

CONCOMITANT CARDIAC AND PULMONARY SURGERY



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The topic for simultaneous cardiac and thoracic operations remain controversial. Combined treatment protocols present benefits derogating pain, duration of hospitalization and incision number with better results [1]. Nevertheless, reluctance has been common for combined surgical protocols in the historical period. Probably, coagulation problems due to cardiopulmonary bypass [CPB] and heparinization and the difficulty of exposure via median sternotomy plays a role in this situation [2]. There is also debate about precise resection and staging of tumor from sternotomy incision [3]. If a staged approach should be planned, operations should be performed with sequence. If pulmonary resection will follow heart surgery, minimum interval should be 6 weeks for complete sternal healing. Besides, if pulmonary resection [minimally invasive techniques, i.e. Video Assisted Thoracoscopic Surgery (VATS)] will be performed in an earlier stage than cardiac surgery, a few weeks interval may be enough. Combined surgical protocols range from pectus deformities to lung cancer resection accompanying a major cardiac operation [4-5].

Cardiac operations without pump, called “off pump” and on pump procedures, are discussed in this chapter. Since, conventional Coronary Artery By-pass Grafting (CABG) combined with pulmonary resection has an increased risk of morbidity and mortality, off pump CABG (OPCABG)

seems to be more appropriate for patients requiring concomitant cardiac and thoracic operations [6].

PRESENTATION

Patients with unstable angina and lung cancer have high surgical risk if pulmonary resection is performed in an earlier stage. Simultaneous operation for heart and lung can decrease this risk and prevent the delay in lung cancer treatment. Number of patients referred for cardiothoracic operations is about 0.4%. However, this number should be higher, because approximately 10% of lung cancer patients have ischemic heart disease [6].

However, combined heart and pulmonary surgery is sometimes problematic for elderly population and patients with comorbidity factors [1]. Cos, combined surgical interventions increase the risk of bleeding in postoperative period due to heparinization and cardiopulmonary bypass, activate systemic inflammatory response, disturbs immune response, increases the risk of edema in residual lung and disrupts healing of bronchial stump [2]. CPB can also cause dissemination of malignant cells [6].

Today, although coronaroplasty and stenting are applicable for oncology patients, it is actually not a safe procedure in patients referred for lung resection, due to the risk of postoperative bleed-

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It's possible to take biopsy from 2.,3. and 4. numbered lymphadenopathies (N2) between vena cava superior and aorta with sternotomy. This procedure ensures the decision of procedure of the continuation of the surgery. Also, total dissection of 10,11 numbered lymphadenopathies (5.-6. in left) can be completed with sternotomy. Number 7 lymph node station can be reached after pulling aorta and lateral branches of vena cava superior and retracting pulmonary artery inferiorly. Additional chemotherapy should be considered if enlarged lymphadenopathies can't be extracted. Hemostasis should be supplied carefully if LAP dissection is performed during cardiac pump stage.

One basal and one apical chest tubes are generally placed in thorax after controlling air leak and bleeding carefully. Inferior pulmonary ligament should be liberalised for complete filling of the thorax by the lung. Single chest tube is placed for pneumonectomy patients. Drain should be placed in pericardium carefully, complications related to drain should be controlled to empty thoracic cavity in cases of mediastinal shift. Withdrawal of chest tubes should be realised according to the standard protocol.

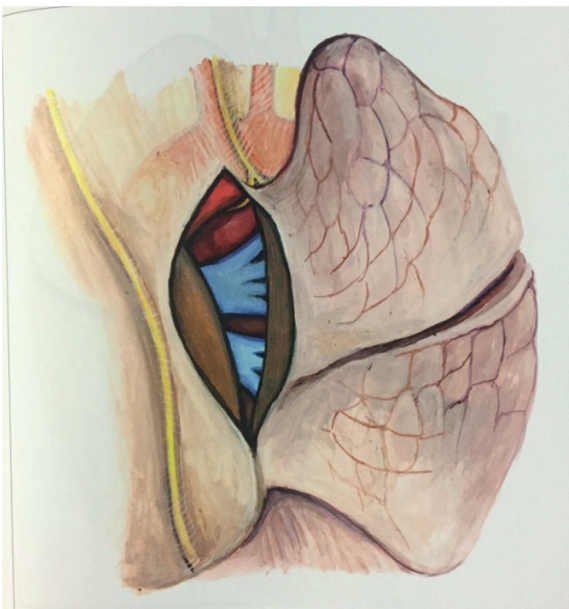


Figure 5: Exposure of left hilum (From Jaroslaw Kuzdzal, ESTS Textbook of Thoracic Surgery, open lobectomy, ch.55.4, with permission)

Complication rates are lower in postoperative stage of OPCABG surgery compared to on pump CABG surgery. Liquid replacement should be especially limited in on pump CABG surgery. Forced diuresis should be added to treatment in pneumonectomy patients. Physical treatment should be performed carefully.

MORBIDITY AND MORTALITY

Most of the standard pulmonary resection cases can be performed technically and simultaneously with cardiac surgery via median sternotomy with similar complication rates with lateral thoracotomy. In fact, it offers less postoperative pain, less decrease in pulmonary functions, better aesthetic with single incision and lower morbidity rates. Thus, long term mortality depends on reasons related to lung cancer frequently. Mortality is reported as 0-7% [9].

Complication rates of low cardiac output, arrhythmia, bleeding and myocardial infarction are in normal range. Prolonged air leak, respiratory insufficiency, need for tracheostomy and/or prolonged ventilator support are in equal rates with other pulmonary operations. Satisfactory long term results are reported in most of the series in the literature [14].

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