ELSEVIER

Duodenocaval Fistula From Inferior Vena Cava Filter Penetration Masquerading as Lower Gastrointestinal Bleeding

Lokesh Bathla,[1] Aru Panwar,[2] Robert J. Fitzgibbons Jr,[2] and Marcus Balters,[2] Omaha, Nebraska

Asymptomatic penetration of the inferior vena cava (IVC) wall with retrievable filters is not uncommon. Occasionally, this can be a cause for morbidity, and rarely for mortality. We present a case of duodenocaval fistula, secondary to penetration from a strut of retrievable IVC filter that presented as lower gastrointestinal bleeding and discuss the subsequent management. Although newer generation retrievable filters provide a longer time for retrieval, they are associated with an increased incidence of IVC wall penetration, caudal migration, and occasionally symptomatic presentation, thereby necessitating surgical intervention. Close follow-up is warranted, and prompt retrieval of such devices should be done when their use is no longer indicated.

Inferior vena cava (IVC) filters are an important adjunct in the management and/or prevention of pulmonary embolism (PE). Often, the indications for their use are temporary, and retrieval is indicated when the filter is no longer needed. Over the past two decades, there have been improvements in the design of the retrievable filters, primarily prolonging the time window for successful retrievability. However, this has been associated with the increased incidence of IVC wall penetration, caudal migration, and occasionally symptomatic perforation of adjacent viscera. The present report describes a case of symptomatic IVC perforation with Celect retrievable filter (Cook Medical Inc., Bloomington, IN) presenting as duodenocaval fistula.

[1]*Department of Surgery, University of Nebraska Medical Center, Omaha, Nebraska.*

[2]*Department of Surgery, Creighton University Medical Center, Omaha, NE.*

Correspondence to: Lokesh Bathla, MD, Department of Surgery, University of Nebraska Medical Center, Omaha, Nebraska 68198, E-mail: bathlalok@gmail.com

Ann Vasc Surg 2011; 25: 1140.e7-1140.e11
DOI: 10.1016/j.avsg.2011.03.015

Published online: August 11, 2011

CASE REPORT

A 76-year-old woman presented to her primary care physician with dizziness and history of black tarry stools for a period of more than 2 months. She denied any other symptoms, and her hemoglobin level was 8.7. Her medical history was remarkable for spinal stenosis, hypertension, hyperlipidemia, valvular heart disease, reflux disease, foot drop, and recurrent deep venous thrombosis (DVT). She had undergone multiple surgeries, including tonsillectomy, appendectomy, bilateral knee replacement, cholecystectomy, and spinal decompression. She also underwent placement of a retrievable IVC filter (Celect IVC filter) 14 months before she presented with the lower gastrointestinal bleeding. This IVC filter was placed because of recurrent DVT despite anticoagulation. These episodes of DVT were noted during the preoperative period of her spine surgery, and the filter was placed to allow anticoagulation to be stopped perioperatively.

The patient underwent an upper endoscopy, which revealed a metallic wire projecting into the second part of duodenum (Fig. 1). Further evaluation with a computed tomography (CT) scan of the abdomen and the pelvis showed an IVC filter with its tip at the level of lower endplate of the L2 vertebra. Multiple struts of the filter were noted to be outside the wall of the IVC. There was no evidence of retroperitoneal fluid collection, pericaval stranding, or retroperitoneal air (Figs. 2-4).

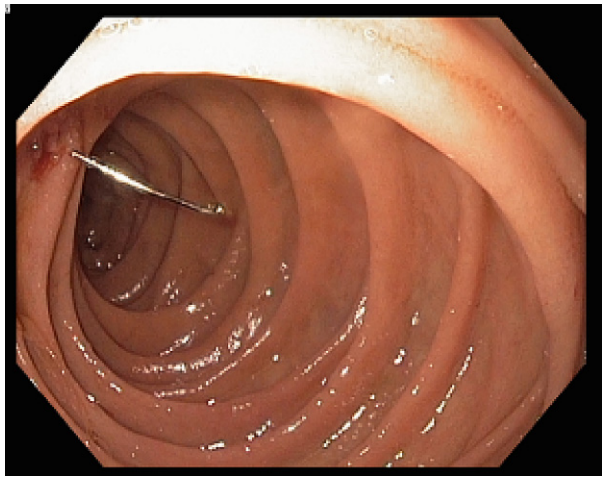

Fig. 1. Upper gastro-intestinal endoscopy showing strut of inferior vena cava filter in the second part of the duodenum.

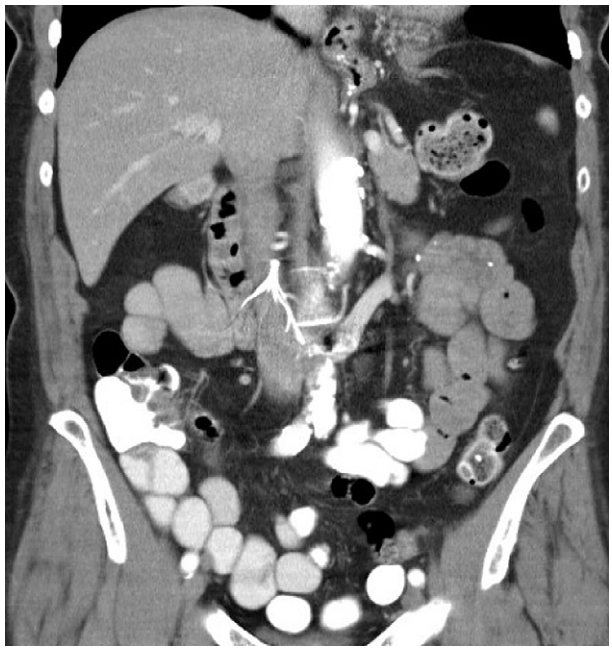

Fig. 2. Coronal sections of computed tomography scan showing penetration of the strut into the duodenal lumen. Note the proximally tilted tip of the filter.

The patient underwent exploratory laparotomy with repair of duodenum and retrieval of the IVC filter. Intraoperatively, extensive fibrotic adhesions were noted between the IVC and the second portion of the duodenum. In addition, extra-luminal struts were noted to penetrate the right ureter and the adventitia of the right gonadal vein. The individual struts were disengaged from the involved viscera and clipped flush with the IVC wall. The duodenotomy was repaired in two layers by using interrupted sutures. A venotomy was made on the anterior wall of the IVC, and the filter was retrieved. The patient did well postoperatively and was discharged home on postoperative day 6 on therapeutic anticoagulation.

Fig. 3. Sagittal section showing additional extra luminal struts of the displaced filter.

Fig. 4. Axial sections of computed tomographic images showing radial disposition of the filter struts. Note the extraluminal struts projecting on the right side into the adjacent viscera and the retroperitoneal space.

DISCUSSION

IVC filters are primarily indicated for patients with a history of PE, and in patients with DVT who fail anticoagulation, develop complications with anticoagulation, or when anticoagulation is contraindicated. In addition, patients who are at a high risk of