

Endovascular Iliocaval Stent Reconstruction for Inferior Vena Cava Filter–Associated Iliocaval Thrombosis: Approach, Technical Success, Safety, and Two-Year Outcomes in 120 Patients

Jeffrey Forris Beecham Chick, MD, MPH, DABR, Alexandria Jo, MD, J. Matthew Meadows, MD, Steven D. Abramowitz, MD, Minhaj S. Khaja, MD, MBA, Kyle J. Cooper, MD, and David M. Williams, MD, FSIR

ABSTRACT

Purpose: To report technical success, outcomes, and patency of ilio caval stent reconstruction for inferior vena cava (IVC) filter–bearing ilio caval thrombosis.

Materials and Methods: A total of 120 patients with 123 IVC filters and symptomatic ilio caval thrombosis underwent stent reconstruction. Mean patient age was 55 years (range, 19–88 y). Filters included 70 (57%) retrievable and 53 (43%) permanent filters. Symptoms included lower extremity swelling or pain (n = 93), ulcers (n = 8), phlegmasia (n = 7), back pain (n = 5), shortness of breath (n = 4), worsening renal function (n = 2), and stenosis identified during translumbar catheter placement (n = 1). Clinical success was defined as decrease in clinical, etiology, anatomy, and pathophysiology (CEAP) score of at least 1; resolution of presenting symptoms; or normalization of renal function in patients with juxtarenal or suprarenal thrombosis on presentation. Technical aspects of reconstruction, technical success, complications, 6-month clinical response, and 6-, 12-, and 24-month primary, primary-assisted, and secondary stent patency rates were recorded.

Results: Stent reconstruction was technically successful in all 120 patients, 63 of whom (53%) underwent thrombolysis. Thirty filters (24%) were retrieved, and 93 (76%) were excluded with stent placement across the indwelling filter. Six minor and 2 major complications occurred. Clinical success was achieved in 115 patients (96%) at 6 months. Six-, 12-, and 24-month primary ilio caval stent patency rates were 96.4%, 94.8%, and 87.2%, respectively. Twenty-four month primary-assisted and secondary patency rates were 90.3% and 94.2%, respectively.

Conclusions: Ilio caval stent reconstruction is an effective treatment for filter-associated thrombosis with 100% technical success and 96% clinical success at 6 months. Technical and clinical outcomes in patients who underwent filter retrieval versus filter exclusion were similar.

ABBREVIATIONS

CEAP = clinical, etiology, anatomy, and pathophysiology [classification], DVT = deep vein thrombosis, IVC = inferior vena cava

Ilio caval thrombosis has been reported in 3%–30% of patients after inferior vena cava (IVC) filter placement (1–4). Consequences of ilio caval thrombosis include recurrent lower extremity deep vein thrombosis (DVT), disabling

lower-extremity swelling or pain, back pain, venous stasis ulcers, and phlegmasia (4–6).

Endovascular treatment of filter-associated ilio caval thrombosis presents challenges with respect to management

From the Department of Radiology, Division of Vascular and Interventional Radiology (J.F.B.C., A.J., J.M.M., M.S.K., K.C., D.M.W.), University of Michigan Health System, 1500 E. Medical Center Dr., Ann Arbor, MI 48109; and Department of Surgery, Division of Vascular Surgery (S.D.A.), Medstar Washington Hospital Center, Washington, DC. Received January 20, 2017; final revision received and accepted April 17, 2017. Address correspondence to J.F.B.C.; E-mail: jeffreychick@gmail.com

None of the authors have identified a conflict of interest.

© SIR, 2017

J Vasc Interv Radiol 2017; ■:1–7

<http://dx.doi.org/10.1016/j.jvir.2017.04.017>

of the indwelling filter and restoration of adequate flow through the IVC, particularly when filter retrieval is challenging or in the setting of permanent filters. Although a few studies with as many as 45 patients have reported high technical success and safety rates with ilio caval stent reconstruction in the setting of IVC filter–associated thrombosis (6–8), larger studies are necessary to determine the optimal endovascular technique and long-term clinical and patency outcomes. In addition, studies to date have focused on stent placement across the thrombosed IVC filter to restore flow, as opposed to retrieval of the occluded filter when feasible (6–8).

The present study in 120 patients treated at a single institution over a 20-year period reports outcomes of stent reconstruction for filter-associated thrombosis in patients managed with filter retrieval and filter exclusion with stent placement. Technical approach and success, safety, clinical response, and 2-year patency of ilio caval stent reconstruction are presented.

