

# Laparoscopically assisted stapled diverticulotomy, myotomy and Belsey Mark IV procedure for epiphrenic diverticulum

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## Abstract

Epiphrenic diverticula of the oesophagus are often associated with a concomitant oesophageal motor disorder, which is thought to be the cause of the diverticulum and some of the patient's symptoms. We report a case of oesophageal pulsion diverticulum associated with achalasia, treated with laparoscopic mobilisation of the fundus, transthoracic diverticulotomy, cardio-myotomy and Belsey Mark IV anti-reflux procedure.

## CASE REPORT

An 88-year-old man presented to Royal Gwent hospital with history of achalasia for many years. His symptoms had progressed to severe dysphagia with ability to swallow water only, just 2 months before admission. He had repeated endoscopic oesophageal dilatation, which helped to alleviate his symptoms for just a short period. Another endoscopy at the time of admission showed a tight gastro-oesophageal junction (GOJ) with epiphrenic diverticulum on the right side, which was well delineated on barium swallow later (Figure 1). We decided to treat this condition surgically. The patient had laparoscopic mobilisation of the fundus, transthoracic stapled diverticulotomy, lower Heller's cardio-myotomy and Belsey Mark IV anti-reflux surgery. The patient had an uneventful postoperative recovery and the water soluble or Gastromiro swallow showed no anastomotic leak on the 5th post operative day (Figure 2). He was reviewed 3 months later and had noticed a dramatic improvement in his condition.

## DISCUSSION

The association between oesophageal diverticula and oesophageal motility disorders has been recognized since 1833, when Mondiere first suggested that increased intraluminal pressure may be responsible for this disorder<sup>(1)</sup>. Oesophageal diverticula are recognized in less than 1 per cent of all oesophagoscopies and occur in 1-3 per cent of patients with dysphagia<sup>(2)</sup>. The common motility disorders encountered with pulsion diverticula are non-specific

oesophageal motility disorder, diffuse oesophageal spasm and achalasia. Symptoms associated with oesophageal pulsion diverticula vary considerably in type, frequency and severity. It is now well accepted that they correlate with an underlying motility disturbance, and are not primarily influenced by diverticular size. Dysphagia is the most common complaint and it results from functional obstruction due to incoordinate motility. Regurgitation of undigested food often accompanies dysphagia. Respiratory complaints including nocturnal coughing, asthma-like symptoms, pneumonia and laryngitis indicate aspiration<sup>(3)</sup>.

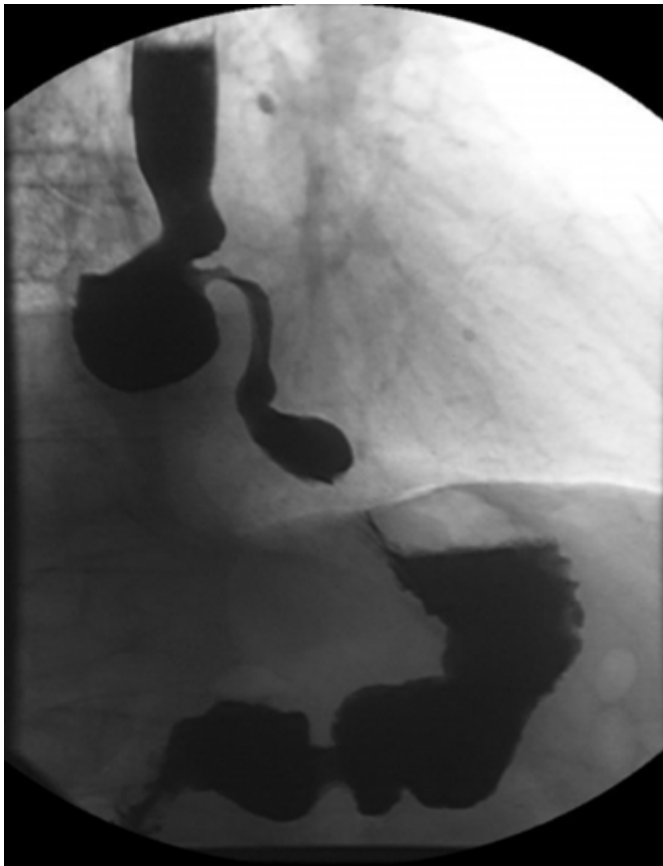
Most oesophageal diverticula are found incidentally. A plain chest X-ray, barium swallow, GI endoscopy and manometry are considered standard investigations for assessing the oesophageal obstructive symptoms that accompany pulsion diverticula. Manometry is the 'gold standard' technique for diagnosing oesophageal motility disorders. The presence of a sizeable diverticulum or a non-relaxing lower oesophageal sphincter may thwart repeated attempts to pass the manometry catheter across the sphincter, and an accurate assessment may not be possible<sup>(4)</sup>. There is consensus that surgical treatment should be reserved for symptomatic patients. The disease spectrum does not allow for a standard operative approach in all cases. However, the literature strongly supports myotomy as the mainstay of treatment, irrespective of how the diverticulum is managed. The proximal extent of a myotomy appears to impact little on outcome. What seems crucial is the subdiverticular portion, which ensures that distal obstruction is relieved. Poor results

