

IVC FILTER REMOVAL WITH PERFORATION INTO THE DUODENUM: A CASE REPORT

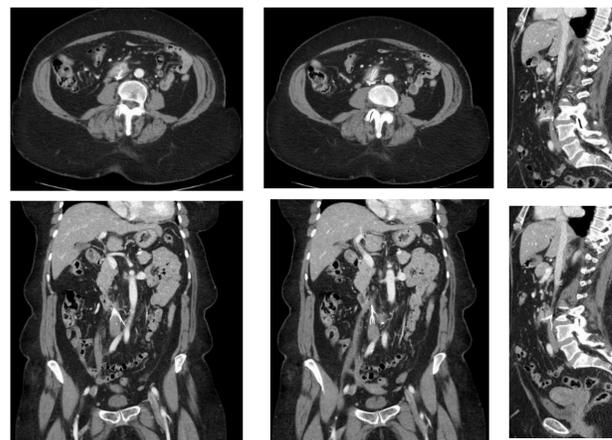
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Introduction

IVC Filters are indicated in the management of patients with Venous Thromboembolic disease who are unable to be safely anticoagulated. These filters have a high safety profile but carry some rare but very real risks. We report a rare case of a patient who was found to have IVC filter strut invading the duodenal wall with few reported prior cases similar

Case Details

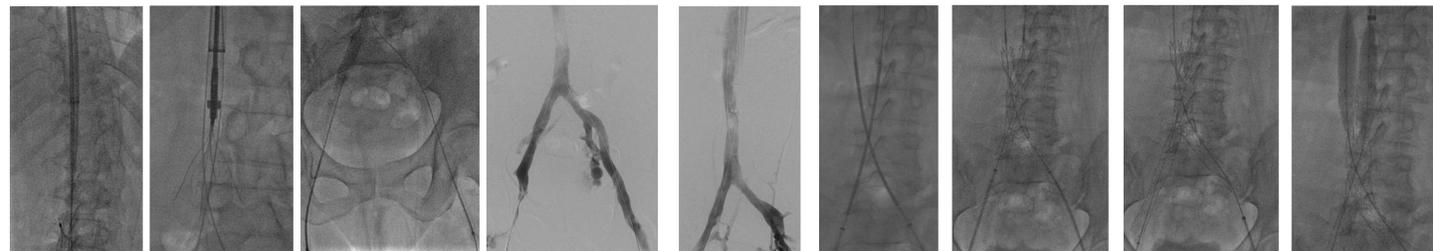
67-Year-old female who had an IVC filter placed 10 years prior presented with severe abdominal pain limiting her movements, affecting her sleep & causing her lower body to swell on exercise. Imaging revealed stenosis of the right colic vein, right common femoral vein & IVC with duodenal perforation. Surgery was initially consulted due to concerns of duodenal perforation and deferred to Interventional Radiology. IR was consulted to perform IVC filter retrieval with IVC reconstruction.



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Angiographic Images and Findings



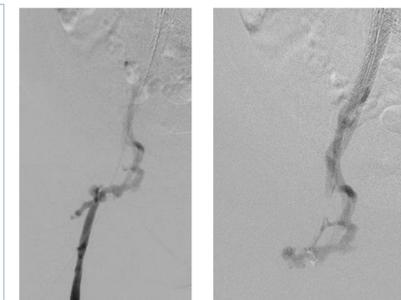
Filter removal with through and through wire access with bilateral sheaths from groin access

Venogram demonstrates chronic occlusion at the level of the previously placed IVC filter. Bilateral common iliac vein occlusive disease, with multiple collaterals bilaterally.

