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Mediastinal Lymphadenectomy improves survival. Evidence from a systematic review of surgery for NSCLC

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**Objectives:** To compare the effectiveness of different surgical approaches in improving disease-specific mortality in patients with stages I to IIIA non-small cell lung cancer (NSCLC).

**Methods:** A systematic review of randomised controlled trials of surgery for non-small cell lung cancer was undertaken. Studies were identified from electronic databases, bibliographies, hand searching of a journal and discussion with experts.

**Results:** In pooled analysis of 848 patients in three trials (figure 1), 4-year survival was superior in patients undergoing resection with stage I to IIIA NSCLC who had complete mediastinal lymph node dissection compared with lymph node sampling; the hazard ratio estimated at 0.78 (95% CI: 0.65-0.93). 30-day mortality was no different between the arms (p=0.84).

A single study compared 5-year survival in 100 patients randomised to VATS versus conventional lobectomy in patients with clinical stage IA NSCLC and showed no difference in 5-year survival (90% vs. 85%, p=0.46).

A further trial found an increased rate of local recurrence in patients with stage I NSCLC treated with limited resection compared with lobectomy (RR 2.84, p=0.007).

**Conclusions:** Current evidence suggests that complete mediastinal lymph node dissection is associated with improved survival compared with node sampling in patients with stage I to IIIA NSCLC undergoing resection. Limited resection (less than lobectomy) is associated with a higher rate of loco-regional recurrence and a non-significant trend to poorer survival. This has implications for the accepted standard of care for resectable NSCLC.

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Previously blocking both pulmonary artery and veins for surgical treatment of stage III central lung cancer

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**Objective:** To investigate the feasibility of previously blocking both pulmonary artery and veins for surgical treatment of central lung cancer with stage III to preserve the normal function of pulmonary tissue.

**Methods:** Firstly, the relation of the pulmonary artery, the lung neoplasm and the enlarged mediastinal lymph nodes was investigated. If the hilum of lung remained freezing stably, the pericardium was opened and the pulmonary artery, the upper and lower lobe pulmonary veins were divided. Then those three vessels were blocked to prevent the blood from flowing from the pulmonary artery or refluence of the left atrium. When the pulmonary circulation was stopped, bloodless lobectomy and pulmonary artery angioplasty and/or anastomosis were performed. Then the blockers were removed, and pulmonary circulation was recovered. The time of blocking pulmonary artery and veins were 46±2.5 minutes (20-72 minutes) and 35±1.5 minutes (16-66 minutes) respectively.

**Results:** All 20 patients suffer from central lung cancer with stage III, whose the hila of lung remained freezing stably, received complete resection of the tumor. The normal function of pulmonary tissue in the 20 patients was preserved, and the pneumonectomy did not need to perform. The average amount of bleeding was 256ml(180-420ml) during operation. All 20 patients have recovered well.

**Conclusions:** Previously blocking both pulmonary artery and veins for surgical treatment of central lung cancer with stage III is an innovation in surgical technique, which makes the operation safely and easily. This technique provides a chance to some patients, whose cardio-pulmonary function is too poor to tolerate pneumonectomy, to receive surgical treatments. Also, this technique widens the surgical indications for patients suffer from lung cancer.

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Pulmonary artery reconstruction for lung cancer; is this procedure safe and useful?

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**Background:** Bronchoplasty for lung cancer has been widely accepted and become a reliable and safe procedure to preserve lung function. However, pulmonary angioplastics procedure is seldom to be done and there have been only a few reports about pulmonary vascular reconstruction. In order to identify the safety and the usefulness of the pulmonary angioplastics procedure with or without bronchoplasty, we retrospectively reviewed patients medical records in our institution.

**Patients and Methods:** Between January 1998 and February 2007, 16 cases of pulmonary artery reconstruction were performed. The data were collected from the patient records retrospectively and analyzed. There were three female and 13 male patients, with a mean age of 68 years old (range, 44-85 years). Four cases received concurrent chemoradiotherapy prior to surgery and one case received induction chemotherapy. Bronchial anastomoses were covered with intercostal muscle flap or pericardial fat tissue in these patients with induction therapy.

**Results:** Nine cases were adenocarcinoma, and 7 cases were squamous cell carcinoma. Lung cancer located on left upper lobe in 9 cases, right upper lobe in 3 cases, right middle lobe in 2 cases, and right lower lobe in 2 cases, respectively. Three patients underwent bronchoplasty with pulmonary artery reconstruction. Mean operative time was 277±58 minutes and mean blood loss during operation was 497±450g. Post operative complications were seen in 7 cases (44%), including atelectasis in 3 cases, arrhythmia in 3 cases, pneumonia in 2 cases, pneumothorax in 1 case, and post operative bleeding combined with cerebral infarc-