have been attributed to inadequate myotomy in this region (5).

The early experience with minimal access techniques in treating pulsion diverticula suggests potential benefits without compromising effectiveness or safety (6). Traditional transthoracic resection, long oesophagomyotomy, and an anti-reflux procedure provide excellent long-term functional results with relatively low postoperative morbidity in patients with epiphrenic diverticula (7). Laparoscopic mobilisation of the fundus, transthoracic stapled diverticulotomy, lower Heller's cardio-myotomy and Belsey Mark IV anti-reflux surgery is a safe and effective operation for the management of this condition (8).

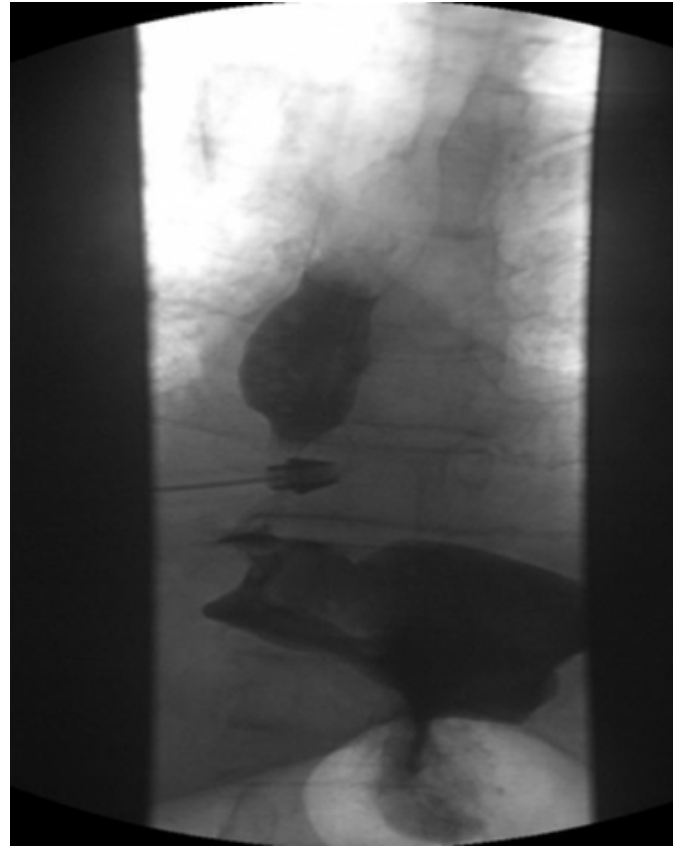
### Figure 1

Figure 1: Preoperative barium swallow.



### Figure 2

Figure 2: Fifth postoperative day: Gastromiro test.



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