Partial oesophagectomy for giant leiomyoma of the oesophagus: report of 7 cases

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Abstract

OBJECTIVES: Oesophageal leiomyoma is the most common benign tumour of the oesophagus. The incidence of leiomyomas larger than 10 cm, defined as giant oesophageal leiomyomas (GELs), has been reported in 17% of all cases. Although computed tomographic scan and endoscopy are usually useful for diagnosis, big and symptomatic masses located in the lower mediastinum remain both a diagnostic and therapeutic challenge.

METHODS: We describe our experience in the management of 7 patients (4 males and 3 females, with a mean age of 41 years) with GEL treated in our department. Radical resection was performed in all cases with partial oesophagectomy in order to relieve symptoms and to obtain a definitive diagnosis.

RESULTS: There was no perioperative mortality. The minimum diameter of the tumours was 15 cm and the maximum was 30 cm. Definitive histological examination confirmed the diagnosis of leiomyoma in all cases without any sign of malignancy. No major postoperative complications developed. Minor complications included partial abdominal wound dehiscence in 1 case, and retention of secretions requiring bronchoscopy in 2. The mean length of hospital stay was 12 days (ranging between 9 and 14 days). After a mean follow-up of 5.4 years (ranging between 12 and 2 years), no sign of recurrence was observed.

CONCLUSIONS: Whereas removal of small oesophageal leiomyomas can be performed by simple enucleation by conventional thoracotomy or video-assisted thoracoscopic surgery, partial oesophagectomy is often necessary for giant lesions. Since it is not possible preoperatively to distinguish GEL from leiomyosarcoma when metastases are absent, partial oesophageal resection is not to be considered an overtreatment and radical resection should always be planned. A gastric tube, in our experience employed as an oesophageal substitute, is effective and could reduce the risk of significant postoperative gastro-oesophageal reflux.

Keywords: Oesophageal benign tumours • Oesophagectomy • Oesophagus • Leiomyoma

INTRODUCTION

Leiomyomas are the most common benign tumours of the oesophagus [1]. They are slow-growing intramural lesions, usually located in the middle or lower portion of the oesophagus. Leiomyomas larger than 10 cm are defined as giant oesophageal leiomyomas (GELs) [1–4] and have been reported in 17% of all cases [3]. Although often asymptomatic, when symptoms occur because of their size, patients can present with dysphagia, regurgitation, retrosternal pain, pyrosis, gastrointestinal bleeding and weight loss [1–3]. No particular relationship has been found between symptoms and size or location of the tumour. Usually, barium swallow of the oesophagus, computed tomographic (CT) scan and endoscopy are useful for diagnosis. However, large and symptomatic masses of the lower mediastinum can represent a diagnostic and therapeutic challenge and a definitive diagnosis can be obtained only after surgery. Whereas removal of small oesophageal leiomyomas can be performed by simple enucleation by conventional thoracotomy or video-assisted thoracoscopic surgery, partial oesophagectomy is often necessary for such giant lesions. We describe our experience in the management of 7 cases of GEL treated in our department.

MATERIALS AND METHODS

Between January 2000 and December 2012, 7 cases of GEL underwent surgical treatment in our department. Four patients were male and 3 female with a mean age of 41 years (ranging 23–65 years). All patients presented with dysphagia and chest pain. Additional symptoms were superior belly distension in 3 cases, weight loss in 2 cases and heartburn in 2 cases. All patients received barium swallow roentgenography, oesophagoscopy and CT and/or magnetic
resonance nuclear scan (Fig. 1). Endoscopic ultrasonography was also done in all patients, suggesting the diagnosis of a stromal-cell tumour. GEL was located in the lower third of the oesophagus in 4 cases, while in the remaining 3, it was close to the oesophago-gastric junction. The shapes of tumours were multinodular-like in 4 cases, spiral-like in 2 cases and horseshoe-like in 1 case. In all cases, radical resection was planned. Surgery was accomplished under general anaesthesia with double lumen intubation. Epidural analgesia was used in all cases for postoperative pain control. In 3 cases, we did a median laparotomy first for gastric tube preparation, followed by a right thoracotomy (Fig. 2) for partial oesophagectomy, including the tumour mass and intrathoracic oesophago-gastric anastomosis. In the remaining 4 patients, we approached the tumour through a left thoracotomy: partial oesophagectomy was performed and restoration of the alimentary tract was obtained by partial tubulization of the stomach, accessing the abdomen through a radial incision of the diaphragm. We always identified vagus nerves and, when possible, we tried to spare them. Nevertheless, in 3 cases at least one of the vagus nerves was embedded in the tumour mass, and it was not spared. Intraoperatively, frozen sections were obtained in all patients, and they usually demonstrated a mesenchymal tumour. A gastric tube was prepared, after mobilization of the gastric fundus, using a linear stapler. An oesophago-gastric anastomosis was accomplished in 2 cases with a circular stapler and in the remaining cases with linear endoscopic 45 mm staplers [4].

