

# Laparoscopic surgery for an unusual case of dysphagia: lower oesophageal leiomyoma co-existing with achalasia cardia

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## ABSTRACT

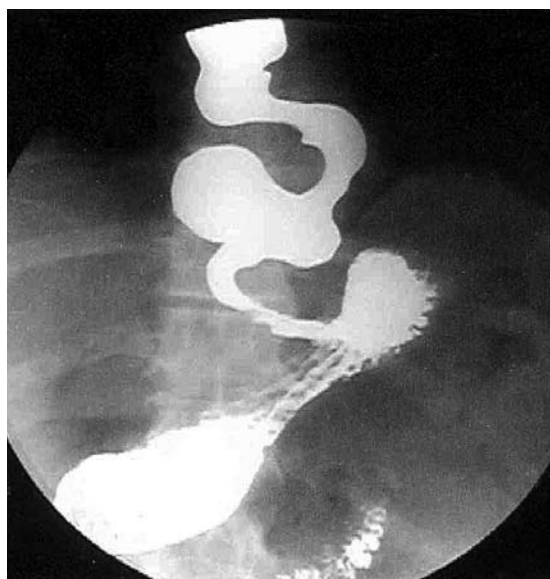
Benign tumours of the oesophagus are rare, with an incidence of ten percent. Leiomyomas are the most common benign tumours and are located frequently in the middle and lower third of the oesophagus. Coexisting achalasia cardia is very rare. We present a 63-year-old man with coexisting leiomyoma and achalasia presenting with dysphagia for 25 days. Endoscopy and manometry revealed achalasia cardia at the lower third. Barium swallow showed a tumour proximal to the narrowing. Laparoscopic transhiatal enucleation and cardiomyotomy with Toupet fundoplication was successfully performed. Several conditions have been described to coexist with achalasia cardia, such as cancer, paraoesophageal hernia and hiatal hernia. Based on our experience, we feel that lower oesophageal tumours are best approached by a laparoscopic transhiatal route and the presence of achalasia in this case did not change the approach as cardiomyotomy with fundoplication could also be simultaneously performed. Minimally-invasive surgery for benign oesophageal tumours reduces the morbidity of thoracotomy or laparotomy.

**Keywords:** achalasia cardia, myotomy, oesophageal leiomyoma, transhiatal laparoscopic approach

*Singapore Med J 2007;49(1):e22–e25*

## INTRODUCTION

Benign tumours of the oesophagus are rare lesions that constitute 10% of oesophageal neoplasms.<sup>(1)</sup> Nearly two-thirds of benign oesophageal tumours are leiomyomas. The majority of leiomyomas have been discovered incidentally during evaluation for dysphagia or during autopsy. The potential for malignant degeneration of leiomyomas is extremely small.<sup>(2)</sup>



**Fig. 1** Barium swallow shows tumour and achalasia cardia of the lower oesophagus.

Treatment is undertaken only if tumours are symptomatic or more than 5 cm in size. Surgery consists of enucleation for smaller tumours and oesophageal resection for the larger ones. Recently, minimally-invasive surgical procedures have been employed successfully by surgeons worldwide.<sup>(3)</sup> There are certain conditions that coexist with achalasia in the lower oesophagus, though leiomyomas coexisting with achalasia cardia is very rare.

## CASE REPORT

The patient was a 63-year old man who presented with dysphagia of 25 days duration. There was no obvious loss of weight, though he was mildly dehydrated and anaemic. Routine blood and urine investigations were done, which revealed a haemoglobin level of 8 g/dL. Other investigations were otherwise normal. Endoscopy showed proximal oesophageal dilation and narrowing at the distal end, with normal mucosa. The scope could not pass beyond this point. The