MATERIALS AND METHODS

Patent Selection

This study was conducted with institutional review board approval and complied with the Health Insurance Portability and Accountability Act. Informed consent was not required for this retrospective study. Patients were identified from a venous registry of 994 patients. Patients referred for IVC filter–associated acute or chronic ilio caval thrombosis were identified from January 1990 to November 2016 (N = 166). Of those patients, 120 (72%) underwent endovascular stent reconstruction, 32 (19%) received no intervention, and 14 (9%) underwent thrombolysis only. Only patients who underwent ilio caval stent reconstruction (N = 120) were included in the study. A total of 108 procedures (90%) were performed between 2006 and 2016, and 12 (10%) were performed between 1996 and 2005. Of note, 45 of the patients included in this study (38%) were also included in an earlier publication outlining the techniques and short-term outcomes of ilio caval reconstruction of thrombosed IVC filters (8) that included only patients who underwent stent reconstruction between 2003 and 2010.

Patient Demographic Data

Eighty-four patients (70%) were male and 36 (30%) were female, with a mean age of 55 years (range, 19–88 y; Table 1). In addition to the presence of an IVC filter, 45 patients (38%) had one additional thrombotic risk factors, 43 (36%) had two, 11 (9%) had three, and four (3%) had four. Other thrombotic risk factors are detailed in Table 1.

Presenting symptoms were as follows: lower extremity swelling or pain (clinical, etiology, anatomy, and pathophysiology [CEAP] class 3–5; n = 93), leg ulcers (CEAP class 6; n = 8), phlegmasia (n = 7), back pain (n = 5), shortness of breath (n = 4), worsening renal function in the

setting of juxtarenal or suprarenal thrombosis as defined by an increase in serum creatinine level by > 1.8 mg/dL over a 1-month period (n = 2), and high-grade stenosis (greater than > 75% luminal narrowing) identified during translumbar catheter placement (n = 1). One patient (< 1%) presented with concomitant lower extremity swelling and pain and chronic gastrointestinal bleeding, attributed to systemic-to-portal venous collateralization. All patients presenting with shortness of breath (n = 4) were found to have acute pulmonary embolism with concomitant ilio caval thrombosis.

IVC filters were placed between January 1994 and January 2016. A total of 116 patients (97%) had IVC filters placed for a contraindication to or failure of anticoagulation. In four patients (3%), the IVC filter was placed at an outside institution and the indication for placement could not be determined. Figure 1 summarizes the types of indwelling IVC filters in study patients.

Mean time from initial IVC filter placement to ilio caval intervention was 53 months (range, 3 d to 170 mo). All 120 patients (100%) had thrombosis of the filter-bearing portion of the IVC, and Table 2 summarizes additional venous occlusions seen on venography in the study patients. There was no difference in the extent or location of venous occlusion between patients with retrievable and permanent filters. Ilio caval thrombosis was acute in 58 patients (48%) and chronic in 62 (52%). Chronicity of ilio caval thrombosis was assessed based on the Society of Interventional Radiology (SIR) Quality Improvement Guidelines for the Treatment of Lower Extremity DVT (9) in conjunction with venography findings.

Thrombolysis, Filter Retrieval and Exclusion, and Ilio caval Reconstruction

All patients were seen by an attending interventional radiologist in the clinic or during inpatient consultation before the procedure. Procedures were performed with moderate sedation with intravenous midazolam and fentanyl or general anesthesia administered by a certified registered nurse anesthetist or attending anesthesiologist.

Catheter-directed thrombolysis has been previously described (5,7,8,10,11). Patients with acute ilio caval thrombosis were treated with catheter-directed thrombolysis, without or with mechanical and pharmacomechanical techniques based on the SIR Quality Improvement Guidelines for the Treatment of Lower Extremity DVT (9), extent of thrombus, and operator preference.

IVC filter retrieval and ilio caval stent reconstruction have also been previously described (5–8,12–19). Filters were retrieved or excluded with stent placement based on filter type, technical difficulty of removal, and operator preference. Complex IVC filter retrieval techniques included the use of 3-mm endobronchial forceps (4162; LYMOL Medical, Woburn, Massachusetts) and 308-nm xenon chloride excimer laser (CVX-300; Spectranetics; Colorado Springs, Colorado) based on operator preference. For those IVC

Download English Version:

<https://daneshyari.com/en/article/5727159>

Download Persian Version:

<https://daneshyari.com/article/5727159>

[Daneshyari.com](https://daneshyari.com)