Journal of Visceral Surgery (2015) 152, 321—324

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SURGICAL TECHNIQUE

Extra-mucosal enucleation of a giant circular leiomyoma of the middle esophagus

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Available online 24 October 2015

Introduction

Although being the most frequent benign neoplasm of the esophagus, leiomyoma represents only 1% of all esophageal masses. In the vast majority of cases it measures less than 5 cm, is asymptomatic and requires no treatment (if < 2 cm in diameter) or enucleation (if up to 8 cm) through minimally to invasive techniques (endoscopy, videothoracoscopy, videolaparoscopy or robotic-assisted excision). Only 5% of lesions is larger than 10 cm and causes frank symptoms: such tumors go under the name of giant esophageal leiomyomas (GELs). Performing enucleation for GELs, although feasible, proved to be less safe than for smaller leiomyomas. In GELs, in fact, the tract of mucosa left exposed by the iatrogenic muscular defect is often too large: on the one hand, if left uncovered, it is likely to develop pseudo-diverticulum and dysphagia, on the other hand, if treated with a primary closure of the muscular edges, this is supposed not to be tension-free thereby resulting in achalasia and dysphagia. To obviate such and other complications, two surgical options are generally recommended for GELs: esophageal resection and extra-mucosal enucleation combined with several techniques of plastic surgery for covering and buttressing the muscular defect. Esophagectomy is the intervention most frequently carried out and is undoubtedly preferable in the following situations:

- GEL > 10 cm in size;
- circumferential or horse shoe-like GEL;
- tight and extensive adhesions between GEL and the mucosa underlying and abutting on the tumor;
- multiple leiomyomas (less than 5% of cases);
- thoraco-abdominal extension across the cardia or involvement of the entire esophagus;
- extensively unrepairable mucosal injury occurred during whatsoever approach of enucleation;
- suspicion of leiomyosarcoma;
- progression of the giant tumor size.

Enteral continuity is generally restored accomplishing intrathoracic esophago-gastrostomy or colonic interposition. On the contrary, when opting for a wide extra-mucosal enucleation, the large tract of bare mucosa is buttressed by a slack reapproximation of the remaining muscular bundles and buttressed with a pedicled flap obtained from several tissues, such as omentum, pleura, pericardium and diaphragm. We present our 13 cm long extra-mucosal dissection and enucleation of a 12 × 10 cm circular giant leiomyoma of the middle esophagus reinforcing the bare mucosal tract with slack sutures of the muscular margins and sealing by right pleuroplasty.

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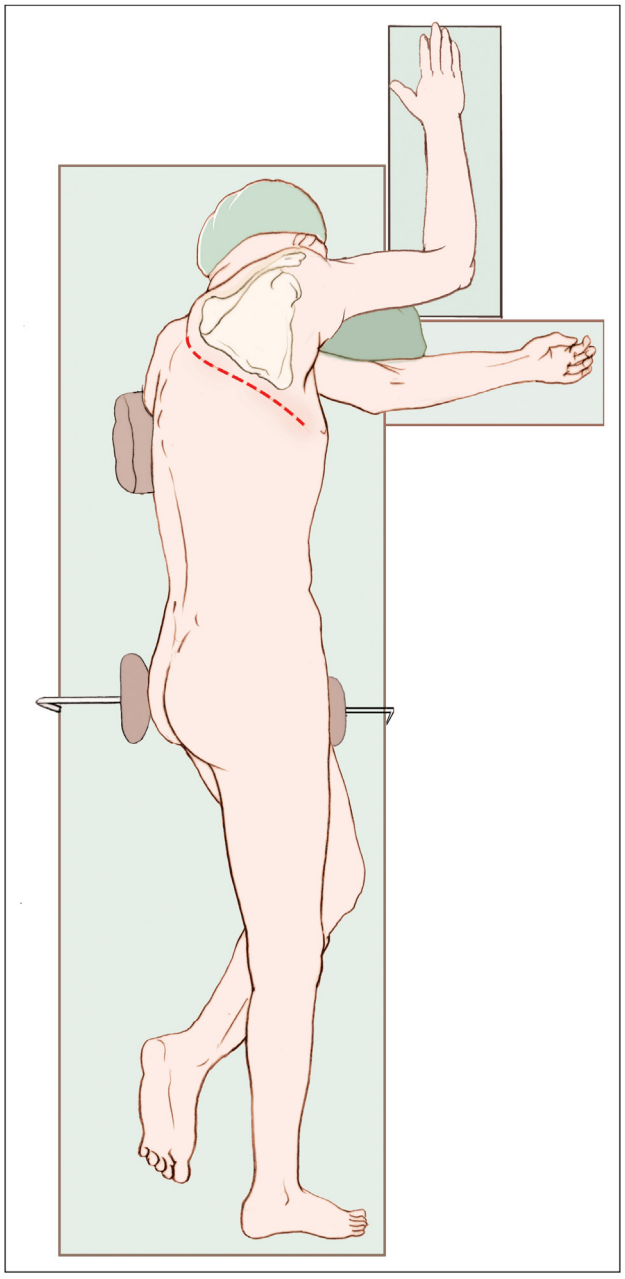
http://dx.doi.org/10.1016/j.jviscsurg.2015.07.002

1 Start of the intervention

The surgical procedure starts placing the patient with his left side up. A right posterolateral thoracotomy is conducted along the fourth intercostal space (red dotted line). A nasogastric tube is inserted before surgery is commenced.



2 Exploration of the operating field

After excluding the right lung from ventilation, dividing the inferior pulmonary ligament and cutting possible ahesions, the operating field becomes exposed. The mediastinal pleura is incised at the level of the tumor in the triangle of Truesdale (red dotted line) which has the diaphragm, pericardium and aorta as catheti.