The role of upper GI flexible endoscopy in management of large pharyngeal pouches

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CORRESPONDENCE: OUR EXPERIENCE

The role of upper GI flexible endoscopy in management of large pharyngeal pouches

Sir,

Pharyngeal pouch operations are commonly performed in ENT. However, some pouches can be large, with poor access making surgical management more complex. This can be worsened by long-standing pouch with associated severe dysphagia as shown in Figure 1. In this technical note, we describe the use of upper GI endoscopy to overcome the challenges in a large pharyngeal pouch. Management of this pouch in a conventional manner with standard endoscopic approach was difficult as we tried to locate the lumen of the oesophagus and apply further staples to achieve satisfactory division of the bar.

We have used this technique for 2 patients; both had a large pouch with progressive dysphagia over a few years, and associated weight loss and regurgitation of food. Fluoroscopic assessment of pharyngeal and oesophageal swallow was our first-line investigation (Figure 1A). A CT was also performed to better visualise the pouch due to its size, abnormal shape and extension into the mediastinum (Figure 2B). It also enhanced safety profile as we can identify any vascular structures adjacent to bar and tracheo-oesophageal groove.

The patient was scheduled for an elective endoscopic stapling of his pharyngeal pouch, which we describe below.

The procedure was performed under general anaesthetic with the patient lying in a supine position. A Weerda diverticuloscope was passed and the pouch identified.

Since the patient had a large pouch, the oesophageal lumen was not easily identifiable. With the help of an upper gastrointestinal (GI) endoscopist, the oesophageal orifice was identified using a paediatric scope (Figure 3). While the upper GI endoscope was in the oesophagus, the diverticuloscope was inserted. The endoscopic stapling device was used to divide the bar under direct vision. The GI scope was placed intra-orally but outside of the lumen of the Weerda diverticuloscope (WD), hence not hindering the intra-luminal view of the WD scope. With this technique, we could see oesophageal lumen and pouch with the help of upper GI endoscope camera and rigid endoscope, respectively.

This case required two complete full-length staples (© Ethicon US. ENDOPATH® ETS; 45 mm ETS Articulating Linear Cutter), applications to achieve a satisfactory division of the bar between the pouch and oesophagus. Post-operatively clear fluid was commenced after 4 hours of patient being nil by mouth. Patient was observed for signs of perforation and discharged the following day.

The pharyngeal pouch or Zenker's diverticulum was first described by Ludlow in 1769. This was followed by a detailed pathological description of 34 pouches by Zenker and Von Ziemssens in 1878. The pathogenesis of pharyngeal pouches is still not well understood. The most accepted explanation is that an incomplete opening of the upper oesophageal sphincter increases pressure within the pharynx, leading to a herniation through a weaker section of the mucosa.[1] Patients with pouches commonly present with dysphagia, regurgitation and food sticking in their throats. In more severe cases, patients may also present with significant weight loss, malnutrition[2] and food bolus obstruction.

Several methods have been developed for the management of pouches over the years. The traditional method of treatment was open surgery—diverticulectomy, cricopharyngeal myotomy, inversion or diverticuloplexy.[1] Over the years, other modalities of management in the form of endoscopic laser treatment, coagulation and stapling have been developed.[3] On the whole, while open repairs are the most successful treatment, endoscopic stapling has been associated with fewer complications and quicker recovery time, especially in smaller pouches.[4]

Generally, in endoscopic pouch operations, it is not difficult to find the oesophageal inlet, bar and pouch to perform a safe endoscopic division of the pouch. However, in certain cases it is impossible to find the oesophageal inlet even with a rigid oesophagoscopy prior to applying the Weerda diverticuloscope for full visualisation. It is possible that the Weerda scope stretches the pharynx and, in turn, the oesophageal inlet, which makes the oesophageal inlet difficult to find. In this case, the oesophageal inlet was identified with a paediatric upper GI endoscope.

The hypothesis was that we were able to locate the lumen, possibly because of the air insufflator in the non-stretch environment. Upper GI endoscopes' flexibility, air insufflator, non-stretched pharynx and experience of upper GI endoscopist facilitated easy identification of oesophageal orifice. Once the oesophageal inlet was identified with the upper GI endoscopy, the scope was kept inside while passing the Weerda scope. The flexible GI scope was pushing the bar down well, which enabled insertion of the endoscopic

