Editorial

Carinal resection and sleeve pneumonectomy

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Carinal pneumonectomy and carina resection are one of the special technical operative dilemma in the field of chest surgery. The most common indication for these extended resections is bronchogenic carcinoma. The morbidity and mortality rate in these operations is higher compared to standard thoracic surgical procedures (1,2). These patients should be assessed carefully before the operation. They should undergo extensive cardiac and pulmonary evaluation, including spirometry, carbon monoxide diffusion capacity, and quantitative ventilation perfusion scanning. Echocardiography to assess right ventricular function and measure pulmonary artery pressure, and assessment of left ventricular function should be done as a part of cardiac evaluation. Bronchoscopy is also an important part of the preoperative patient evaluation. Mediastinoscopy is an important diagnostic tool to rule out mediastinal lymph node involvement. In addition, this method is recommended to all cases who are candidates for potential carina resection or carinal sleeve pneumonectomy. Other than to verify the mediastinal lymph node staging, mediastinoscopy is also valuable in demonstrating extend of extra luminal spread of the lesion. Almost all of the authors agree to perform the mediastinoscopy during the planned surgery. The reason for this is to avoid fibrosis after mediastinoscopy which might make the resection and reconstruction procedure extremely difficult. Absolute contraindications for carina pneumonectomy include inadequate lung function, impaired cardiac function with pulmonary hypertension. Major operative challenges have been reported to include the preparation of the trachea and main bronchi, the resection of the carina and the reconstruction of the trachea and bronchus (3). Furthermore, securing adequate patients gas exchange either by cross-field ventilation, jet ventilation or extracorporeal membrane oxygenation (ECMO) requires special knowledge and expertise. In our center, we prefer jet ventilation; however, ECMO use is also an excellent tool in such cases. An important decision-making in these "extended resections" is the extend of resection and a tension free anastomosis (2). This requires also the knowledge release maneuvers such as hilar and laryngeal release. In these patients, extubation is more often performed in the operating room after completion of surgery. The anastomosis is controlled with flexible bronchoscopy. This also helps to clear the endobronchial secretions. The postoperative bronchial clearance of secretion should be preferentially treated with chest physiotherapy. Mini-tracheotomy can be performed in selected cases who have increased sections (1-3). Epidural anesthesia, paracetamol and metamizole are generally used for postoperative pain management. We recommend antibiotic prophylaxis for seven days. In this issue of *Shanghai Chest*, Terra *et al.* wrote a review article on carinal resection (4). They stressed the importance of tension-free anastomosis and release maneuvers. For this it is very important to assess the extent of resection before the operation in order to prevent an anastomosis under tension and to put the patient in danger. The procedure is rare even in high volume centers, only few surgeons have relevant experience. Although the technique is well known, the incidence of high postoperative complication rate makes this type of procedures more challenging not only for the patient but also for the surgeon (2). In order to have a complete review an outcome data would have been an important statement. Although we make an accurate patient selection and precise surgical technique, complications might be seen after a carina resection and carinal pneumonectomy. The rate of mortality after carina resection varies between 3% to 20% with an overall complication rate of 11% to 50% (2). With

careful patient selection, improved anesthetic management, accurate surgical technique, with optimal postoperative patient care could be the important factors to minimize the rate of postoperative complications and mortality. Finally, these patients should be managed in high volume clinics that have expertise in this unique patient group.

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