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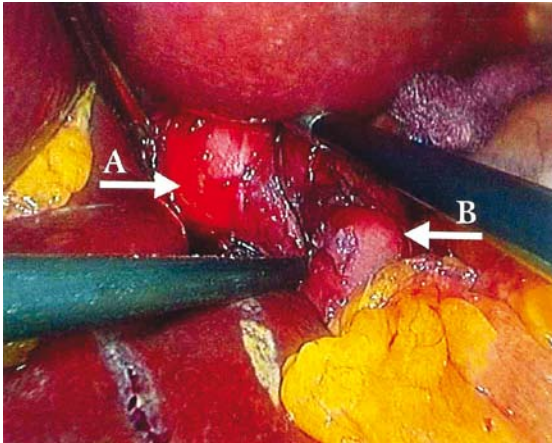
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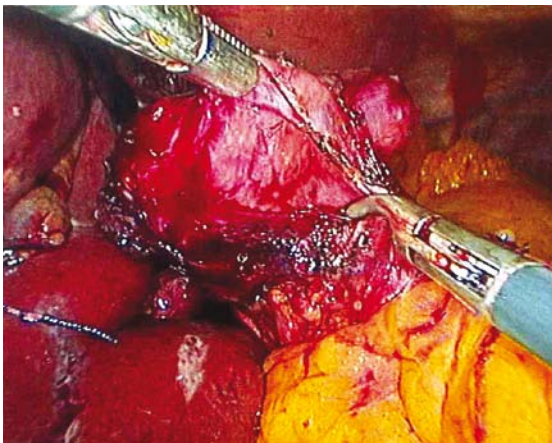
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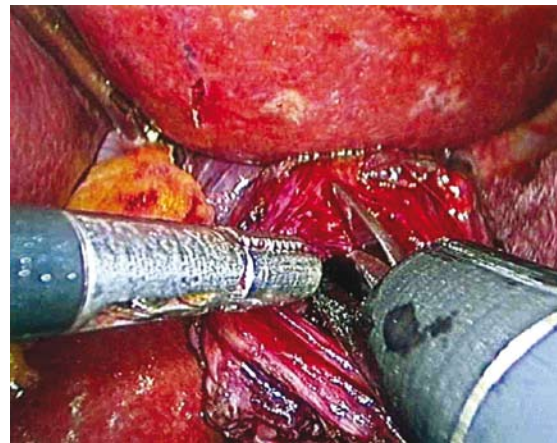
**Fig. 2** Endoscopic photograph shows transillumination with endoscopy light (A) and the tumour (B).



**Fig. 3** Endoscopic photograph shows umbilical tape around the gastro-oesophageal junction (A), dilated oesophagus (B) and leiomyoma (C).



**Fig. 4** Endoscopic photograph shows enucleation of tumour.



**Fig. 5** Endoscopic photograph shows cardiomyotomy using modified Sugarbaker's myotomy scissors.

endoscopic and manometry findings were thought to be consistent with achalasia cardia of the lower oesophageal segment. Barium swallow however showed a suspicious mass lesion just proximal to the narrowing (Fig. 1).

A laparoscopic approach was planned, as is routinely done for benign lower oesophageal tumours. The procedure was done under general anaesthesia with the patient in a semilithotomy, 25° reverse Trendelenburg position. Pneumoperitoneum was created using Veress needle and CO<sub>2</sub> was insufflated to a pressure of 12 mmHg. Five ports were used: a 10-mm port for the camera placed 3 cm above the umbilicus; a 10-mm port at the left midclavicular line (for right working hand); a 5-mm port (for left working hand) in right midclavicular line at the same level, a 5-mm port in the epigastrium for liver retraction; and a 5-mm port in the right lumbar area

for bowel retraction. The surgeon stood between the patient's legs. The camera surgeon stood on the right side and the scrub nurse stood on the left side of the patient. Dissection was commenced with the division of the gastrohepatic ligament. The peritoneum was divided till the level of the median arcuate ligament with a Harmonic scalpel (Ethicon Endosurgery, Cincinnati, OH, USA). The left crus was identified after lifting the oesophagogastric junction and the dissection was continued to expose the left crus completely which was then retracted to the left. The phreno-oesophageal ligament was opened in the anterior aspect and then divided. At this point after the abdominal oesophagus was mobilised, perioperative endoscopy was done to further aid in locating the tumour (Fig. 2).

A sling (umbilical tape) was then placed around the oesophagogastric junction. Traction on this

sling facilitated better exposure of the lower end of the oesophagus. The dissection of the abdominal oesophagus thus far is exactly similar to the dissection for fundoplication. The oesophagus was dissected laterally and anteriorly, and the anterior margin of the oesophageal hiatus was widened by a 2-cm incision. This exposed the mass that was then delivered into the peritoneal cavity (Fig. 3). The fibrous layer covering the mass was incised and the tumour was carefully separated from the oesophageal musculature. By careful blunt dissection, the whole mass was enucleated without injury to the mucosa (Fig. 4). The widened hiatus was repaired with ten polypropylene sutures. Heller's cardiomyotomy was then started using a modified Sugarbaker's myotomy scissors (Fig. 5). The myotomy was continued distally up to 2 cm past the oesophagogastric junction. Toupet fundoplication was performed by pulling the anterior fundus through the posterior window and fixing it to the right side of the divided muscle. The other side of the fundus was sutured to the left side of the divided muscle. The operative time was 100 minutes; blood loss was minimal and no transfusion was needed.

