



An update in minimally invasive thoracic surgery for oncological disease

During the last three decades, there was a large diffusion of the minimally invasive surgery. Innovative procedures, expanded indications, introduction of new devices and instrumentations have brought to the increasing use of less invasive surgical thoracic techniques: video-assisted thoracic surgery (VATS) and robotic thoracic surgery have gained popularity and have been largely adopted for the treatment of both benign and oncological disease (1-5).

If compared with open surgery, both these two less invasive techniques have shown enormous advantages for the patient in terms of pain reduction, fewer intra- and post-operative complications (decrease rate of blood loss, blood transfusion, air leak, chest tube duration), shorter postoperative stay, and mortality compared with thoracotomy (6-8). However, controversy persists regarding the oncologic equivalence to open surgery (1-4).

From the oncological point of view, few retrospective studies have hitherto evaluated oncological outcomes in terms of long-term survival showing acceptable results compared with VATS and open surgery (8-13). However, to date no prospective, randomized study exists regarding whether oncologic data (overall survival, local recurrence rate, and disease-free survival) after VATS or robotic-assisted lobectomy are equivalent to those after open lobectomy among patients with early stage lung cancer. There is a need to start a randomized, prospective study that evaluates these important outcomes in order to definitively establish the role of minimally invasive surgery versus open surgery hoping not to fall into what happened in the gynecologic domain in which recent authoritative trials have shown the detrimental role of less invasive techniques compared to open surgery in the treatment of early cervical cancer (14,15).

Between VATS and robotic assisted surgery, some important differences exist: VATS has a limited field of view (two-dimensional imaging), a restricted freedom of movements, and a poor ergonomics making VATS lobectomy a demanding procedure with a potentially long-learning curve for surgeons.

Robotic approach offers comparable radicality and safety to VATS and open surgery. The high-definition three-dimensional vision, greater flexibility and a more intuitive movements overcome limitations of VATS and may encourage wider adoption of robotic surgery for the surgical treatment of lung cancer, above all cases with early stage disease.

Some limitations in the diffusion and adoption of robotic surgical techniques remain to be overcome: high capital and running costs, limited instruments availability, and a more longer operating time represents the main and important disadvantages (5,16). The entry of competitive alternatives into the marketplace should drive down costs allowing extending the use of robotic techniques and overcoming the cost limits.

This Special Issue of Minimally Invasive Thoracic Oncological Surgery (MITOS) attempts to point out some of most important topics in this field: history and development, technical aspects, innovations, oncological results and economic are presented and discussed by eminent experts in minimally invasive approaches.

Their large experience and acute observations will lead to a wider and clearer understanding of these techniques encouraging people who face on the surgical treatment of lung cancer to adopt them more and more in their daily surgical practice.

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