

CLINICAL IMAGE

An intrathoracic gas collection

E. Hulleman, Th.F. Veneman

Department of Intensive Care Medicine, Hospital Group Twente, Almelo, the Netherlands

Correspondence

Th.F Veneman – t.veneman@zgt.nl

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Case

A 67-year-old man turned dyspnoeic, one day after a laparoscopic correction of an intrathoracically positioned stomach by partial resection of the hernia sac and anterior fundoplication (Nissen) (*figure 1*). He complained about pain in the upper abdominal and chest area, not related to ventilation. The oxygen saturation was 95% with 15 litres O₂/min.



Figure 1. Chest X-ray prior to surgery, with the herniated stomach

Auscultation of the lungs revealed no breathing sounds on the left side and crepitations on the lower right side of the chest. Prior to surgery a CT scan showed an upside-down stomach, suggesting mesentero-axial volvulus. The patient, however, did not complain of pain or retching. His main complaints were coughing and to a lesser extent difficulty in swallowing. The post-surgical chest X-ray showed the suggestion of a relapse of dislocation of the stomach into the thorax. However, the following CT scan showed an intra-abdominal position of the stomach. A large collection of gas was seen in the former intrathoracic hernia

sac, suspicious for oesophageal perforation (*figure 3*). Under the suspicion of a perforation of the oesophagus or stomach a gastroscopy was performed, but no perforation was detected. The finding of a large collection of gas prior to gastroscopy implies that the perforation was already present before the gastroscopy rather than being the consequence of the gastroscopy.



Figure 2. A transverse section of the CT scan, showing a large collection of gas in combination with fluid behind the heart. In the centre the oesophagus is projected. Around the gas-fluid collection compression of lung tissue is causing atelectasis

Because the severity of the symptoms increased, an additional chest X-ray was performed (*figure 4*). The intrathoracic cavity became enlarged after gastroscopy and the patient was intubated and mechanically ventilated on the ICU because of respiratory insufficiency. He became haemodynamically unstable, suggesting the development of a tension pneumothorax.



Figure 3. Chest X-ray showing a large gas collection and the fluid level. In addition, free air is seen under the left and right diaphragm

The hernia sac was partially resected by a laparoscopy and the diaphragm was closed. The fact that initially only a partial resection of the hernia sac was performed might have added to the development of the relapse. There was no perforation present

in the closed diaphragm defect. During surgery no ischaemia or other defects were seen in the abdomen. The fundoplication appeared to be undamaged. In the former hernia sac, air and stomach content were seen. The oesophagus was inspected, but no perforation was found. During surgery the hernia sac was flushed and two drains were placed on each side of the oesophagus (four in total). In addition a subphrenic drain was left behind at the hiatus. The intrathoracic cavity was surgically drained, with the affluent of purulent liquid and stomach contents, suggesting a perforation of the proximal digestive tract. We suspect that insufflation of large quantities of air during gastroscopy caused enlargement of the intrathoracic cavity. The patient developed mediastinitis with a full blown septic shock, which was treated by drainage and antibiotic medication.

The patient recovered and was discharged one and a half months after initial surgery

Diagnosis

Perforation of the proximal digestive tract with breakthrough into the intrathoracic hernia sac.

Disclosures

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