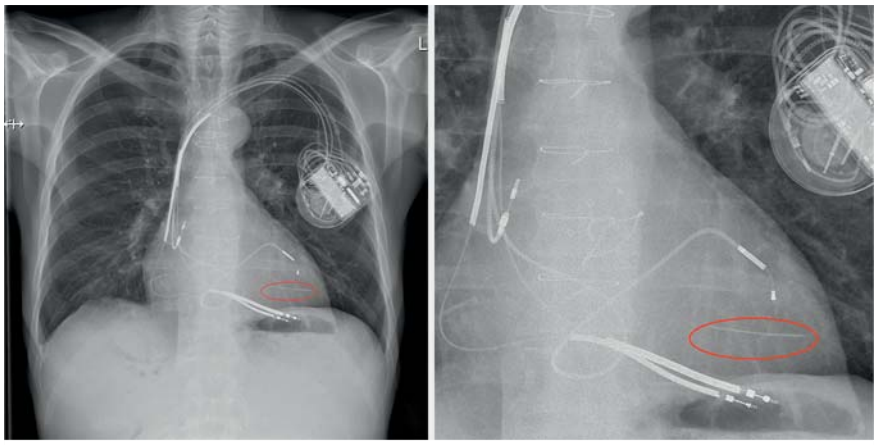
Intra-arterial migration of a fractured endoscopic needle

A 53-year-old man with chronic pancreatitis presented with abdominal pain and sepsis. Imaging revealed a liver abscess secondary to distal biliary obstruction. Following drainage of his abscess, the patient underwent endoscopic retrograde cholangiopancreatography (ERCP) with placement of a fully covered metal biliary stent across a 2-cm suspicious shouldered and irregular low common bile duct stricture. A pancreatic head malignancy was suspected at ERCP and on computed tomography (CT) imaging. The regional specialist hepatobiliary multidisciplinary team (MDT) recommended endoscopic ultrasound with fine needle aspiration (EUS-FNA).

EUS-FNA was difficult because of the changes of severe chronic calcific pancreatitis, duodenal stenosis, increased pancreatic head vascularity, and metal stent artefact. Five needle passes were made with a 22-gauge needle (Boston Scientific, Marlborough, Massachusetts, USA) using standard technique. Cytology was consistent with pancreatitis, with no evidence of malignancy.

A routine chest radiograph 6 months later revealed a new linear density in the heart (▶ **Fig. 1**). The interim abdominal CT imaging was re-reviewed (▶ **Fig. 2**). Although not recognized at the time, owing to the highly calcified pancreas, it became clear that a fractured EUS-needle tip had migrated from the duodenal wall into the epigastrium (▶ **Fig. 3**), then through the diaphragm and into the left ventricle. On a subsequent chest radiograph, the needle had disappeared and a further CT scan revealed that it had migrated to the aortic bifurcation (▶ **Fig. 4a**).

The needle was retrieved endovascularly via bilateral common femoral artery access. It was first snared from above with a protective occlusion balloon placed below in the left iliac artery (▶ **Fig. 4b**). The balloon was deflated, the needle was snared from below and was then removed through the left groin sheath (▶ **Fig. 4c**; ▶ **Video 1**). The patient made an uneventful recovery after the procedure.



▶ **Fig. 1** Chest radiograph showing a needle within the left ventricle (linear density within the red ellipse).

Endoscopic needle fracture has been previously described in the upper gastrointestinal tract [1,2] and in a bronchoscopy setting [3]. Fractured metal sharps such as orthopedic fixation wires have been known to migrate into the arterial circulation, including into the heart [4]. This is the first known case of an endoscopic needle migrating intra-arterially.

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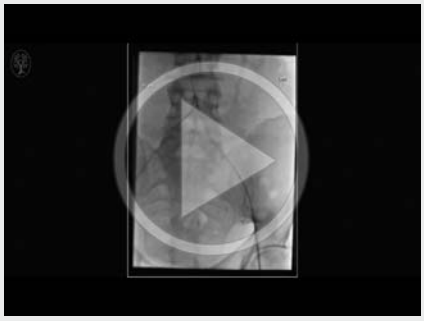
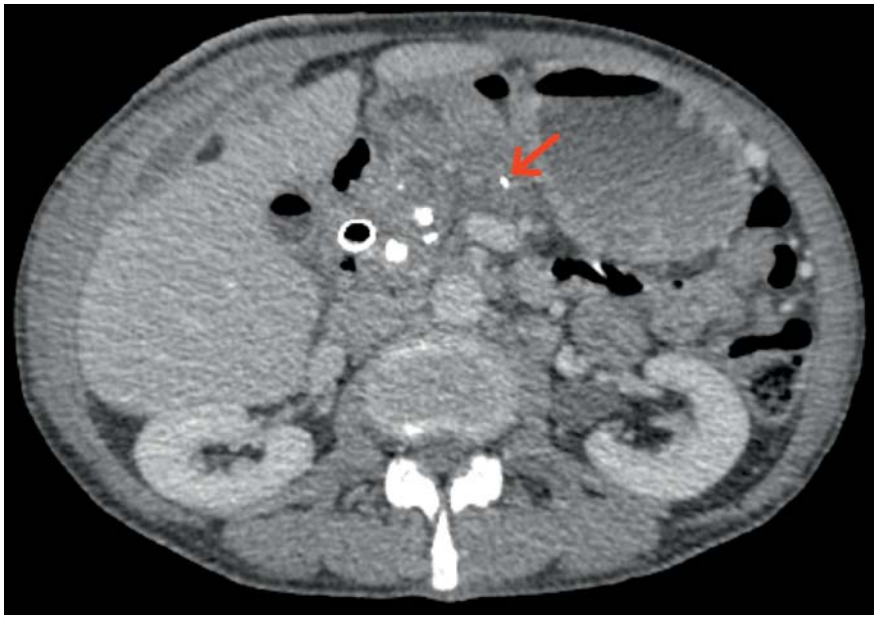
Competing interests

