Biliary stenting of an iatrogenic esophageal perforation following corrosive esophagitis in a 5-year-old child

Most esophageal perforations are iatrogenic in origin (0.01%–55%) [1–3], and traumatic defects are still associated with high mortality, ranging between 12% and 50% [4]. Clinically, early identification and treatment of the problem is necessary, but guidelines for effective management have not been established.

A 5-year-old girl developed high-grade corrosive esophagitis after ingesting a caustic solution (Fig. 1). This resulted in the formation of a long esophageal stricture, which was causing severe dysphagia. Three and a half months after the incident, the stricture, which could not be passed with a 5.9-mm gastroscope (GIF-160, Olympus, Tokyo, Japan) (Fig. 2) was dilated with a balloon to 6 mm; 48 hours later the patient developed septic mediastinitis because of a perforation. A computed tomography (CT) scan showed leakage of contrast in the right pleural cavity, approximately 4 cm above the cardia (Fig. 3). Owing to a lack of pediatric treatment options for severe sepsis in combination with a pronounced esophageal stricture, the perforation was sealed with a partially covered biliary stent (Niti-S biliary stent, size 10 × 80 × 70 mm, Taewoong Medical Co. Ltd., Gyeonggi-go, South Korea) (Fig. 4). Two and a half months later, the patient underwent esophageal resection and reconstruction with colon interposition, and the stent was removed intraoperatively. The postoperative complication of an anastomotic stricture at 14 cm was successfully treated with balloon dilatation.

Corrosive esophagitis with stricture formation is a severe complication of caustic solution ingestion [5]. The state-of-the-art treatment is endoscopic dilatation or bouginage, which itself is associated with a high risk of perforation. In our case, the complication led us to consider an unusual treatment, since a long stenosis in a small child cannot be treated with conventional stenting. We were able to seal the perforation with a biliary stent, which allowed the esophagus to function until definitive repair could be attempted as primary repair was not possible.

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References

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Fig. 4  a Chest radiograph showing the final position of the stent. b Computed tomographic scan of the esophagus showing the final position of the stent (S); fluid is visible in the paraesophageal space (arrow).