Pneumoperitoneum due to a necrotic cavity wall perforation seen at endoscopic necrosectomy

Fig. 1 Image showing the endoscopic ultrasound (EUS)-guided puncture of a walled-off area of necrosis (WON).

Fig. 2 Computed tomography (CT) scan showing persistence of the collection and the presence of air pockets after transmural drainage had been performed.

A 55-year old man with a large infected walled-off area of pancreatic necrosis (WON) was referred to us for endoscopic drainage. Endoscopic ultrasound (EUS) revealed a significant amount of solid debris. Under EUS guidance, the WON was punctured (● Fig. 1) and, after tract dilation, two 10-Fr double-pigtail stents and a nasocystic catheter were placed to drain the cavity. The patient's pain improved but his fever persisted. A week later, the nasocystic catheter was removed and the stents were exchanged for three 10-Fr stents. Despite three sessions of stent exchange, his fever persisted and a computed tomography (CT) scan revealed a persistent collection with air pockets that had formed because of the drainage of liquid debris (● Fig. 2).

After interdisciplinary consultation, an endoscopic necrosectomy was performed (● Fig. 3a) and solid necrotic material was removed using Dormia and net baskets. After the procedure had been completed, a small rent was noticed in the wall of the WON (● Fig. 3b). Four 10-Fr double-pigtail transmural stents were placed in the cavity. Post-necrosectomy abdominal radiographs showed air under the dome of the diaphragm (● Fig. 4). The patient was experiencing mild abdominal discomfort, but no guarding or rigidity on examination, so a nasojejunal tube was also placed for enteral feeding. A contrast-enhanced CT scan confirmed the presence of a pneumoperitoneum with minimal ascites and an air-filled WON

Fig. 3 Endoscopic views showing: **a** the endoscopic necrosectomy being performed; **b** a rent in the wall of the walled-off area of necrosis (arrows) after endoscopic necrosectomy had been performed.

cavity (● Fig. 5), but there was no leakage of enteral contrast.

The patient's fever resolved and a repeat abdominal radiograph taken on day 7 showed the disappearance of the air under the diaphragm. The nasojejunal tube was removed, the stents were exchanged for two 10-Fr 3-cm stents, and the patient was discharged.

Endoscopic treatment of a WON involves using more aggressive techniques such as

dilation of a large tract, placement of multiple or metal stents, aggressive irrigation, and direct debridement of necrotic tissue [1]. Direct endoscopic necrosectomy is a more aggressive technique for endoscopic drainage of a WON that is associated with an increased frequency of complications, including pneumoperitoneum and bleeding [2].

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Fig. 4 Abdominal radiograph showing air under the diaphragm, consistent with a pneumoperitoneum, and the transmural pigtail stents in situ.

Fig. 5 Computed tomography (CT) scan showing intraperitoneal air (arrows), consistent with a pneumoperitoneum, but minimal ascites, and the air-filled cavity from the walled-off area of necrosis.

Competing interests: None

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Bibliography

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