

Comparison of Video-Assisted Thoracoscopic Surgery and Limited Axillary Thoracotomy for Spontaneous Pneumothorax

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Objective: The initial treatment of spontaneous pneumothorax (SP) usually consists of chest tube drainage. However, in some cases chest tube treatment is not sufficient and patients need surgery. Historically, surgery for SP has been performed with open thoracotomy. Today VATS has replaced open surgery for SP in most centers. VATS has been considered a more cost-effective procedure with a shorter length of hospital stay. In Iceland surgery for SP has been performed with both VATS and limited axillary thoracotomy. The aim of this study was to compare these two approaches, especially reoperations for prolonged airleakage and late recurrences.

Material and methods: This is a retrospective non-randomized study on all patients operated first time for SP at our institution between 1991-2005. Information was retained from patient charts, operation and pathology reports. Out of 210 patients (160 males, average age 29 yrs.), 200 had primary SP (95%) and 10 secondary SP. The cases were divided into two groups; 134 VATS procedures and 100 thoracotomies (TT), including 17 thorascopies converted to TT. Patients were referred unselectively to the 7 operating surgeons, 3 of whom performed a TT and 4 using VATS. Patient demographics and indications for surgery were comparable in both groups. Early complications were registrated together with recurrent pneumothoraces that needed a reoperation. Median follow-up was 106 months.

Results: Wedge resection was performed in all cases and mechanical pleurodesis was added in 25% of the VATS and 67% of the TT cases. Median operation time was longer for VATS, or 60 vs. 40 min., respectively ($p=0.006$). There were no major intraoperative complications. Reoperations for late recurrent pneumothorax were 10 vs. 3 in the VATS and TT group, and reoperations for persistant airleakage 3 vs. 0, respectively ($p=0.03$). Reoperations for bleeding were comparable in both groups (2%). Other major complications included empyema and Horner's syndrome after VATS and toxic hepatitis after TT. All patients survived surgery. Median hospital stay was 3 days after VATS compared to 4 days after TT ($p<0.05$); 60% and 42% of the patients being discharged ≤ 3 days postoperatively, respectively.

Conclusion: Reoperations following VATS for SP are more common compared to open thoracotomy, explained by a higher rate of both late recurrent pneumothoraces and prolonged early postoperative airleakage. Both approaches are safe and major complications are infrequent. Hospital stay is shorter after VATS, however, VATS takes longer and the higher reoperation rate is a shortcoming and is of concern.