A 30-YEAR-OLD MAN was admitted from an outside hospital with a history of deep venous thromboses, pulmonary emboli while anticoagulated, protein S deficiency, and pulmonary hypertension for the management of chronic thromboembolic pulmonary hypertension. An inferior vena cava (IVC) filter had been placed before the patient was transferred to the authors’ institution. An abdominal radiograph was obtained as part of the preoperative evaluation before pulmonary thromboendarterectomy (Fig 1). The patient was taken to the operating room where transesophageal echocardiography was performed after anesthetic induction and endotracheal intubation (Figs 2 and 3). What is the diagnosis?
DIAGNOSIS: FILTER INSERTED INTO THE ABDOMINAL AORTA

The initial abdominal radiograph revealed an IVC filter in an atypical location to the left of the vertebral midline (Fig 1). This subtle finding was consistent with the errant placement of an IVC filter in the aorta. Intraoperative TEE identified an immobile, echogenic structure approximately 2-3 cm in length in the descending aorta (Fig 2). This structure was confirmed in the descending aorta long-axis view on TEE (Fig 3). A fluoroscopic still image obtained during the second IVC filter placement revealed a wire in the inferior vena cava that was inserted via the femoral approach (Fig 4). This wire remained to the right of the patient’s midline in the inferior vena cava, which was confirmed by caval venography prior to the deployment of a second IVC filter. The final abdominal radiograph revealed a properly placed retrievable IVC filter below the costal margin to the right of midline juxtaposed to the incorrectly placed filter (Fig 5).

The placement of IVC filters preoperatively in PTE patients is a recognized indication and is routine for PTE patients at the authors’ institution. Filters typically are placed via the right internal jugular vein or right femoral vein under local anesthesia. In an effort to ensure correct filter location, the standard is to use caval venography at the time of filter insertion; however, insertion can be completed utilizing ultrasound if access to the angiographic suite is not possible. While IVC filter placement is associated with a low major complication rate (<0.5%), complications can occur and include delayed filter removal, filter tilt, caval wall perforation, guidewire entanglement, filter migration, filter embolization, thrombosis formation at the site of insertion, IVC thrombosis, IVC stenosis, improper anatomic placement, air embolism, lower extremity edema and post-thrombotic syndrome. The clinical significance of an IVC filter in the aorta is not known; however, in this instance there were no plans for its removal given the filter type and lack of apparent effect on systemic blood flow.

REFERENCES