

# Resection and Prosthetic Reconstruction of the Superior Vena Cava for Non-small Cell Advanced Lung Cancer and Mediastinal Tumor Patients

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**Abstract :** Purpose and background : In Western countries, the indications of a superior vena cava (SVC) resection and reconstruction for patients with non-small cell lung cancer (NSCLC) still remain controversial. The purpose of this study is to evaluate our experience and discuss the indications for surgery in non-small cell lung cancer and malignant mediastinal tumor patients. Patients and Methods : From 1994 to 2006, eight non-small cell lung cancer patients and seven thymic tumor patients with superior vena cava (SVC) invasion underwent a lung resection and SVC prosthetic reconstruction. Unilateral innominate vein resection and reconstructions were performed for two non-small cell lung cancer patients and six malignant mediastinal tumor patients. Results : Lung lobectomies were performed for seven patients, in whom three patients underwent a lung lobectomy with a carinal resection and two patients underwent a lung lobectomy with bronchoplasty for non-small cell lung cancer patients. One another patient underwent a right sleeve pneumonectomy. All bilateral reconstructions were performed from the right atrium to left innominate vein first, and then proximal SVC to right innominate vein anastomosis using ringed expanded polytetrafluoroethylene (PTFE) vascular graft (10 or 12 mm in diameter). There was no patient with a re-operation due to massive bleeding or thrombosis in the grafts. Fifteen of the eighteen (83.0%) graft anastomoses were patent. Three patients died within 30 days postoperatively. Two patients are alive without malignancy, five patients died due to lung cancer recurrence at from 180-845 post-operative days. In the unilateral resection group, 100% grafts were patent and five of eight patients with unilateral innominate vein reconstructuin survived without any recurrence of the malignant tumor. Conclusions : The prognosis of combined resection of SVC of the thoracic malignancies is generally unfavorable. Although this is a challenging study, unilateral innominate vein reconstruction and a resection for thoracic malignancies included the possibility of a radical operation for advanced thoracic tumors.

**Key words :** Superior vena cava reconstruction, Non-small cell lung cancer, mediastinal malignant tumor