Duodenal perforation, vertebral body perforation, and aortic abutment after placement of retrievable inferior vena caval filter

The use of inferior vena caval (IVC) filters has evolved significantly since implementation in the late 1960s. Despite the very low mortality rates cited in the literature, insertion of retrievable IVC filters can be complicated in up to 10% of cases [1]. Several short- and long-term complications of retrievable IVC filter devices have been reported [2, 3], including filter migration, fracture of struts, penetration of struts through the IVC and/or adjacent anatomic structures, and thrombosis [4]. Using computed tomography (CT), Durack et al. observed perforation of at least one filter component through the IVC in 43 of 50 (86%) filters [1]. Of the 43 filters demonstrating caval penetration, 18 (42%) underwent multiple CT scanning at varying time points after filter deployment, which revealed progressive erosion through the IVC wall [1]. We report a case presenting as hematemesis with initial esophagogastroduodenoscopy (EGD) revealing a metallic object penetrating the duodenum. A 45-year-old man with a history of alcohol misuse, peptic ulcer disease, and deep venous thrombosis (DVT) presented with abdominal pain, nausea, and hematemesis; an area of bleeding is seen due to mechanical irritation (white arrow head).

The shape of the embedded object, tissue depth, and proximity to the vasculature could not be determined during the endoscopic procedure. An abdominal CT showed the IVC filter struts penetrating through the IVC lumen and entering the lateral wall of the duodenum, and then penetrating the periosteum of the L3 vertebral body, as well as abutting the abdominal aorta (Fig. 2). The IVC filter was successfully removed via an endovascular approach, without requiring invasive open repair as reported in the vast majority of cases to date (see the recent systematic review by Malgor and Labropoulos [5]).

Physicians need to maintain a broad differential diagnosis for patients presenting with hematemesis despite a history comprising common etiologies (i.e., PUD or Mallory–Weiss tear). Endoscopists frequently encounter foreign bodies in ambiguous locations with uncertainty about the shape of the nonvisible end. We would like to emphasize that cautious initial endoscopic evaluation and appropriate follow-up imaging prior to endoscopic attempts to remove a foreign body are invaluable to the principle of primum non nocere. This report also highlights the feasibility of safe and successful retrieval of a penetrating IVC filter via an endovascular approach.

Competing interests: None

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