

## VATS lobectomy: summary of different available techniques

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Although the first video-assisted lobectomy was performed 20 years ago, the technique is far to have reached maturity. There are so many different reported techniques that one can almost say: "one surgeon – one technique". Actually, variations are not only about access (video-assisted or thoracoscopic with utility incision or full thoracoscopic without utility incision) but also about the type of im-

aging system, of scope (0° viewing or oblique viewing or use of a deflectable endoscope), of instrumentation (conventional or endoscopic or robotic). Differences also rest on the number of ports – ranging from a uniportal access<sup>1</sup> up to the use of four trocars<sup>2</sup> – and the operative strategy itself. Some advocate a classical posterior approach with a dissection similar to the one performed by thoracotomy with identification and isolation of PA branches in the fissure<sup>3</sup>, while many appeal to the anterior approach that is easier and faster since dissection of the pulmonary

artery branches within the fissure can sometimes be neglected<sup>4</sup>.

We will give an overview of the several reported techniques with their advantages and limitations. Eventually, it appears that most techniques of video-assisted and thoracoscopic lobectomy – when compared to open surgery – encompass a part of compromise. Compromises are related either to the hindered vision during some steps of the procedure, or to the lack of degrees of freedom of instruments which do not always allow accurate movements, or to the number or location of ports that

may limit reaching some targets. The consequences of these compromises are especially visible for lymph node dissection that is not always as radical and systematic than it uses to be during open surgery. Recently Boffa et al. have evaluated lymph node dissection by open and video-assisted approaches in 11,500 lung resections for cancer and demonstrated a significant variability in the completeness of peribronchial and hilar lymph node dissection<sup>5</sup>. Now that video-assisted and thoracoscopic major pulmonary resections are accepted as a valid alternative to thoracotomy and that

their number is raising worldwide, understanding what we are talking about becomes essential. We cannot expect a standardization of techniques but at least a standardization of definitions.

### References:

1. Gonzalez-Rivas D, de la Torre M, Fernandez R, Mosquera V. Single-port video-assisted thoracoscopic left upper lobectomy. *Interact Cardiovasc Thorac Surg* 2011;13:539-41.
2. Gosso D. Atlas of endoscopic major pulmonary resections. Springer-Verlag 2010.
3. Richards J, Dunning J, Oparka J, Carmochan F, Walker W. Video-assisted thoracoscopic lobectomy: the Edinburgh posterior approach. *Ann Cardiothorac Surg* 2012;1:61-9.
4. Hansen HJ, Petersen RH, Christensen M. Video-assisted thoracoscopic surgery (VATS) lobectomy using a standardized anterior approach. *SurgEndosc* 2011;25:1263-9.
5. Boffa D, Kosinski A, Paul S, Mitchell J, Orainis M. Lymphnode evaluation by open or video-assisted approaches in 11500 antihemic lung cancer resections. *Ann Thorac Surg* 2012;94:347-53.



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## VATS resection of mediastinal tumors: live-in-box and results

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Doctor Marcin Zieliński and colleagues from the Pulmonary Hospital, Zakopane, Poland described their experience regarding the use of video-assisted-thoracic surgery (VATS) resection of mediastinal tumors. They used several VATS techniques for resection of the mediastinal tumors. The standard VATS utilizes 1-4 small incisions used for VATS ports optionally combined with 3-7 centimeter utility incision without retraction of the ribs to limit the intensiveness of the postoperative pain. The other types of VATS approach utilize subxiphoid incision and cervical incision with elevation of the sternum or the proce-

dures combining those approaches. Transcervical extended approach utilizes a typical a 5-8 centimeters collar incision in the neck. The critical technical point enabling a wide access to the chest is an elevation of the sternal manubrium with a special retractor (modified Rochard frame, Aesculap-Chifa Company). A bilateral visualization of the laryngeal recurrent and vagus nerves is usually performed to avoid injury of these structures. A subxiphoid transverse is performed over the insertion of the xiphoid process to the sternum with optional resection of this process. A sternal retractor connected to the firm frame with a double traction mechanism (a modified Munster system, Rochard frame, Aesculap-Chifa, Nowy Tomysl, Poland) was inserted under the manubrium and the lower angle of the sternum to elevate it several centimeters to provide access to the anterior mediastinum.

From 1.9.2000 to 20.9.2012 there were 258 minimally invasive operations for the mediastinal tumors. There were 17 typical VATS unilateral procedures for the various types of tumors, mainly localized in the lower

and posterior mediastinum. The patients with early stage thymomas and the other thymic tumors were operated on with use of the transcervical-subxiphoid-VATS approach or subxiphoid-unilateral VATS. In the vast majority of patients (186 patients) the extended transcervical approach was used, mainly for the tumors localized in the superior mediastinum, including primary mediastinal tumors (anterior, middle and posterior mediastinum), mediastinal cysts, ectopic mediastinal goiters and mediastinal metastases of the thyroid cancer and the other types of cancer. There was no mortality and 5% morbidity. In 3 patients operated on with transcervical approach conversion to sternotomy was necessary due to the technical reasons. There was a complete radical tumor resection in 249 (96.5%) patients and in nine patients with extensive tumors non radical resection was performed. The authors concluded that the minimally invasive VATS techniques combining standard intercostal, transcervical and subxiphoid approaches proved to be highly effective in resection of the mediastinal tumors.