

Two Cases of Duodenal Perforation by IVC Filter

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Introduction

- Inferior vena cava filters have been used in patients with contraindications to anticoagulation in preventing pulmonary embolisms since the 1970s
- They pose a risk of erosion into surrounding structures
- Penetration through the wall of the IVC has been seen in 19% of IVC filter placements¹
- Duodenal perforation remains a rare complication
- Roughly 37% of patients with duodenal perforation report symptoms on presentation¹
- Typical symptoms on presentation include abdominal pain and gastrointestinal bleeding^{1,2}
- Diagnosis is typically made by imaging and/or endoscopy
- Treatment can require filter retrieval and bowel repair

Case Presentations

Case 1: 28-year-old female with a history of intravenous drug use, multiple deep vein thrombi status post IVC filter, and recurrent admissions for anemia requiring transfusions presented with abdominal pain

- Throughout her hospital stay she was noted to have abdominal pain, melena, and worsening anemia
- EGD showed hematin in gastric antrum, fundus, and body; Forrest Class III 5-cm gastric ulcer; and duodenal perforation secondary to IVC filter penetration (images 1 and 2)
- Patient taken to the operating room for successful removal of the IVC filter and repair of the duodenal perforation

Case 2: 55-year-old male with a history of deep vein thrombosis and subsequent IVC filter placement presented to the ER with 1 week of abdominal pain

- Also complained of ongoing nausea, vomiting, and presyncopal episode
- EGD demonstrated mild gastritis and duodenal foreign body in the medial wall of the second portion of the duodenum (Images 3 and 4)
- Taken to the operating room for removal of IVC filter and repair of duodenal perforation with omental Graham patch

Discussion

- IVC filter penetration into the duodenum remains a rare and underrecognized complication following filter placements
- Patients typically remain asymptomatic, with symptomatic patients presenting with abdominal pain and gastrointestinal bleeding^{1,2}
- Mechanism behind IVC filter migration and penetration is not well understood with complications possibly linked to shape, the inclusion of free struts, filter size, and stiffness³
- Filter retrieval in symptomatic patients remains strongly recommended

Conclusion

- We describe two instances of IVC filter duodenal penetration identified by EGD
- Patients ultimately required surgical removal of IVC filters
- Duodenal penetration must be considered in patients with IVC filter who present with abdominal pain or GI bleeding in order to allow for timely and appropriate management

References

1. Z J, A W, M T, J S, JM M, W W. Caval Penetration by Inferior Vena Cava Filters: A Systematic Literature Review of Clinical Significance and Management. *Circulation*. 09/08/2015 2015;132(10)doi:10.1161/CIRCULATIONAHA.115.016468
2. RD M, N L. A systematic review of symptomatic duodenal perforation by inferior vena cava filters. *Journal of vascular surgery*. 2012 Mar 2012;55(3)doi:10.1016/j.jvs.2011.09.082
3. CL M, RJ W. CT evaluation of Kimray-Greenfield filter complications. *AJR American journal of roentgenology*. 1986 Jul 1986;147(1)doi:10.2214/ajr.147.1.45

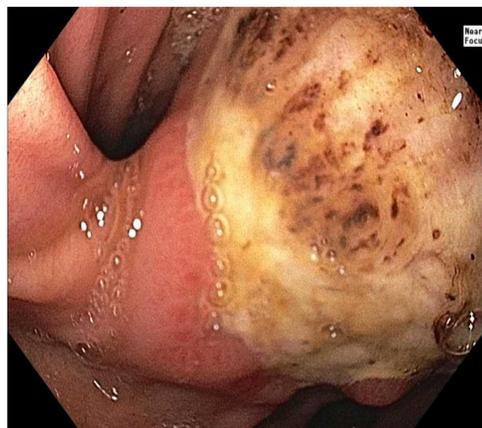


Image 1. Case 1. Forrest Class III 5-cm gastric ulcer

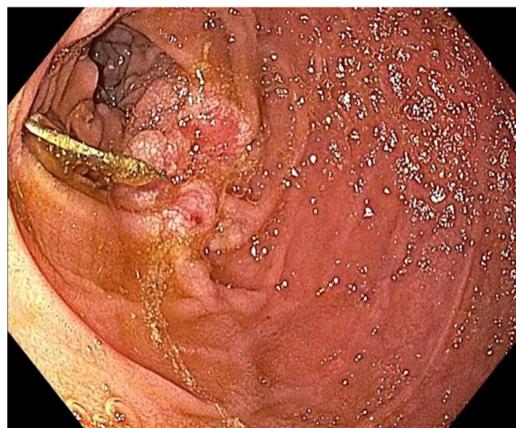


Image 2. Case 1. IVC filter erosion into the duodenum



Image 3. Case 2. IVC filter erosion into the 2nd portion of the duodenum



Image 4. Case 2. IVC filter erosion into the duodenum