P12

Simple versus complex segmentectomy via uniportal video-assisted thoracic surgery: Short-term outcomes and survival

Mamdoh Al Ameri, Matteus Halabiya

Introduction: Segmentectomy can be categorized into simple and complex segmentectomy depending on the number of intersegmental planes created. Complex segmentectomy has generally been regarded as more intricate and more prone to air leakage compared to simple segmentectomy and the complexity increases further when performed by uniportal video-assisted thoracoscopic surgery (uVATS), although this combined approach has not been thoroughly investigated regarding early postoperative outcomes, survival and indications other than lung cancer. Aim: This study aims to compare and investigate early outcome measures and survival for simple versus complex segmentectomy performed with uVATS. Materials and Methods: This study is a retrospective, single-center observational cohort study including all adult patients who underwent segmental resection with uVATS between January 1, 2019, and December 31, 2024, at Karolinska University Hospital in Stockholm, Sweden, identified through the Swedish National Thoracic Registry (n=319). Primary outcomes were early postoperative outcomes, and secondary outcomes were overall survival rates. Baseline characteristics differences between groups were addressed via Inverse probability of treatment weighting. Results: No statistically significant differences were found between simple (n=202) and complex (n=117) segmentectomy regarding early complications for all indications, nor for radicality and overall survival for lung cancer patients. However, complex segmentectomy had slightly longer operative times (114.5 vs, 102 minutes, p=0.025), hospital stay (2 [1-3] vs. 1 [1-2] days, p=0.028), and chest drain duration 1 [1-1] vs. 1 [1-2] days, p=0.047). Conclusion: Complex segmentectomy via uVATS appears to be safe and effective compared to simple segmentectomy, although may slightly increase procedural difficulty and postoperative air leakage.

