



## ***En bloc* has the priority of lymph node dissection regardless non-grasping or grasping approaches**

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Lung cancer is classified according to the TNM system, which codes the anatomic extent of the disease and is the most important prognosticator we have to date. The anatomical extent is described in terms of three components: the extent of the primary tumor (T), the status of regional lymph nodes (N), and presence or absence of distant metastasis (M). The regional lymph nodes for lung cancer are pulmonary (subsegmental, segmental, lobar, interlobar and hilar), mediastinal (upper paratracheal, prevascular, retrotracheal, lower paratracheal, subaortic, para-aortic, subcarinal, paraesophageal and pulmonary ligament) and supraclavicular lymph nodes (1). Nodal status is considered to be one of the most reliable indicators of the prognosis in patients with lung cancer and thus is indispensable in determining the optimal therapeutic options (2). The IASLC recommends performing a systematic nodal dissection or a lobe-specific systematic nodal dissection for the proper pathological lymph node staging and to fulfill the requirements for complete resection (3). Systematic nodal dissection can disclose additional patients who are found to have lymph node metastases that were missed at sampling. A meticulous lymph node dissection does not cure cancer but amends cancer treatment by offering accurate staging.

Systematic nodal dissection is the removal of the mediastinal lymph nodes, which should be followed by hilar and intrapulmonary nodal dissection. Lobe-specific systematic nodal dissection consists of the removal of certain mediastinal lymph node stations, depending on the lobar location of the primary tumor (3). Usually, when systematic lymph node dissection is performed, the lymph nodes are dissected “en bloc” together with surrounding adipose tissue as a lump. In any nodal station, the surgeon should

follow the landmarks surrounding the nodes. Anatomic definitions with anatomic limits for each lymph node station were proposed by the IASLC and published on AJCC Cancer Staging Manual (1). The dissection should follow natural reflections and the soft structures in the border of those anatomical limits, as well as the trachea, bronchus, azygos vein, superior vena cava, aorta, innominate artery, pulmonary vessels, pericardium and esophagus.

Dr. Ma *et al.* described the right side mediastinal lymph node dissection dealing with stations 2R, 4R and 7 by video-assisted thoracoscopic surgery (VATS) with video in this issue (4). Mediastinal lymph node dissection through VATS had been under criticism on its incompleteness. The developments of the thoracoscope itself and surgical devices have closed debate. Magnified view and operability in narrow spaces makes VATS for easy and safe mediastinal lymph node dissection. In the video, the authors focused on dissecting the total fat pad located among the anatomic landmarks of each station as a packet, “en bloc”. The authors also emphasized the non-grasping strategy by using an endoscopic suction for retracting the target mediastinal lymph nodes. The many kinds of devices such as forceps, a peanut dissector, a spatula and also a suction including an endoscopic suction are used as a retractor during dissection. The use of an endoscopic suction as a retractor in VATS is common and familiar for surgeons. The authors used an endoscopic suction not for retracting anatomical landmarks but for retracting mediastinal lymph nodes. The authors named it “non-grasping” en bloc dissection as a novel approach. To avoid cutting or crushing the target mediastinal lymph nodes is a minimum agreement for any surgeon. Surgeons should pay attentions to avoid

smashing lymph nodes which may cause dissemination of tumor cells if the node is involved. Most surgeons grasp the connective tissue surrounding the fat pad including lymph nodes for separating from the anatomical limits, such as the trachea, bronchus, azygos vein, superior vena cava, aorta, innominate artery, pulmonary vessels, pericardium and esophagus, shown in the video. The priority exists on *en bloc* removal of all tissue that may contain cancer cells, including lymph nodes and surrounding fatty tissue within anatomical landmarks, regardless of grasping maneuver or non-grasping, retracting maneuver.

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### Footnote

*Conflicts of Interest:* The author has no conflicts of interest to declare.

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