A new management approach for esophageal perforation

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We present the case of a 40-year-old man with spontaneous esophageal perforation following an episode of ethanol intoxication. The diagnosis of perforation was delayed due to refusal of intervention. Endoscopic examination of the upper part of the esophagus revealed the tear above the gastroesophageal junction. A Polyflex self-expanding coated stent (Willy Ruesch GMBH, Kern, Germany) was placed, isolating and sealing the area of perforation and restoring esophageal continuity. A left thoracoscopy was performed to drain and debride the mediastinum. The patient was discharged eating a regular diet and the Polyflex stent was removed 1 month later.

This case is unique because a combined minimally invasive approach was used to manage a complex potentially fatal surgical emergency, which was previously handled through open thoracotomy. Because we combined video-assisted thoracic surgery and upper esophageal endoscopy, the patient experienced minimal morbidity and a short hospital stay with rapid return to activities of daily living. We believe this is the first reported case in which these combined modalities were used in the primary management of spontaneous esophageal perforation.

Clinical Summary

A 40-year-old man celebrated graduate school completion with an evening of hard liquor consumption. Three hours later, he began having indigestion and epigastric discomfort, followed by intermittent vomiting and retching. The patient was taken to his local hospital because of back pain and difficulty breathing.

On hospital arrival, decreased breath sounds on the left side were noted and the patient remained motionless throughout physical examination. A chest x-ray film revealed a left pleural effusion (Figure 1). No pneumothorax or subcutaneous emphysema was noted. Laboratory evaluation revealed a white blood count of 19,000. Esophageal perforation was confirmed on barium esophagogram approximately 3 hours after hospital admission with a distal esophageal leak and extravasation into the left side of the chest.

In the operating room, a flexible esophagoscope delineated the site of perforation at the level of the distal esophagus above the

Figure 1. Left pleural effusion.

gastroesophageal junction. No other esophageal or gastric disease was noted. To facilitate postoperative decompression and enteral access, we placed a percutaneous endoscopic gastrostomy tube in standard fashion under direct vision followed by deployment of a Polyflex self-expanding coated stent under fluoroscopic guidance, isolating and sealing the esophageal perforation.

Left thoracoscopy was performed with the left lung collapsed, and purulent pleural fluid was removed. The mediastinal pleura over the esophagus was boggy and inflamed. By use of sharp and blunt dissection, loculated and necrotic tissue was debrided back to healthy tissue followed by copious irrigation. Air and saline bubble insufflation revealed no extravasation after placement of the Polyflex stent. Multiple closed suction drains were placed adjacent to the area of injury.

The patient's postoperative course was unremarkable. A barium swallow confirmed esophageal continuity without extravasation of contrast. He resumed a soft diet before discharge. The Polyflex stent and percutaneous endoscopic gastrostomy tube were both removed 1 month later in the outpatient setting.

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Comment

This case is unique in the use of minimally invasive techniques to manage a spontaneous esophageal perforation. Rather than perform thoracotomy, we elected to seal the esophageal leak by placing a self-expanding covered Polyflex stent with simultaneous video-thoracoscopic drainage and debridement.¹ The morbidity of the procedures was minimal and the patient's overall condition stabilized rapidly, allowing return to oral nutrition.

Traditionally, identification of the perforation site at thoracotomy with debridement of nonviable tissue is necessary before a buttressed repair with wide drainage.² The success in the management of esophageal perforations depends on the time interval to intervention, the cause and the site of the perforation, and control of mediastinal contamination and restoration of esophageal continuity.³

This case illustrates unique management of a spontaneous esophageal perforation by combining minimally invasive video-assisted thoracoscopic surgery with use of a flexible endoscope. Thoracoscopic drainage and debridement with upper endoscopy placement of a Polyflex stent sealed the esophageal perforation.

The patient did well and eventually returned for outpatient stent removal.

Spontaneous esophageal perforation may not require thoracotomy in all cases. In cases in which no underlying esophageal disease exists, a combination of upper endoscopy and thoracoscopy may allow adequate management of this patient population.⁴

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Dextrocardia is a component of left-sided Poland syndrome

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The combination of Poland syndrome and dextrocardia is very uncommon, only 17 cases having been published until now. In all of them, the manifestations of Poland syndrome were on the left, although they usually occur on the right. We report the case of left-sided Poland syndrome combined with isolated dextrocardia, bilateral palmar hyperhydrosis, and hypoplasia of the rectus abdominis muscle. Clinical correlations between Poland syndrome and dextrocardia are discussed.

Clinical Summary

A 20-year-old man who was admitted to our hospital had previously been given a diagnosis of Poland syndrome. There were no relevant anomalies in the family. On examination, there was a defect in the left pectoralis major and minor muscle

attachments to the sternum through which the skin retracted with respiration. The left areola was small and located higher than the right one, with an inverted nipple (Figure 1). Hypoplasia of subcutaneous tissue, alopecia of the mammary and axillary regions, and bilateral palmar hyperhydrosis were detected. A posteroanterior view of the patient showed isolated dextrocardia, absence of the left costosternal portion of the pectoralis major and minor muscles, and deformity of the costal cartilages of the second, third, and fourth ribs on the left (Figure 2). Echocardiography demonstrated isolated dextrocardia and no evidence of intracardiac or great vessel anomaly. Hypoplasia of the rectus abdominis muscle was noted on abdominal ultrasound. There were no signs of digital anomalies or Möbius syndrome. The karyotype appeared normal.

Discussion

Poland's syndrome is a rare congenital anomaly characterized by hypoplasia or absence of the breast or nipple, hypoplasia of subcutaneous tissue, absence of the costosternal portion of the pectoralis major muscle, absence of the pectoralis minor muscle, aplasia or deformity of costal cartilages of ribs 2, 3, and 4 or 3, 4, and 5, alopecia of the mammary and axillary region, and ipsilateral hand deformities. Clinical manifestations of Poland syndrome are extremely variable, and rarely are all the features recognized in one individual. Depending on the physician's specialty and the referral pattern, a variable incidence of the anomalous defects is recognized. In some cases other associated ipsilateral anomalies (dextrocardia, vertebral defects, renal

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