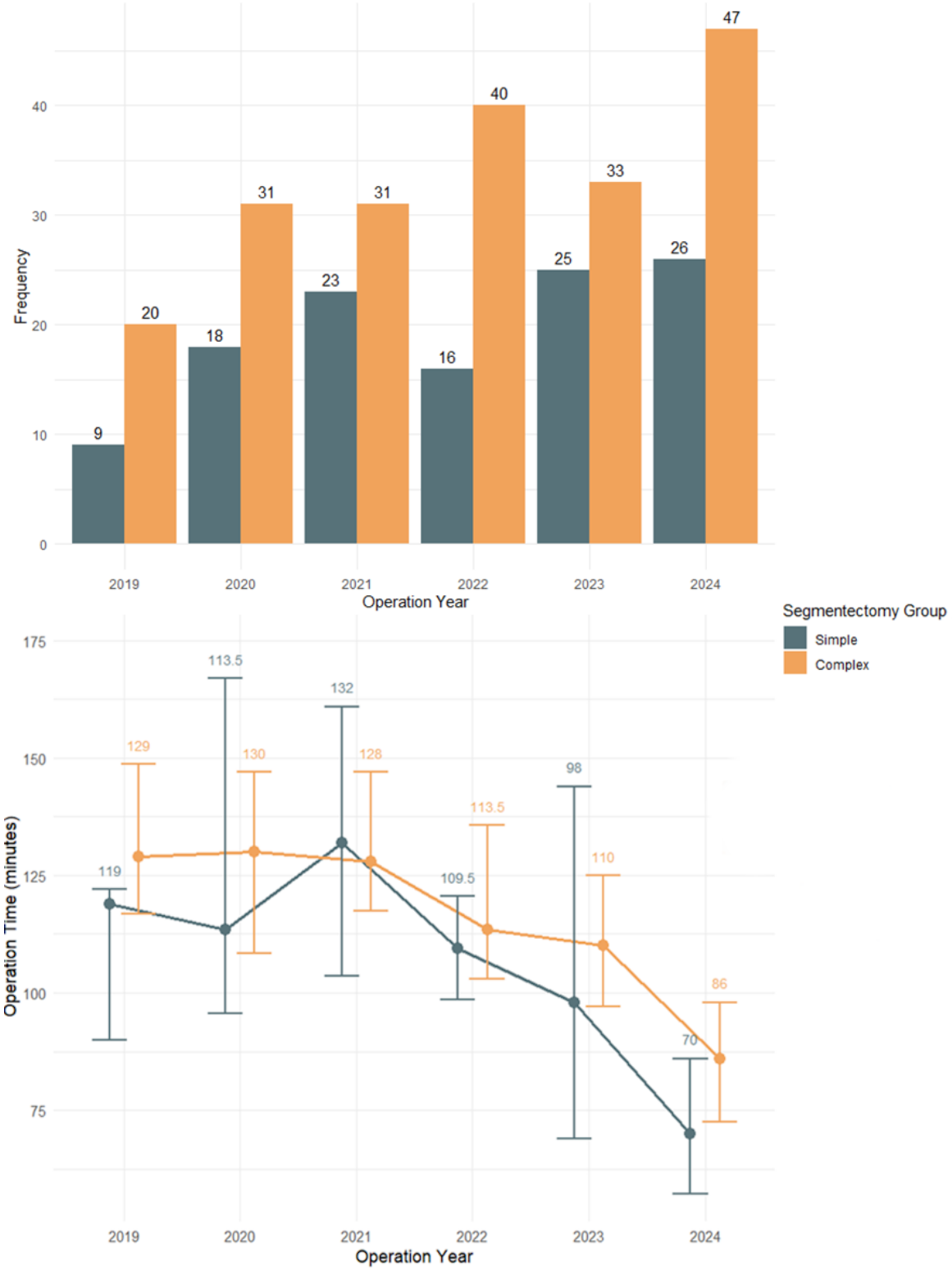

Figure 3 Number of uniportal VATS simple- or complex segmentectomies per year during the study period and trend of median operation time by calendar year, in the unweighted population, for all indications. Whiskers indicate IQR