Nasogastric tube was kept for 24 hours, following which an oral contrast study was done, which showed no evidence of leak. Oral liquids were allowed on the morning of the third postoperative day (POD), followed by soft diet the next day. The patient was discharged on the sixth POD. The patient was followed up for five years, with endoscopy and manometry repeated every year. There was no recurrence of tumour or symptoms to date. Histologically, the tumour comprised bundles of interlacing smooth muscle cells, well-demarcated by a definitive connective tissue capsule. The tumour cells had truncated nuclei and showed no atypia with few mitotic figures. Immunohistochemical markers confirmed the diagnosis of leiomyoma.

## DISCUSSION

The coexistence of achalasia cardia with other conditions are rare but have been reported. Some of the examples are associations with gastric, pancreatic, oesophageal and liver cancers.<sup>(4-6)</sup> Mesotheliomas of the pleura are also known to coexist with achalasia cardia.<sup>(7)</sup> Hiatal and paraoesophageal hernias, lipoma and pancreatic pseudocyst are also known to coexist.<sup>(8-10)</sup> The coexistence of leiomyoma with achalasia cardia is very rare, the exact incidence is unknown, and there are not many reports in the literature. Leiomyoma can also mimic achalasia.<sup>(11)</sup> Another rarity is the curious condition called "oesophagovulvar syndrome", in which there is

leiomyoma of the vulva, diffuse oesophageal leiomyomatosis with pseudoachalasia.<sup>(12)</sup> Although leiomyomas of the oesophagus are the most common benign oesophageal tumour, they are still rare.

In our patient, the tumour was a leiomyoma from the lateral wall, which is the most common location. Barium swallow showed quite clearly the presence of both tumour and achalasia cardia at the lower oesophagus. Endoultrasonography is the preferred modality to be used in the evaluation process and should be employed early. Surgical excision (enucleation) is recommended for symptomatic leiomyomas and those greater than 5 cm. Traditionally, tumours of the middle third of the oesophagus are approached using a right thoracotomy; tumours in the distal third of the oesophagus are resected through a left thoracotomy, with all its associated morbidity.<sup>(13)</sup> While open surgical technique is still the mainstay of therapy for leiomyomas, combined oesophagoscopy and video-assisted resection (thoracoscopy) are being increasingly performed.<sup>(14,15)</sup> Jesic et al and Smith et al support the transhiatal approach for lower oesophageal tumours.<sup>(16,17)</sup> We, too, prefer the laparoscopic transhiatal approach for benign lower third lesions, and we have operated on ten cases to date. The lower oesophagus can easily be mobilised so that at least 5 cm of oesophagus lies in the abdomen. For our case, the hiatus was widened to provide adequate access into the mediastinum. A zero-degree telescope was used for this step of dissection. Using this method, these tumours could be quite easily removed. After removal of the tumour, the achalasia cardia was dealt with. Heller's myotomy with Toupet fundoplication was performed for him. The modified Sugarbaker's scissors is a very useful instrument for myotomy and we use it for all cases of achalasia cardia.

Some controversy exists regarding mucosal injury. If the mucosa has been opened during dissection, it is re-approximated, followed by closure of the longitudinal muscle to avoid decreasing the propulsive activity of the oesophageal body. Some authors have shown that large extramucosal defects may be left open without subsequent complications.<sup>(18)</sup> Our patient had progressive dysphagia, which was the reason for our decision to operate. The cause for the dysphagia could be due to the tumour or the achalasia cardia. Either way, the patient was relieved of the symptoms after surgery. Laparoscopic transhiatal enucleation of lower oesophageal leiomyomas and other benign tumours is a safe and effective operation. When combined with intraoperative oesophagoscopy, localising the tumour is easier. It has the advantage of avoiding thoracotomy or laparotomy and its associated morbidity.

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