

## THORACOSCOPIC ENUCLEATION OF A LARGE ESOPHAGEAL LEIOMYOMA

G Fourtanier, JP Duffas, G Di Mauro, F Muscari, B Suc

Service de Chirurgie Digestive. CHU de Toulouse Rangueil. 1,avenue Jean Poulhès. Toulouse

Email : fourtanier.g@chu-toulouse.fr

Minimally invasive surgery is nowadays widely used in thoracic surgery on the chest but also to esophagus. Benign esophageal tumors are usually considered as elective indications for thoracoscopy because of the nature of this pathology and the relative simplicity of its removal by means of an enucleation. Leiomyoma is the most frequent esophageal tumor (70-80%), well encapsulated and their removal is indicated not only when symptoms are present, but also to prevent a potential leiomyosarcoma. We report a clinical case to discuss the keypoints in the steps of the thoracoscopic enucleation.

### Case report

A 54-year-old man was followed in the Transplantation Unit for a kidney graft performed 4 years ago. He was totally asymptomatic but on a chest Xray there was a mediastinal abnormality. Chest CT scanning indicated an esophageal tumor characterised by uniform density and no sign of infiltration of nearby structures nor of mediastinal adenopathy. This was confirmed by an endoscopic ultrasonography which showed a hypoechogenic homogeneous tumor of the proper muscular layer of the esophagus localised between 29 and 35 cm and involving 50% of the esophageal circumference. Barium swallow study showed a large defect of the lower third of the esophagus.

Surgery was performed under general anesthesia; the patient was intubated with a double-lumen tube for single lung ventilation and positioned in the left lateral position. The camera port (10mm) was placed at the seventh intercostal space, mid axillary line. Two 5-mm trocars were placed, one at the ninth intercostal space, 2cm posterior to the posterior axillary line for the ultrasonic coagulating sheers and a needle-holder, and one posterior to the tip of the scapula for an atraumatic forceps. One 10-mm trocar was placed at the fourth intercostal space anteriorly for retraction of the lung. No pleural adhesion were observed and the tumor was immediately identified below the azygos vein. The mediastinal pleura was incised over the lesion; then the longitudinal muscular fibres of the esophagus were incised and the lesion was progressively enucleated by careful dissection using ultrasonic coagulation. Finally the tumor was inserted into a plastic bag and extracted through a short incision in the placement of the anterior trocar. We checked that the esophageal mucosal layer was intact using a methylen blue test. The proper muscular layer was closed with 3/0 Vicryl continuous suture. Two 28F chest tubes were inserted through the camera trocar and the anterior one, the other trocar sites were closed. A frozen biopsy indicated the diagnosis of a benign leiomyoma and was confirmed postoperatively by the analysis of the whole tumor.

The operative time was 130mn. The patient stayed 2 days in the intensive care unit until retrieval of the drains. A gastrografin swallow indicated the normality of the esophagus, thus permitting the oral feeding at the 3d postoperative day and the patient was discharged on the 6th postoperative day and no analgesics were required. He was followed 6 months later with no complications.

### Discussion

In recent years minimally invasive thoracoscopic surgery has been developed and accepted in the case of benign tumours. Thoracoscopic enucleation of an esophageal leiomyoma has been

described by several authors (2,4,5,6,7). Particularly significant is the relative simplicity of this approach compared with traditional thoracotomy.

Leiomyoma usually grow within the esophageal wall; nevertheless in our case the development of the tumor was on the external side of the esophagus. The tumor is usually asymptomatic and may be discovered incidentally as in this case. Conventional imaging techniques such as CT scanning, endoscopic ultrasound, barium swallow show clearly the characteristics of the lesion ; endoscopic biopsy specimens are unnecessary and they are contraindicated because of the risk of alteration of the cleavage planes. However a frozen section during thoracoscopy can be useful to eliminate a carcinoma.

Most authors agree that the tumor should be removed even in asymptomatic patients, not only to confirm the diagnosis but also to remove the mass before its growth increases the difficulty to perform an enucleation (5).

The approach through a right thoracoscopy is indicated even for a large tumor located on the left side of the esophagus because most of the esophagus is more readily accessible from the right. A benign tumor located at the left wall of the esophagus can be easily removed in passing two tapes around the esophagus to facilitate exposure and a good surgical view (7).

The placement of the trocars has to permit a good visualization of the thoracic space and the camera port is placed at the seventh intercostal space with two other ports for the hands of the surgeon, one at the ninth intercostals space and the other one posterior to the tip of the scapula, both 2cm posterior to the posterior axillary line(3). The right lung has to be collapsed and retracted through a fourth trocar placed at the fourth intercostals space anteriorly.

In our case the tumor was immediately seen under the azygos vein. In case of difficulty in recognizing the tumor and to identify the exact location an esophagoscopy can be performed. Thus transillumination of the fiberscope indicates the upper and lower ends of the tumor ; this reveals the plane between muscle and mucosa, and all the anatomical layers can be accurately visualized. In the same way, the presence of the endoscope stabilises the esophagus.

The dissection can be facilitated thanks to the ultrasonic coagulating sheers (Ultracision, Ethicon Endosurgery). However routine manoeuvres can become quite troublesome because of the lack of manual palpatory perception. We found the use of the bipolar forceps and a gauze for hemostasis and a clear operative field ; the suction is extremely helpful to dissect between the cleavage planes as well.

When the tumor has been removed it is extremely important to check the integrity of the mucosa by means of a methylene blue test or an intraoperative endoscopy (5).

The question of suturing the myotomy after having enucleated the tumour if the mucosa is intact is controversial but most of the authors agree on the reapproximation of the myotomy as we performed in our case. As a matter of fact the risk of developing an esophageal diverticulum has been described (1).

A thoracoscopic approach offers potential advantages compared with traditional thoracotomy including improved functional disability, reduced pain and improved respiratory function. This technique is applicable to all benign tumors of the esophagus, largely free of complications, safe to perform and of great benefit to the patient.

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