlled selection criteria
- Study specific interventions
- Hypothesis driven
- (Relatively) small population
- Fixed timeframe
- Powered

Real-world studies

- Observational
- No or broad selection criteria
- No study specific interventions
- Hypothesis generating
- Large population
- Long timeframe
- Flexible

RCT vs Registry

RCTs

Real-world studies



- Powered

- Flexible



That's all Folks!