Editorial

Locoregional recurrence after VATS surgery for NSCLC

Pierre-Emmanuel Falcoz, Gilbert Massard

Department of Thoracic Surgery, University Hospital, Strasbourg, France

Correspondence to: Pierre-Emmanuel Falcoz. Department of Thoracic Surgery, Strasbourg University Hospital, 67091 Strasbourg Cedex, France. Email: pierre-emmanuel.falcoz@wanadoo.fr.

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Comment on: Haruki T, Miwa K, Araki K, *et al*. Distribution and Prevalence of Locoregional Recurrence after Video-Assisted Thoracoscopic Surgery for Primary Lung Cancer. Thorac Cardiovasc Surg 2016;64:526-32.

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In the present article, Doctor Haruki and associates (1) seek to address the very invigorating question of the distribution and prevalence of locoregional recurrence after video-assisted thoracoscopic surgery (VATS). This remarkable work not only contributes to a deeper understanding of the patterns of recurrence, but also questions some of the traditional and prominent surgical dogmas in the area of VATS lung resection for primary lung cancer.

For this purpose, the authors retrospectively reviewed 248 patients with primary lung cancer submitted to scheduled VATS lobectomy or segmentectomy (with mediastinal lymph node dissection) in their department, over a 7 years period (January 2005–December 2011). The results showed that there were 47 cases of postoperative recurrences among the 248 included patients. They were classified as follows: 26 distant, 6 locoregional and distant, and 15 locoregional recurrences. The rate of locoregional recurrences was 6.0%. Of these 15 cases, 2 concerned the bronchial stump and lung parenchyma transsection line (0.4%), five the ipsilateral pleura (2.0%), and 8 recurred within ipsilateral hilar and mediastinal lymph nodes (3.2%). Univariate analysis showed 3 variables to be significant associated factors for locoregional recurrence: pleural invasion (P=0.02), lymphovascular invasion (P=0.04), and pathological stage I *vs.* ≥ II (P<0.01). Multivariate analysis revealed that advanced stages remained the only significant associated factors for locoregional recurrence (P<0.01, OR: 3.3). Finally, the authors concluded that although their observed locoregional recurrence rate appears as acceptable—and within the range of data reported in the available international medical literature—they should explore more effective treatment modalities against histologically proven locally advanced lung cancer to prevent not only distant metastases, but also locoregional recurrences.

Locoregional recurrences are frequently used as endpoint (primary or more often secondary) for outcomes analysis and are currently considered as indirect indicators for quality of care in breast cancer surgery: not only quality of surgical treatment given to the patient, but also subsequent quality of life following surgery (2,3). However, in the specific framework of thoracic surgery, a limited number of studies have addressed the interesting, but seldom debated question of patters of recurrence during the past decade. Most of the latter have been single institutions' series (4-8). This innovative article is most timely and helps to clarify some of the controversies about oncologic efficacy and technical quality of operation. Its main findings might have a relevant impact on patients' management in the near future.

Concerning factors of recurrence, we currently know that the issue is not whether to perform a VATS or a thoracotomy—we have enough evidence and this debate seems outdated! (9-11)—but how to decrease postoperative recurrence rate and which armamentarium we could use for this purpose. The authors nicely indicate paths for reflection and action. To summarize, the cornerstone is strict compliance to some well-established fundamental surgical rules (12). For example, the operative specimen should be manipulated with caution in order to lower the risk of dissemination (avoid use of lung grasping forceps;

retrieve specimen with a protection bag); perform routine frozen section analysis of the bronchial resection margin; dissect lymph nodes very carefully, without severing the capsula and strive to an en-bloc removal. No compromise towards basic oncological principles should be tolerated. In each situation where they might be questionable, a conversion to open thoracotomy should be undertaken.

The current contribution shows an essential way to explore, the prognostic impact of the extent of lymph node dissection in early stage lung cancer. Although Ichinose *et al*. and Maniwa *et al*. in their retrospective studies (9,13), recently followed by Adachi in a propensity score matching analysis (14), have shown that lobe-specific lymphadenectomy for clinical stage I lung cancer was safe and resulted in acceptable locoregional control, the extent of lymph node dissection is still a matter of controversy. The manuscript of Mordant *et al*. might be helpful in this context (15). It sheds light on the key prognostic role of the location of pN1 lymph nodes in case of multi-station disease, and of the number of metastatic stations. Survival of multi-station N1 disease was comparable to the survival of skip N2 (single station N0–N2) disease, and significantly worse than single-station N1 disease. We should also remind that the N1 category *per se* is mixing up 2 subcategories with sharply differing prognosis: survival of intra-lobar N1 mirrors the lower range of survival for stage I, while prognosis of extralobar N1 is in the higher range of stage IIIA (16,17). Future works focusing on the extent of lymph node dissection should also address definition of guidelines in order to reduce the part of locoregional recurrences which are in the reach of optimized surgical care.

Another critical aspect is multidisciplinary interaction. We know that radiation therapy may improve local control, but is subjected to some toxicity and increased complications in case of redo surgery. The effect of adjuvant chemotherapy is unfortunately marginal only, and unlikely to compensate for incomplete resection. Targeted therapies and anti-angiogenic medications are not recommended, and there is no information available about immunotherapy (18,19). The relatively low contribution of adjuvant therapies to long-term survival places a strong accent onto quality requirements of surgical care.

For the time being, Doctor Haruki and associates are to be congratulated on their investigations in this area. Their results will certainly prove to be most beneficial to the thoracic surgery community from the standpoint of medical care and affect future patient management.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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