Fracture and Embolization of an Inferior Vena Cava Filter Strut Leading to Cardiac Tamponade

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A 56-year-old woman presented to the Emergency Department of Parkland Memorial Hospital complaining of chest pain. She had a remote history of a hemorrhagic cerebrovascular accident complicated by pulmonary embolism, for which a Gunther-Tulip inferior vena cava (IVC) filter had been placed 6 years previously. In the triage area, the patient collapsed and was found to be hypotensive. An ECG showed sinus bradycardia with nonspecific ST and T-wave changes (Figure 1). Bedside echocardiography demonstrated a moderate-sized pericardial effusion with evidence of cardiac tamponade. A pericardiocentesis was performed with removal of 25 mL of blood, and the patient’s vital signs stabilized. A portable chest x-ray suggested a foreign body just above the left hemidiaphragm (Figure 2), which was confirmed by computed tomographic (CT) scan of the chest, which revealed a linear metallic foreign body in the left anterior pericardium adjacent to the right ventricle (Figure 3). On the abdominal CT scan, one of the struts from the patient’s IVC filter was not visualized with the remainder of the IVC filter (Figure 4). The patient was taken to the operating room, where exploration of the pericardial space demonstrated a small laceration of the right ventricular free wall (Figure 5) and a linear 3-cm metallic foreign body (Figure 6) consistent with the missing IVC filter strut. The patient recovered uneventfully from surgery. IVC strut fracture occurs in fewer than 5% of cases,1,2 and embolization has been reported as a rare complication of strut fracture.3

Disclosures

None.

References


Figure 1. ECG performed in the emergency room showing sinus bradycardia and nonspecific ST and T-wave abnormalities.
Figure 2. Chest x-ray showing a linear foreign body in the left thorax just above the left hemidiaphragm.

Figure 3. Chest CT scan with arrow delineating a linear foreign body in the left anterior pericardial space.

Figure 4. Abdominal CT scan demonstrating the Gunther-Tulip IVC filter. The arrow points to the area of the missing filter strut.

Figure 5. Intraoperative photograph highlighting the puncture of the right ventricular free wall.

Figure 6. Photograph of the fractured stent strut that was recovered during surgery.
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