None

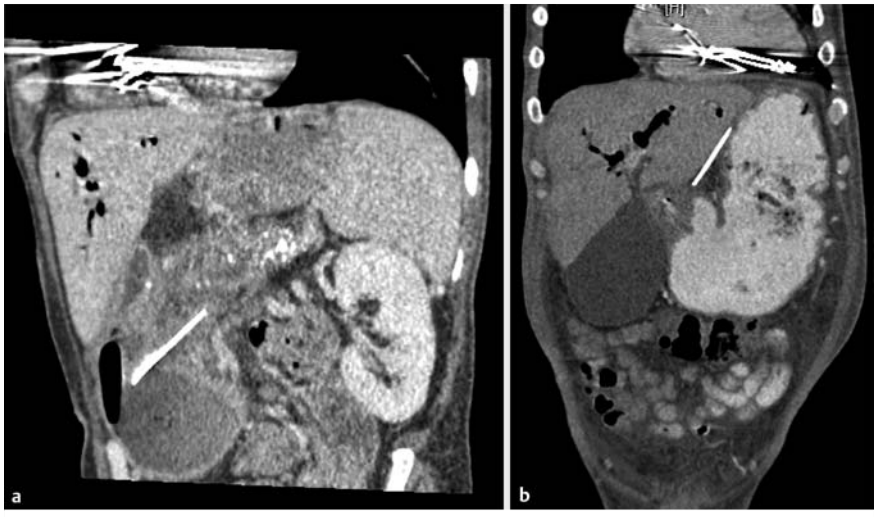
VIDEO 1



▶ Video 1: Endovascular removal of an intra-arterial fractured needle. The needle was snared from above with a protective occlusion balloon below in the left iliac artery. The balloon was deflated, then the needle was snared from below and removed through the groin sheath.



▶ **Fig. 2** Axial computed tomography (CT) scan showing the needle (red arrow) that was not identified originally among the pancreatic calcifications.



▶ **Fig. 3** Obliquely reformatted computed tomography (CT) images showing: **a** the needle extending through the duodenal wall; **b** the needle having moved to the epigastrium.

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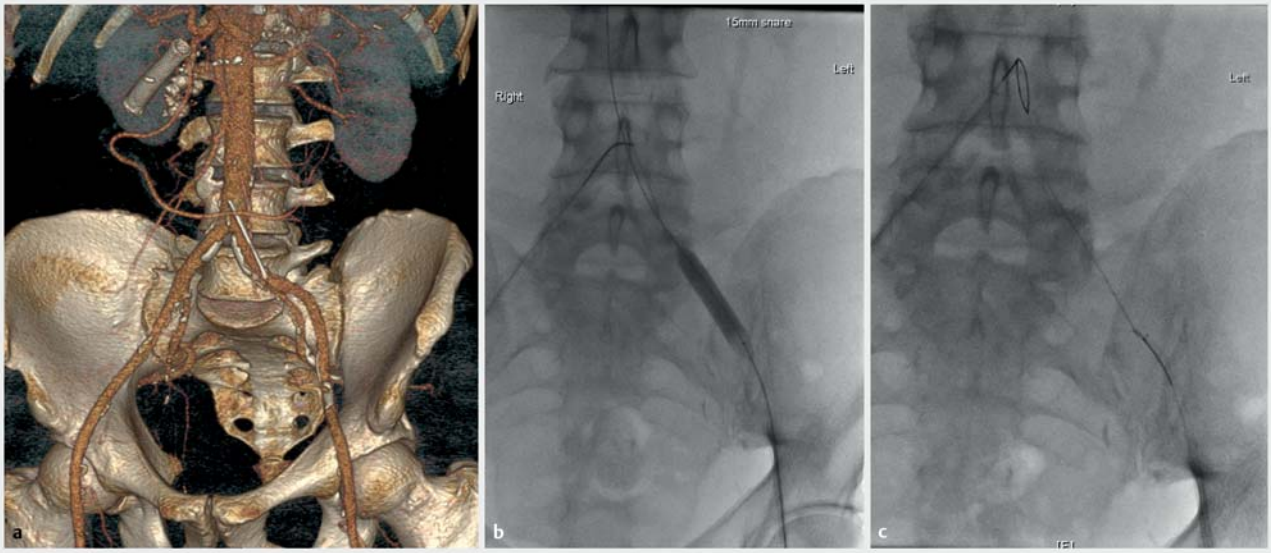

▶ **Fig. 4** Further imaging shortly before and during removal of the needle. **a** A volume-rendered computed tomography (CT) angiogram showing the needle at the aortic bifurcation. **b** The needle was snared from above with balloon occlusion below. **c** The needle was snared from below and was removed through a sheath.

References

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