

# Chapter 11

## Case on Peritonitis After Unrecognized Perforation Following Heller Myotomy and Dor Fundoplication for Achalasia

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**Keywords** Peritonitis • Perforation • Heller myotomy • Dor fundoplication • Achalasia

### Diagnosis and Indication for Surgery

A 16-year-old boy presented with dysphagia for solid food and weight loss of 5 kg during the final year of his secondary education.

Diagnosis revealed achalasia, as based on the manometry findings involving hypoactivity of the contractions and no relaxation of the lower esophageal sphincter (LES). In another hospital, the patient had been dilated twice without improvement and now he was referred to our center for a laparoscopic Heller myotomy.

### Operation

During the laparoscopic intervention, it was difficult to develop the plane between the muscular layer of the esophagus and the mucosa. It seemed that two different planes were developing. Two small iatrogenic perforations were made and were closed with 4-0 stitches. Myotomy was performed adequately, on 6 cm of the distal esophagus and on 2 cm of the proximal stomach. Across the defect an

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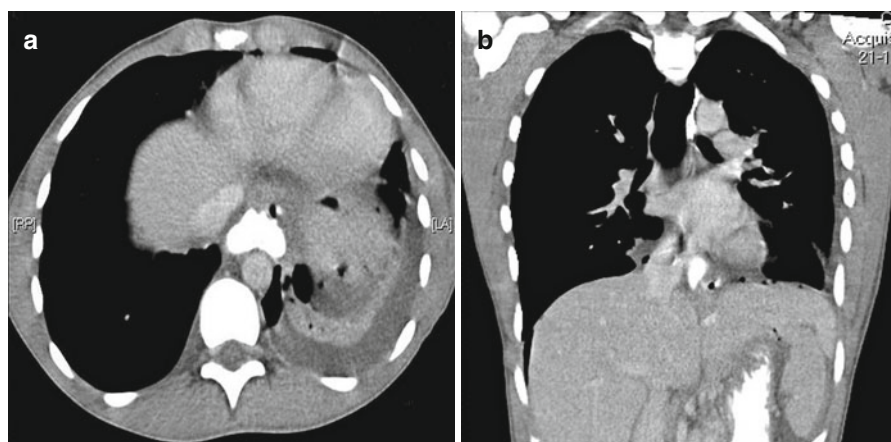
anterior Dor fundoplication (180°) was created without mobilizing the short gastric vessels.

### Postoperative Course: Identification and Treatment of the Complication

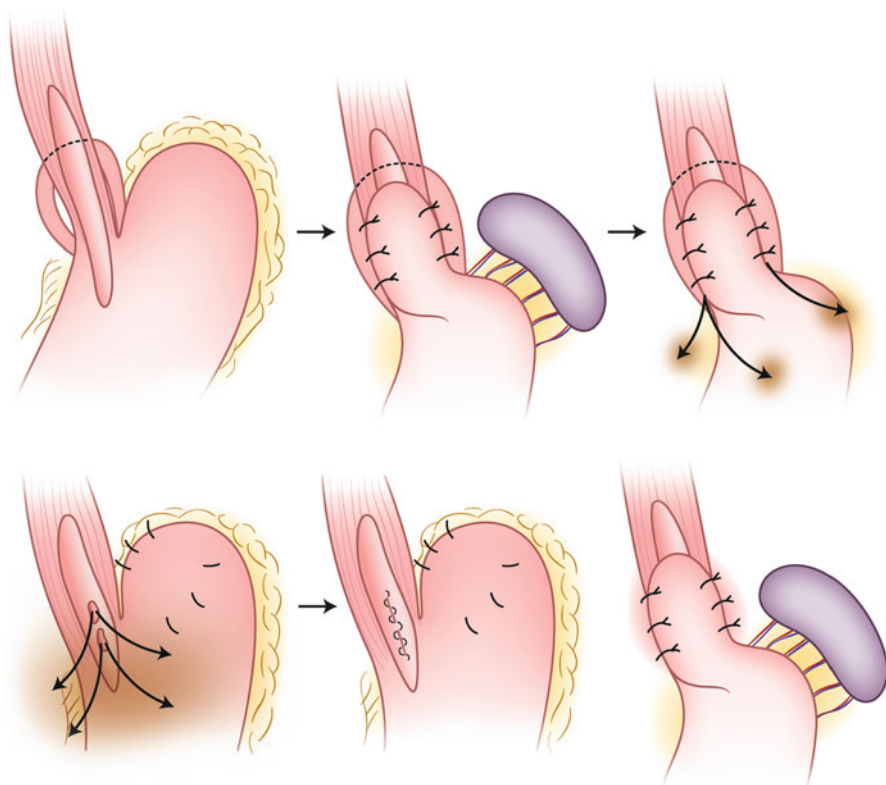
The second day after operation the patient could ingest some bland liquids; on the third day he developed fever and upper abdominal pain. A CT scan with oral contrast was performed, and leakage of contrast was found at the distal esophagus (Fig. 11.1a, b) A laparoscopic exploration was performed. Leakage of gastric content was seen in the upper abdomen, and after removal of the stitches of the Dor plasty, a 3-cm long perforation was seen at the distal part of the mucosa (Illustration 11.1). This extended perforation was possibly caused by necrosis of the mucosa. The perforation was carefully closed again with a 5.0 PDS continuous suture, and a Dor plasty was created to cover the defect. The abdomen was drained and patient received a central line for feeding. He recovered in a week time. A new control by swallow X-ray showed a normal passage and no leakage.