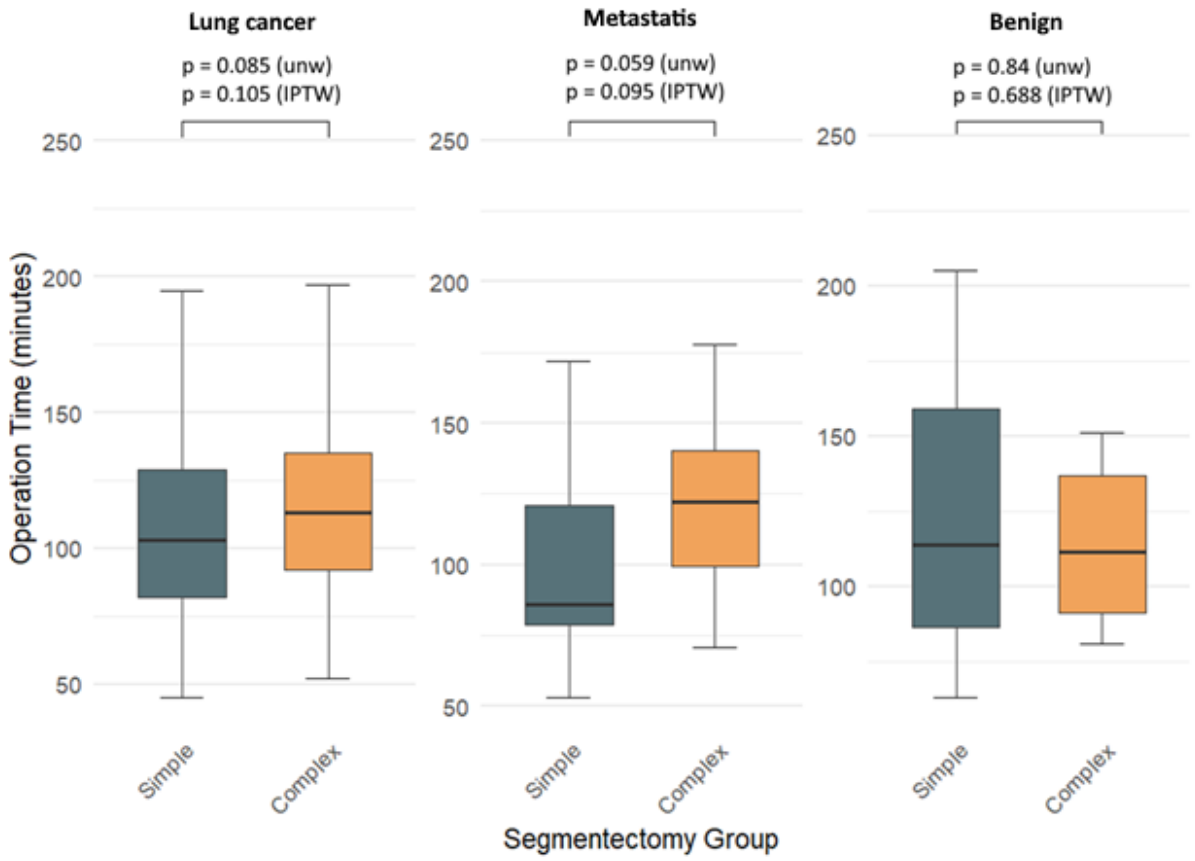

Figure 5 Box plots of operation time for uVATS simple- or complex segmentectomy, stratified for indication groups

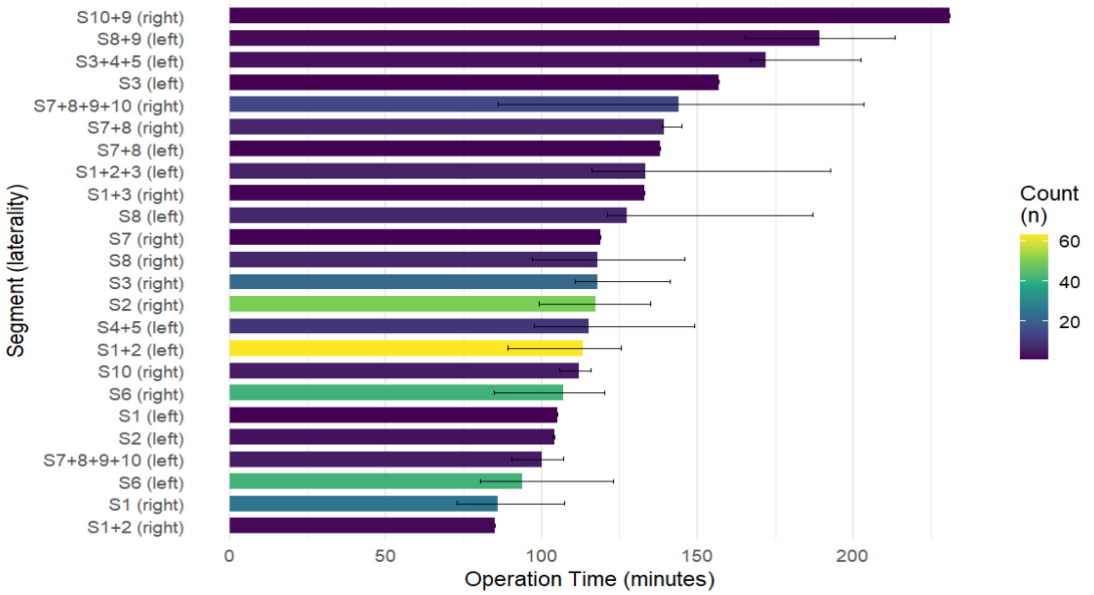

Figure 6 Median and IQR of operation time for uVATS segmentectomy, stratified by segment number.

P14

Segmentectomy for stage I non-small cell lung cancer at Oslo University Hospital

Helene Ihle-Hansen Solberg[1], Peter Majak[2,3]

[1] University of Oslo, [2] Department of Cardiothoracic Surgery, Oslo University Hospital, [3] Institute of Clinical Medicine, University of Oslo

Introduction: In recent years the proportion of segmentectomy resection in stage I lung cancer surgery has increased, stated as non-inferior to lobectomy regarding overall survival. This study aimed to investigate the patient selection and outcome for lung cancer patients treated with segmentectomy at our institution.