Stent placement in IVC and bilateral ilio caval veins. Abre covered stents were used; 2 kissing 16 mm x 120 mm in the IVC, 14 mm x 120 mm right ilio caval and 14 mm x 100 mm left ilio caval. Venoplasty with 16 mm and 14 mm balloons



- Post-filter retrieval, stent placement and venoplasty angiogram demonstrates brisk flow through stents and IVC
- Right common femoral vein chronically occluded with mass effect from groin fat content/lipoma versus inguinal versus femoral hernia.
- Brisk flow through collateral vein that formed due to extrinsic compression of the right common femoral vein. Collateral vein demonstrates brisk flow to the right iliac caval stent



Materials and Methods

- Under continuous ultrasound guidance, the vein was accessed with a micropuncture needle. A 22 French dry seal sheath was placed at the access site, as detailed. Through the 22 French dry seal sheath, a 16 French sheath was placed coaxially, and both sheaths were advanced over the wire, under fluoroscopic guidance to the level of the infrarenal, previously placed IVC filter. Cavography performed.
- Ultrasound-guided access was obtained in the bilateral groin/upper thigh region, in the greater saphenous veins bilaterally. Microwire advanced through the micropuncture needle under fluoroscopy, and needle exchanged for a transitional dilator. 0.035 wire advanced through the dilator, and dilator exchange over-the-wire for a 10 French sheath bilaterally.
- A gooseneck snare was advanced through the right internal jugular vein access site to the level of the previously placed IVC filter. A stiff Glidewire was advanced from the right groin venous access site and was captured by the snare device. Through and through access was secured. The filter removal devices detailed above were then introduced into the IVC and the system was positioned about the filter and utilized to engage the filter, with confirmation in multiple projections. The filter was then collapsed and pulled through the retrieval sheath under fluoroscopic guidance. After retrieval from the patient, the filter was deployed on the procedure table to document adequate capture and removal of all components of the filter itself.
- Venograms were performed through the bilateral groins sheaths as well as the right IJ sheath. IVUS was utilized. After careful measurements with IVUS and venograms marking the renal veins as well as other anatomic landmarks, 2 stents were deployed simultaneously within the IVC, and bilateral stents were placed in the common iliac veins. Balloon venoplasty was performed. Venograms were performed to demonstrate brisk flow through the stents.
- Catheter and wire were advanced through the right internal jugular vein sheath to the level of the right common femoral vein. Venogram was performed, demonstrating minimal flow through the right common femoral vein due to extrinsic compression. Brisk flow through a large, well-developed collateral vein into the right common iliac vein was demonstrated on venogram.

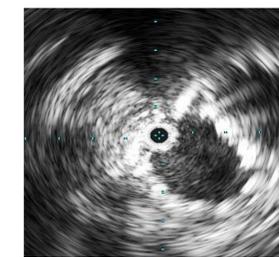
References

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- Vyas A, Malas A, Marshall G, et al. Duodenal perforation by an IVC filter: a case and discussion expanding on the 2010 guidelines for filter retrieval. *Cardiovasc Intervent Radiol.* 2014;37(3):847–49

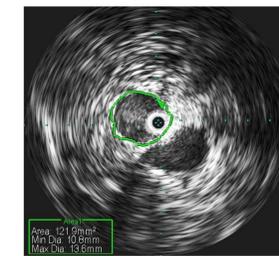
Discussion

- Patients with longstanding IVC filters may have a risk of extravascular extension of part of the filter, which may cause symptoms
- In this case, after filter removal, the patient did not have an IVC perforation
- IVUS can be utilized to obtain an accurate measurement of the IVC and ilio caval veins for stent planning
- This patient also had an additional finding of extrinsic compression of the right common femoral vein due to groin fat content/lipoma versus inguinal versus femoral hernia. This may have future ramifications, thus a surgical consult was placed for removal

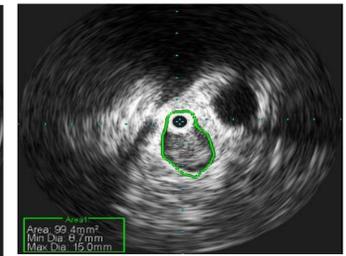
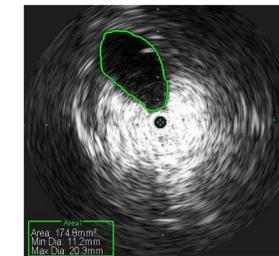
IVUS Images



IVUS imaging demonstrates part of the previously placed filter extending extravascularly beyond the IVC.



Measurements of the IVC and bilateral iliac veins used to determine stent size. Two 16 mm stents in the IVC and 14 mm ilio caval stents



Acknowledgements

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Columbia University