### Discussion

This patient possessed an unusual complication. Boeckstaens et al. have published recently a randomized study of a “total of 201 patients randomly assigned to pneumatic dilation (95 patients) or laparoscopic Heller myotomy (LHM) (106)” [1]. The



**Fig. 11.1** (a) CT scan showing leakage of contrast at the myotomy site. (b) CT scan with leakage of contrast



**Illustration 11.1** Heller's myotomy with Dor fundoplication as treatment of idiopathic achalasia. Postoperative leakage with peritonitis. Laparoscopically approached: Dor fundoplication was dismantled, mucosa perforation seen, and closed by running suture. Dor fundoplication was added

therapeutic success with pneumatic dilation with the random group was 90 % after 1 year of follow-up and 86 % after 2 years as compared with a rate of the group with LHM of 93 % after 1 year and 90 % after 2 years. Perforation of the esophagus occurred in 4 % of the patients during pneumatic dilation, whereas mucosal tears occurred in 12 % during LHM. There were no postoperative perforations in this series. Zaninotto et al. published the outcome of a study of 400 patients treated for achalasia by means of Heller myotomy and Dor fundoplication, and they determined conversion and morbidity rates of 1.5 % and 1.9 %, respectively, whereas the mortality was 0 % [2]. Moreover, Lan Wang and You Ming Li reviewed 16 papers on the outcomes of surgical treatment of recurrent achalasia and complications involved. "The most common intraoperative complication was gastrointestinal perforation, including gastric and esophageal perforation in 1.5–20 % of patients.

Besides, some patients experienced pneumothorax (1.9–6.7 %). Early postoperative complications included pulmonary complications (1.3–4 %). Some patients experienced persistent and severe chest pain, which prolonged the time to hospital discharge” [3].

The possibility of complications must never be discounted. Difficulties in finding the plane during the dissection and tears of the mucosa can be regarded as the causes for the complication of the patient here. It is possible that dissection in the wrong plane induced the ischemia and perforation. The aggressive approach by diagnosis and relaparoscopy eventually solved the complication.

## References

1. Boeckstaens GE, Annese V, des Varannes SB, et al. Pneumatic dilation versus laparoscopic Heller's myotomy for idiopathic achalasia. *N Engl J Med*. 2011;364:1807–16.
2. Zaninotto G, Constantini M, Rizzetto C, et al. Four hundred laparoscopic myotomies for esophageal achalasia: a single centre experience. *Ann Surg*. 2008;248:986–93.
3. Wang L, Li YM. Recurrent achalasia treated with Heller myotomy: A review of the literature. *World J Gastroenterol*. 2009;14:7122–26.