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**“Removal of permanent IVC filter”**

Abstract

A 53-year-old woman with history of Crohn’s disease was referred to interventional radiology for inferior vena cava (IVC) filter removal with the diagnosis of a fractured IVC filter. At the time of evaluation, in early 2022, the patient reported back pain. No imaging was available when the patient was first seen. The IVC filter was originally placed in 2011. The indication for filter placement was the presence of deep vein thrombosis (DVT) shortly after small bowel resection. At the time, anticoagulation was contraindicated.

Upon spectral CT imaging, several legs of the IVC filter were found to be protruding outside the lumen of the IVC, including one leg of the filter that is in contact with the lumbar spine. No filter fractures were identified. Radiographs in different projections were taken to identify the filter as a Stainless Steel Greenfield IVC filter.

For patients with complications arising from permanent IVC filters, advanced techniques for filter removal must be utilized since these filters are designed to permanently embed into the wall of the IVC. These advanced methods of removal are associated with a 5.3% risk for complication comparative to standard techniques that carry only a 0.5% risk for complications. The risks of advanced filter removal procedures include hemorrhage, distortion or fracture of the filter, development of venous pseudoaneurysms or stenoses, and breach of the IVC wall integrity.

The endobronchial forceps technique has been described as an effective and safe method for IVC filter removal, as in the present case. Spot radiograph during removal confirmed the IVC filter being removed within the 20 Fr “Dry Seal” sheath (W.L. Gore, Flagstaff, AZ) captured with the forceps device. The cavagram taken after filter removal showed an intact IVC, and a follow-up contrast enhanced CT scan taken one month after IVC filter removal also showed a normal IVC.

Because of the risks associated with removal of a permanent filter, removal is typically not recommended if the patient is entirely asymptomatic and if the filter is causing no known complications. However, when approaching a decision on whether or not to remove a filter, caution must be utilized. All aspects must be considered when making a decision including the patient’s presentation, age, medical history, and the current filter status and position.