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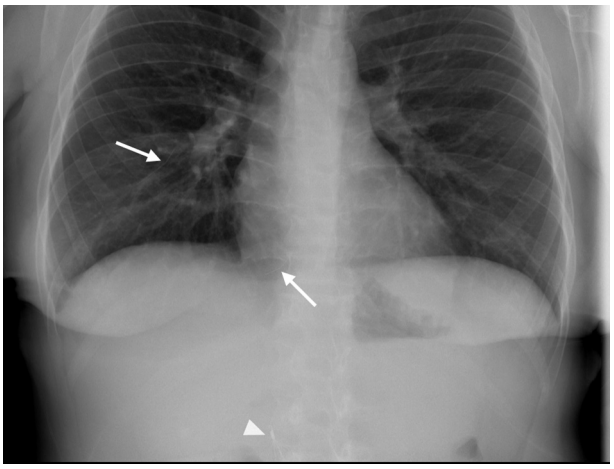

**Figure 1.** Chest radiograph showing linear-shaped radiopaque structures in the right lower lung and overlying the right side of the heart (arrows). An existing IVC filter is seen in the abdomen overlying the spine (arrowhead).

**Figure 2.** Still ultrasound image from clip 1 at time 0:03. A linear hyperechoic structure (arrow) and reverberation artifact (arrowhead) are seen in the right ventricle.

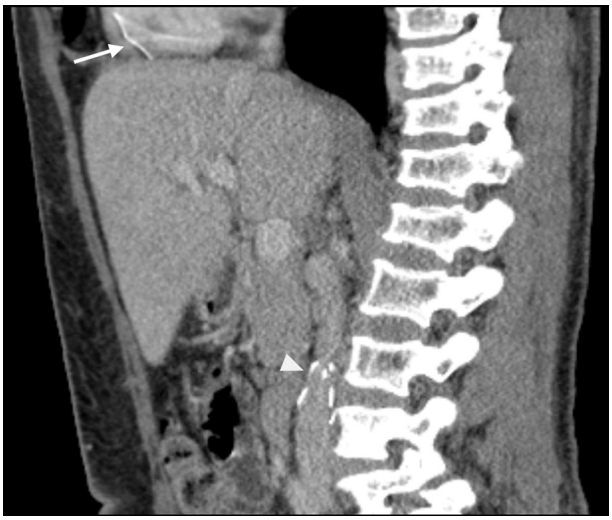

**Figure 3.** Sagittal CT scan of the chest, abdomen, and pelvis showing a thin radiopaque structure in the right ventricle (arrow), and the existing IVC filter in the upper abdomen (arrowhead).

[Ann Emerg Med. 2019;73:e15-e16.]

A 25-year-old woman with history of lupus, pulmonary embolism, and inferior vena cava (IVC) filter placement presented with two days of right back, shoulder, and chest pain. Her vital signs were within normal limits, and physical examination of the chest, back, shoulder, heart, and lungs was unremarkable. A chest radiograph revealed two thin radiopaque foreign bodies overlying the right lung and right side of the heart (Figure 1). Bedside cardiac ultrasonography was performed, demonstrating a hyperechoic structure in the right ventricle (Video, Figure 2), which moved dynamically with cardiac contractions.

*For the diagnosis and teaching points, see page e16.*
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IMAGES IN EMERGENCY MEDICINE

*(continued from p. e15)*

**DIAGNOSIS:**

*Inferior vena cava filter fracture and embolization with right ventricular perforation*. A computed tomography (CT) scan confirmed the presence of two IVC filter struts, one in a branch of the right pulmonary artery and the other embedded in the right ventricular myocardium (Figure 3). The patient eventually had successful removal of the filter and fragments by interventional radiology, without complication.

Inferior vena cava filter fracture is a late and uncommon complication of IVC filter placement. Case series cite incidence of fracture from 1% to 2.9%[1]; however, this increases with filter dwell time.[2] Fractured fragments can embolize to the heart and lungs, and also extravascularly, causing bleeding, cardiac tamponade, arrhythmia, and other serious complications.[1,3,4] When characteristic foreign bodies are observed on imaging, bedside ultrasonography can quickly establish the presence of cardiac perforation and pericardial effusion. CT may be necessary for precise localization of fragments. Removal by interventional radiology is becoming the most successful method of retrieving intravascular filter fragments,[1,4] however, extravascular embolization occurs frequently, and such fragments are often not retrievable.[4]

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