A 55-year-old morbidly obese male (body mass index 54) underwent placement of a prophylactic inferior vena cava (IVC) filter before a laparoscopic sleeve gastrectomy. Preoperative lower extremity venous duplex examination was negative for deep vein thrombosis. He was discharged home on postoperative day 3 after the bariatric procedure and had an uneventful recovery. Approximately 7 weeks later, he underwent an attempt at IVC filter retrieval. A repeat lower extremity venous duplex examination at that time was again negative for deep vein thrombosis. Cavography at the time of attempted retrieval demonstrated thrombus adherent to and trapped in the middle of the IVC filter, with a flow void that extended to the level of the hepatic veins (Figure 1A; online-only Data Supplement Movie IA). The filter retrieval was aborted, and systemic heparin was administered immediately. After 6 months of systemic anticoagulation, he underwent computed tomography venography, which demonstrated uniform venous opacification of the IVC and no evidence of thrombus. Subsequently, filter retrieval was again attempted, and cavography at that time showed the filter to be free of thrombus (Figure 1B; online-only Data Supplement Movie IB). The IVC filter was then removed successfully.

Similarly, a 59-year-old morbidly obese woman (body mass index 61) had a prophylactic IVC filter placed before a laparoscopic sleeve gastrectomy. Preoperative lower extremity venous duplex examination was negative for deep vein thrombosis. After her bariatric procedure, she also had an uneventful recovery and was discharged home on postoperative day 3. Approximately 6 weeks later, she returned for retrieval of the IVC filter. A lower extremity duplex ultrasound examination was performed at that time and did not reveal any evidence of venous thrombosis. Bilateral iliac venography and cavography demonstrated a filling defect at the apex of the filter consistent with trapped thrombus (Figure 2; online-only Data Supplement Movie II). The filter retrieval was aborted and the patient started on systemic anticoagulation. The IVC filter will be reexamined by computed tomography venography after 6 months of anticoagulation.

 Placement of IVC filters in the Unites States has increased dramatically over the past 3 decades from ~2000 in 1979 to 167 000 in 2007.1 It is estimated that >265 000 vena cava filters will be placed in 2012.2 The increase in vena cava filter placement can be explained in part by the popularity of retrievable filter use in prophylactic situations, such as with trauma, orthopedic, neurosurgery, and bariatric patient populations. Despite the growing popular-
ity of preoperative IVC filter placement in the bariatric patient population, their routine use is a matter of controversy, and some groups have begun to oppugn this practice. Along with the potential life-saving benefit of prophylactic IVC filters, the possibility of long-term complications must be recognized. Prolonged dwell times in patients with retrievable filters who no longer have an indication for the device could lead to serious complications, including deep vein thrombosis, caval thrombosis, filter migration, and erosion through the caval wall. Consequently, in August 2010, the US Food and Drug Administration issued a safety advisory addressing the growing trend of retrievable IVC filter placement, urging implanting physicians and clinicians responsible for the ongoing care of patients with retrievable IVC filters to consider removing the filter as soon as protection from pulmonary embolism is no longer needed.

**Disclosures**

None.

**References**


*Figure 2.* Iliac venography and associated cavography before inferior vena cava filter retrieval revealed thrombus trapped at the apex of the filter.
Pulmonary Embolism Averted: Trapped Thrombus in Inferior Vena Cava Filters
Paul J. Foley, Benjamin M. Jackson and Ronald M. Fairman

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**Movie Legend**

**Movie 1A:** Routine cavography performed prior to IVC filter retrieval revealed thrombus adherent to and trapped in the middle of the IVC filter with a flow void extending to the level of the hepatic veins. The filter was placed prophylactically before a bariatric procedure 7 weeks prior to attempted retrieval. Best viewed with Windows Media Player.

**Movie 1B:** Repeat cavogram after 6 months of systemic anticoagulation demonstrated no thrombus in the filter and it was retrieved successfully. Best viewed with Windows Media Player.

**Movie 2:** Iliac venography and associated cavography prior to IVC filter retrieval revealed thrombus trapped at the apex of the filter. The filter was placed prophylactically before a bariatric procedure 6 weeks prior to attempted retrieval. Best viewed with Windows Media Player.