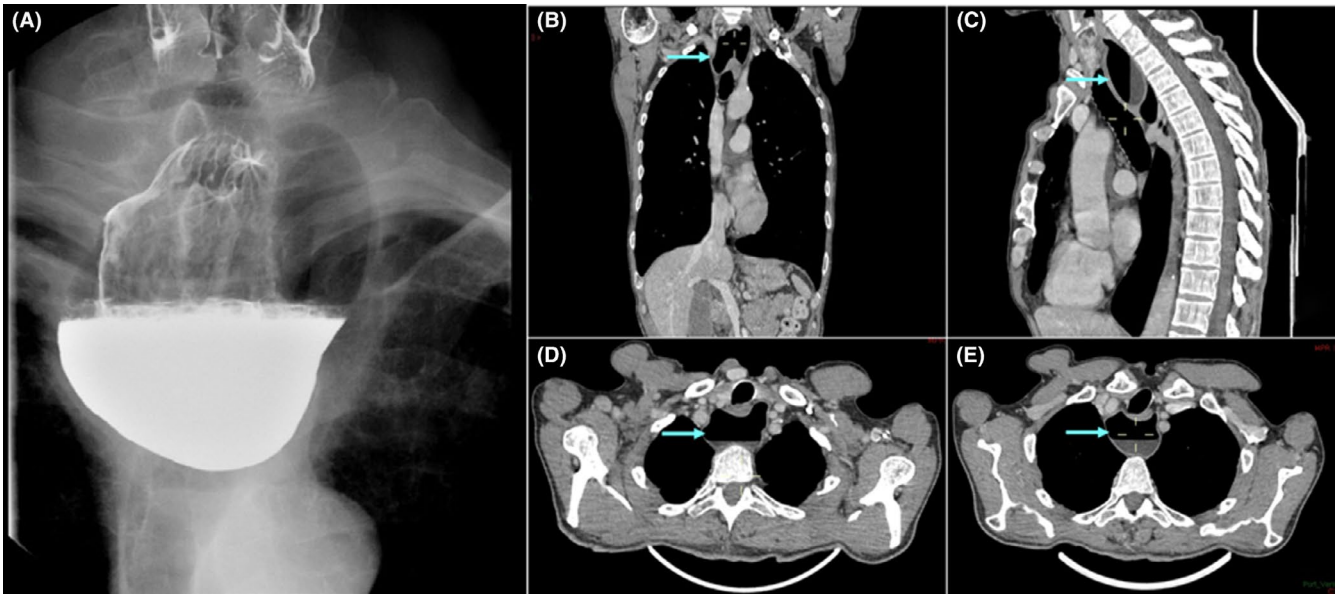

FIGURE 1 A, Pharyngeal pouch identified on barium swallow. B-E, Pharyngeal pouch on CT scan, marked by blue arrows

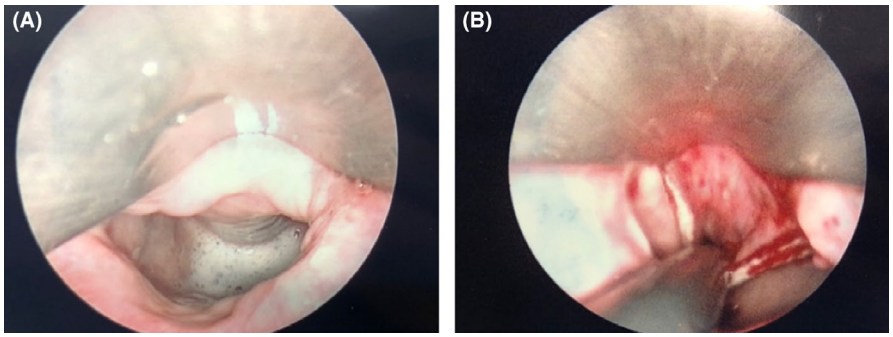

FIGURE 2 A, Pouch visualised during the procedure; B, view after first set of staples application

FIGURE 3 Upper GI endoscope successfully passed in to stomach and left in place for identification of oesophageal inlet

stapler more effectively, especially for this pouch with longer length. In large pouches, lower tip of the WD scope will not reach the lower end of the pouch as it is limited by its length. This technique will increase the chances of applying the second set of staples more effectively due to enhanced dual vision. A flexible endoscope was kept in the oesophagus during the entire procedure, outside the lumen of the WD scope to enhance visibility.

In their review in 2004, Sen and Bhattacharya noted a 0%-30% conversion rate from endoscopic stapling procedures to open procedures reported in 29 papers from 1966 to 2003.[5] The main reasons for conversion were anatomical factors in patients such as small mandibles, long necks or limited neck extension. Verdonck and Morton observed in their review that endoscopic procedures were associated with higher intraoperative failure than open procedures, again due to anatomical factors.[6] Overall, however, endoscopic procedures have more favourable outcomes than open procedures when compared with post-operative[1,4-6] outcomes and complications. Therefore, it is worth considering alternate ways to make endoscopic procedures possible, especially in more high-risk patients. We suggest a trial of an upper GI endoscopy to locate the oesophageal orifice in suitable situations, then reattempting a routine endoscopic stapling procedure.

The other options were to use a flexible endoscopic approach or an open approach to remove the pouch. However, higher rates

of post-operative bleeding and recurrence have been observed with a flexible endoscopic approach.[7] The open approach would also require a longer operating time and longer hospital stay along with increased risk of complications. Hence, the method used was identified as the best approach for our patient.

In conclusion, intraoperative input of an upper GI endoscopist could be considered in more complex and large pharyngeal pouch cases, particularly if when the oesophageal inlet proves difficult to visualise. It could potentially make the complete stapling of the pouch technically easier and safer.

CONFLICT OF INTEREST

None to declare.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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