

Diaphragm perforation after radiofrequency ablation for liver malignancy

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A 49-year-old man with recurrent hepatocellular carcinoma (HCC) 3 years after right lobectomy presented with hematemesis, fever and abdominal pain 1 month after radiofrequency tumor ablation. Abdominal computed tomography revealed cephalic migration of a distorted duodenum to the diaphragm (Fig. 1a, arrow), and a complete perforation in the duodenum and diaphragm (Fig. 1b) causing bile pleuritis and pneumonia. Pigtail tubes intended to drain the intra-abdominal abscess were found mistakenly inserted through the duodenal perforation into the pleural cavity (Supplementary Material Video). The patient died 1 month after the procedure owing to persistent hypoxemia and multi-organ failure. Radiofrequency ablation for HCC is extensively used for local curative treatment because it is less invasive than surgical resection [1]. Although rare, delayed complications such as thermal injuries to adjacent organs (especially anatomical gastrointestinal distortion after right hepatic lobectomy) or to the main bile ducts are difficult to manage successfully, and therefore warrant particular attention.

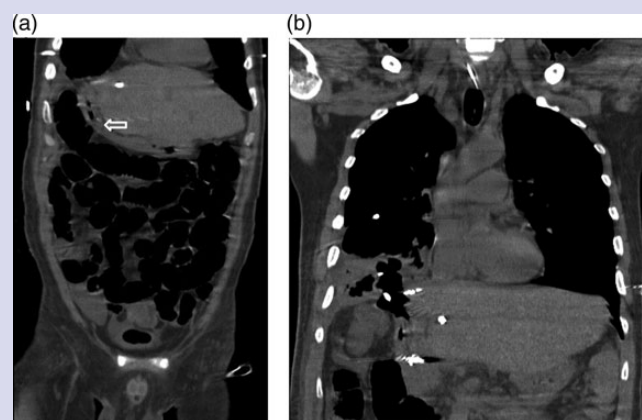


Figure 1: (a) Abdominal computed tomography revealed cephalic migration of a distorted duodenum to the diaphragm (arrow) owing to adhesion caused by a previous operation. (b) Diaphragm perforation and connection of the thoracic and abdominal cavities.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Oxford Medical Case Reports* online.

REFERENCE

1. Shiina S, Tateishi R, Arano T, *et al.* Radiofrequency ablation for hepatocellular carcinoma: 10-year outcome and prognostic factors. *Am J Gastroenterol* 2012;**107**:569–77.

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