

Epiphrenic pulsion diverticulum: an uncommon cause of dysphagia and heartburn

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DESCRIPTION

A 52-year-old Malay man presented with a history of recurrent heartburn and intermittent dysphagia for 6 months. There was no history of vomiting or food regurgitation or any alarming symptom. He had previously sought treatment from several doctors with a presumptive diagnosis of gastro-oesophageal reflux disease and was given treatment with proton pump inhibitors (PPIs). His symptoms were typically worse after meals and on lying down at night. He is a non-smoker and non-drinker with a body mass index of 25 kg/m². His physical examination was unremarkable.

He underwent a gastroscopy, which showed thickened folds in the lower oesophagus with marked muscular contractions. There was some luminal narrowing, but no oesophagitis nor any other mucosal abnormality was detected. His proximal oesophagus was not dilated and there was no impacted food detected.

He was given a course of PPIs and a prokinetic drug (domperidone) for 1 week. He reported only minimal improvement in his symptoms. A barium swallow was then performed. This showed an initial smooth flow of contrast from hypopharynx down to the distal oesophagus with the distal half of oesophagus gradually dilating on filling with contrast. However, contrast hold-up was seen in the distal oesophagus (figure 1A), followed by gradual contrast filling of an outpouching on the left side of distal oesophagus just above the hemidiaphragm (figure 1B), in addition to abnormal peristaltic patterns detected at the distal oesophagus. The contrast filled outpouching and distal oesophagus gradually emptied into the stomach (figure 1C).

On an oblique view of the barium studies, the size of the diverticulum was measured to be 3.92 cm × 4.82 cm (figure 2).

These findings finally led to the diagnosis of epiphrenic pulsion diverticulum (EPD) with possible underlying oesophageal dysmotility. The patient was advised to undergo a formal manometry to detect any underlying oesophageal motility disorder, which we strongly suspected, as he likely requires surgery in view of persistent symptoms and the large size of the diverticulum. However, the patient chose conservative management for now. He was given dietary advice, including avoiding large meals, chewing slowly, frequent intake of water during food and avoiding postprandial recumbency. He was prescribed PPIs for symptomatic control of his reflux symptoms.

EPD is rare type of diverticulum involving the lower oesophagus and is thought to be due to increased intraluminal pressure in the oesophagus. It is sometimes called a 'false diverticulum' as there

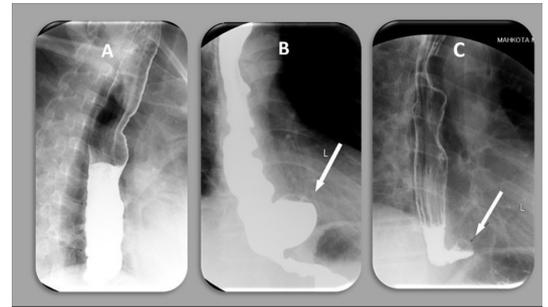


Figure 1 Barium swallow showing (A) contrast hold-up at the lower oesophagus, (B) gradual filling of the diverticulum and (C) gradual emptying of contrast into the stomach.

is focal herniation of the mucosa and submucosa through the muscularis propria in the absence of muscularis layers in the wall of the diverticulum. It is an uncommon condition, which can occur anywhere in the oesophagus, but often occurs in the lower oesophagus where the point of anatomical weakness in the oesophageal wall is where nerves and blood vessels enter to supply the lower oesophagus. It is believed to be associated with underlying motility disorders. The resultant symptoms experienced by the patient would depend on the site and the size of the diverticulum. Commonly reported symptoms include dysphagia, food regurgitation, vomiting, retrosternal discomfort, heartburn, aspiration pneumonia and sometimes food impaction. Many of these symptoms mimic other common gastrointestinal diseases, making diagnosis



Figure 2 Barium swallow showing the large diverticulum.



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challenging to primary care physicians. A contrast study remains the investigation of choice for this condition.¹ The estimated incidence of EPD is about 1:500 000/year.² It is most commonly associated with achalasia.^{3–6} It is also associated with a small risk of malignancy, especially in elderly men with longstanding symptoms.⁷

For symptomatic patients with large diverticula, surgery remains the treatment of choice. This usually involves diverticulectomy or diverticulopexy with or without myotomy, which can be performed via an open or minimally invasive approach. For symptomatic patients who are unfit for or refuse surgery, endoscopic pneumatic dilation and botulinum toxin injection remain viable alternatives.^{2 8}

In a comprehensive review by Sonbare,⁹ surgical treatment for this type of diverticulum is associated with significant morbidities, including postoperative leaks.^{10 11} For small EPD with minimal symptoms, patients may be managed conservatively.

Patient's perspective

I am surprised to learn that the cause of my symptoms is something rare and different from what I had been told before. However, I do feel relieved that at least it is not cancer of some sort, which I had initially suspected. I will think about going for surgery later as advised by my doctor.

Learning points

- ▶ Epiphrenic pulsion diverticulum is a rare form of oesophageal diverticulum due to increased intraluminal pressure.
- ▶ It is an uncommon cause of dysphagia and heartburn.
- ▶ Gastroscopy, barium and manometry studies are essential to help guide clinicians decide the best treatment for each patient.

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REFERENCES

- 1 Khan N, Ismail F, Van de Werke IEA. Oesophageal pouches and diverticula: a pictorial review. *S Afr J Surg* 2012;50:71–5.
- 2 Zaninotto G, Portale G, Costantini M, *et al.* Therapeutic strategies for epiphrenic diverticula: systematic review. *World J Surg* 2011;35:1447–53.
- 3 Soares R, Herbella FA, Prachand VN, *et al.* Epiphrenic diverticulum of the esophagus. from pathophysiology to treatment. *J Gastrointest Surg* 2010;14:2009–15.
- 4 Vicentine FPP, Herbella FAM, Silva LC, *et al.* High resolution manometry findings in patients with esophageal epiphrenic diverticula. *Am Surg* 2011;77:1661–4.
- 5 D'Journo XB, Ferraro P, Martin J, *et al.* Lower oesophageal sphincter dysfunction is part of the functional abnormality in epiphrenic diverticulum. *Br J Surg* 2009;96:892–900.
- 6 Melman L, Quinlan J, Robertson B, *et al.* Esophageal manometric characteristics and outcomes for laparoscopic esophageal diverticulectomy, myotomy, and partial fundoplication for epiphrenic diverticula. *Surg Endosc* 2009;23:1337–41.
- 7 Herbella FAM, Patti MG. Modern pathophysiology and treatment of esophageal diverticula. *Langenbecks Arch Surg* 2012;397:29–35.
- 8 Katsinelos P, Chatzimavroudis G, Zavos C, *et al.* Long-Term botulinum toxin treatment for dysphagia due to large epiphrenic diverticulum in elderly patients: a report of two cases. *Dysphagia* 2009;24:109–13.
- 9 Sonbare DJ. Pulsion diverticulum of the oesophagus: more than just an out pouch. *Indian J Surg* 2015;77:44–8.
- 10 Benacci JC, Deschamps C, Trastek VF, *et al.* Epiphrenic diverticulum: results of surgical treatment. *Ann Thorac Surg* 1993;55:1109–14.
- 11 Fernando HC, Luketich JD, Samphire J, *et al.* Minimally invasive operation for esophageal diverticula. *Ann Thorac Surg* 2005;80:2076–80.

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