Post-thrombotic venous obstructions and stenting across the inguinal ligament


Deep venous thrombosis remains a significant problem with well over 500,000 people affected in the United States. Over a quarter of these patients will experience post-thrombotic syndrome (PTS), despite appropriate anti-coagulation. Patients with iliacal thrombosis face a three-fold risk of PTS. Treatment of the complications of PTS, including leg swelling, venous claudication, skin changes and ulceration, results in healthcare costs estimated at $7 to $10 billion per year.

Popularized by Drs. Seshadri Raju and Peter Neglen, venous stenting for symptomatic patients has increased significantly in this setting. Several large series since then have demonstrated safety, efficacy and good durability of this technique in iliacal obstruction. Questions, however, remain as to the outcomes with regards to etiology (i.e., thrombotic versus non-thrombotic occlusion) and extent of stenting (i.e., extension below the inguinal ligament). Concern for the latter is raised as the mobility of the common femoral vein may result in stent fracture and thrombosis.

Researchers from UCLA, led by vascular surgeon Dr. Brian DeRubertis, retrospectively evaluated their single-center experience with percutaneous treatment of post-thrombotic iliacal obstruction. In this series, 31 patients (42 limbs) presented with pain/swelling (100%) including venous claudication (81%) and active ulceration (10%). Percutaneous interventions, including iliacal angioplasty/stent in 81% with extension into the femoral system (38%), resulted in 100% technical success. Of those with IVC filters, 46% were able to be removed.

At an average of 15 months follow-up (range 2-49 months), the following results were achieved:

- Improvement in pain/swelling 84%
- Resolved pain/swelling 42%
- Decreased CEAP classification 65%

- 1-year primary stent patency 66%
- 1-year secondary stent patency 75%

Those requiring infrainguinal extension of the stent realized no significant difference in primary stent patency at one year compared to those who did not (68% versus 65%). However, in those whose IVC filter could not be removed, resolution of symptoms was achieved in only 17%.

“Our aim was to better understand risk factors for poor clinical outcomes in patients undergoing percutaneous intervention for symptomatic chronic venous obstruction secondary to post-thrombotic lesions,” comments first author Dr. Johnathon Rollo. “Our results suggest that stenting below the inguinal ligament does not result in inferior outcomes, at least in the short-term, and may be necessary in a higher percentage of patients than previously reported. Additionally, the failure to remove an IVC filter in this setting appears to result in inferior outcome and an attempt to safely remove the filter should be made in this high-risk population.”

This data suggests a role for early filter removal after, or not even placing them at all, during ileocaval lytic therapy.

The authors emphasize stenting from normal vein above to normal vein below the occlusive disease, if technically possible. Based on these results, going below the inguinal ligament to achieve adequate inflow makes sense.

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**Article Date:** Tuesday, October 24, 2017
**Tags:** Research & Quality
**Article Type:** Press Release