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

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 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].
Competing interests: None

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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.

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