RESULTS

There was no perioperative mortality. The minimum diameter of tumours was 15 cm and the maximum was 30 cm. The specimens revealed a mean weight of tumours of 650 g (ranging between 500 and 870 g). Definitive histological examination confirmed the
diagnosis of leiomyoma in all cases without any sign of malignancy. The resection margins and all lymph nodes removed were negative for tumour involvement. No major postoperative complications developed. Minor complications included partial abdominal wound abdominal in 1, and retention of secretions requiring fiberoptic bronchoscopy in 2. The mean length of hospital stay was 12 days (ranging between 9 and 14 days). After operation, all patients were able to eat a normal meal, free of dumping symptoms or diarrhoea. One patient developed gastro-oesophageal reflux controlled with a proton-pump inhibitor drug. After a mean follow-up of 5.4 years (ranging between 12 and 2 years), no sign of recurrence was observed.

DISCUSSION

Oesophageal leiomyomas account for 50–70% of benign oesophageal tumours [5]. The majority are small, asymptomatic and slow-growing. These tumours have been reported as being smaller than 5 cm in 49% of the patients, 5–9 cm in 33.7%, 10–14 cm in 12.2%, 15–19 cm in 2.5% and larger than 20 cm in 2.5% [3]. More than half are found in the lower third of the oesophagus, and one-third are found in the middle third of the oesophagus, reflecting the relative amount of smooth muscle present. More than 90% are intramural-extramucosal. Sub-serosal and polypoid intraluminal lesions are less common [6, 7]. Although malignant transformation is rare [8], cases of simultaneous leiomyoma and leiomyosarcoma have been described [9]. Needle aspiration biopsy usually does not accurately identify the nature of the lesion; therefore, malignancy can be ruled out only by resection, and complete and accurate histological examination. For these reasons, some authors suggest that a leiomyoma should be removed even in asymptomatic patients [1]. Oesophageal leiomyomas have been reported as being smaller than 10 cm in about 83% of cases. In these cases, the standard surgical approach is thoracotomy with enucleation without opening the mucosa. Also the video-assisted thoracoscopic approach has been successfully employed [1, 10]. Although sometimes GEL enucleation is possible and described in the literature [11], in the majority of cases, oesophageal resection might be necessary for several reasons: the mass is too large and adhesions between the tumour and oesophageal mucosa are extensive and tight, making enucleation without damaging the mucosa impossible; a circular growth pattern; unreparable mucosal lesion due to the attempts at tumour enucleation; tumour located across the oesophago-gastric junction; suspicion of malignancy. Resection for GEL is typically accomplished with oesophagectomy and gastric pull-up [2–13]. In this group of patients, we planned oesophagectomy on the basis of preoperative imaging. The option of enucleation of the tumour should obviously never be excluded but we believe that, in the presence of a large mass, it is preferable to be ready to approach it oncologically, especially if malignancy cannot be ruled out for certain. Intraoperative frozen sections can only partially rule out malignancy in the presence of a huge mass since simultaneous cases of leiomyoma and leiomyosarcoma have been reported [9]. In our series, we performed the operation through a left thoracotomy in 4 cases and partial gastric tubulization was achieved by opening the diaphragm with an intrathoracic anastomosis. In 3 patients with GEL located in the distal oesophagus and extending downwards across the cardia, we preferred to proceed to a median laparotomy first for better exposure of the intra-abdominal portion of the tumour. In such cases, usually the blood supply to the tumour is often remarkable, and this approach makes tumour dissection and its separation from the surrounding structures easier and safer. After gastric mobilization and partial tubulization of the stomach, we closed the abdomen and we proceeded to a right thoracotomy. Some authors [14] prefer the use of colon as an oesophageal substitute for treating GELS, especially when they are located in the upper third of the oesophagus, with the rationale of reducing complications related to acid reflux observed when the whole stomach is used for oesophageal replacement. In our experience, we observed symptomatic gastro-oesophageal reflux only in 1 patient, which was successfully controlled with increasing the dosage of proton-pump inhibitor drugs. We believe that gastric tubulization along the greater curve, at the expense of the fundus and gastric body, reduces gastric juice secretion. In addition, we usually left at least ≥6 cm of tubulized stomach under the diaphragm, as this method prevents significant gastro-oesophageal reflux [15]. In our opinion, the use of colon as an oesophageal substitute should be reserved only when stomach is not suitable. In conclusion, in the presence of GEL, since so far no clinical signs or preoperative diagnostic examination has been helpful to distinguish a benign from a malignant histology, a radical resection should not be considered an over-treatment and should always be planned. A gastric tube, employed in our experience as an oesophageal substitute, is effective and reduces the risk of significant gastro-oesophageal reflux.

Conflict of interest. none declared.

REFERENCES