

Sampling versus systematic full lymphatic dissection in surgical treatment of non-small cell lung cancer

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Abstract

The extent of mediastinal lymph node assessment during surgery for non-small cell cancer remains controversial. Different techniques are used, ranging from simple visual inspection of the unopened mediastinum to an extended bilateral lymph node dissection. Furthermore, different terms are used to define these techniques. Sampling is the removal of one or more lymph nodes under the guidance of pre-operative findings. Systematic (full) nodal dissection is the removal of all mediastinal tissue containing the lymph nodes systematically within anatomical landmarks. A Medline search was conducted to identify articles in the English language that addressed the role of mediastinal lymph node resection in the treatment of non-small cell lung cancer. Opinions as to the reasons for favoring full lymphatic dissection include complete resection, improved nodal staging and better local control due to resection of undetected micrometastasis. Arguments against routine full lymphatic dissection are increased morbidity, increase in operative time, and lack of evidence of improved survival. For complete resection of non-small cell lung cancer, many authors recommend a systematic nodal dissection as the standard approach during surgery, and suggest that this provides both adequate nodal staging and guarantees complete resection. Whether extending the lymph node dissection influences survival or recurrence rate is still not known. There are valid arguments in

favor in terms not only of an improved local control but also of an improved long-term survival. However, the impact of lymph node dissection on long-term survival should be further assessed by large-scale multicenter randomized trials.

Introduction

The prognosis of lung cancer patients remains poor, and one of the targets of surgical treatment is to achieve radical (R0) excision and the most accurate staging. Among intra-operative findings, the role of lymph node involvement remains fundamental for these targets to be achieved.

The optimum extent of lymphadenectomy remains controversial. The purpose of this review is to evaluate the effectiveness of mediastinal lymph node dissection (MLND) versus sampling (MLNS) in staging accuracy, the overall survival and the impact of the procedure on mortality and morbidity in patients with non-small cell lung cancer (NSCLC).

In 2004, the council of the European Society of Thoracic Surgeons set up a workshop to standardize definitions and surgical procedures regarding lymph node dissection in NSCLC patients.¹

According to these guidelines, *lymph node sampling (LNS)* is the removal of one or more lymph nodes that are thought to be representative; removal is guided by pre-operative or intra-operative findings. In order to select the suspicious lymph node, the surgeon focuses on the macroscopic appearance and visual and tactile evaluation, frequently through an unopened mediastinal pleura. *Systematic sampling* means that the surgeon performs routine pre-determined selection of lymph nodes at specific levels.

Systematic nodal dissection (LND) is the procedure of complete removal of the mediastinal tissue containing the lymph nodes, in a systematic manner within anatomical landmarks. Besides the mediastinal lymph nodes, dissection of the hilar and the intrapulmonary lymph nodes completes the resection. The technique ideally demands *en bloc* removal of all tissue that may contain cancer cells, including lymph nodes and surrounding fatty tissue with anatomic landmarks, as well the trachea, bronchus, superior vena cava, the aorta and its branches, pulmonary vessels, and pericardium.

Methods of research

A Medline search was conducted to identify articles in the English language that address the role of mediastinal lymph node resection in the treatment of NSCLC. Search terms included: lung, cancer, medi-

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