Methods: In this retrospective study, we reviewed all segmentectomies performed from 01.01.20 to 01.05.24, with follow-ups until 01.12.24. 112 consecutive patients were included. Patient-, tumor- and intraoperative variables and postoperative outcome were analyzed. In addition, we investigated whether our practice and outcomes concur with guidelines and comparable datasets in recent publications.

Results: 73 women and 39 men underwent segmentectomy. Mean age was 67.7 years, all patients had NSCLC, 106 had stadium I, and mean tumor size was 17.1 mm. The use of indocyanine green was introduced in 2021 and used in 36 resections. No intraoperative mortality was observed, 1- year overall survival was 98,2%, and recurrence rate was 2,7%. Recent studies report a higher recurrence rate, however our mean follow up time were shorter. 33 of the patients included in our study did not meet the criteria for segmentectomy, stated in ESTS guidelines regarding tumor size ≤2mm. 7 operations did not meet the consensus criteria for a correct surgical anatomical resection.

Conclusions: We report that segmentectomy surgery at our institution is in line with European guidelines. Although a greater tumor size was operated on, overall survival and recurrence rates match existing publications.

P15

Surgical lung biopsy for suspected interstitial lung disease with video-assisted thoracoscopic surgery is safe, providing exact histological and disease specific diagnosis for tailoring treatment

Leifur Thrainsson[1], Arnljotur Bjorn Halldorsson[2], Arnar Bragi Ingason[3], Helgi J. Isaksson[4], Gunnar Gudmundsson[3,5], Tomas Gudbjartsson[1,3]
[1] Division of Cardiothoracic Surgery, Landspitali University Hospital, [2] Division of Radiology and Imaging Studies, Landspitali University Hospital, [3] Faculty of Medicine, University of Iceland, [4] Division of Pathology, Landspitali University Hospital, Reykjavik, [5] Division of Respiratory Medicine and Sleep, Landspitali University Hospital

Background: Surgical lung biopsy (SLB) is required for diagnosis in patients with suspected interstitial lung disease (ILD) if other less invasive diagnostic methods are non-conclusive. We evaluated the outcome of SLB by using centralized databases in a whole-nation patient-cohort.

Methods: A population-based retrospective study on 68 consecutive patients (mean age 58 years, 58.8% males) that underwent SLB in Iceland between the years 2008 and 2020. Patient information was obtained from patient charts and peri- and postoperative complications were registered together with 30- and 90-day mortality. Computed tomography (CT) scans, histological biopsies and spirometry results were reviewed, and overall survival (Kaplan-Meier) estimated. Mean follow-up was 61.3 months (range, 3–155 months).

Results: Out of 68 SLB-patients 41 (60.3%) had preoperatively undergone non-conclusive transbronchial biopsies (TBB) obtained with bronchoscopy. Spirometry showed forced vital capacity (FVC) 3.0 L and forced expiratory volume in 1 second (FEV1) 2.3 L, or 73.0% and 71.6% of predicted value, respectively. Video-assisted thoracoscopic surgery (VATS) technique was used in all cases and provided a histologic and disease specific diagnosis in 92.6% of cases; most often being nonspecific interstitial pneumonia (NSIP) (29.4%) and usual interstitial pneumonia (UIP) (23.5%). One patient (1.5%) sustained a major postoperative complication (excessive bleeding) and seven patients (10.3%) minor complications. Median chest tube time and length of stay was 1 and 2 days, respectively. No patients died <90 days postoperatively. Overall survival at 1 and 5 years was 95.6% and 73.5%, respectively, and 5-year survival for NSIP and UIP was 85% and 43.7%, respectively. Long-term mortality for UIP was four times higher when compared with NSIP and other diagnosis.

Conclusions: Lung biopsy with VATS-technique provided a definitive histological and disease specific diagnosis in majority of cases. The procedure is safe, reflected in low complication-rates and short hospital stay, and can therefore be used to diagnose and tailor treatment of ILD patients.

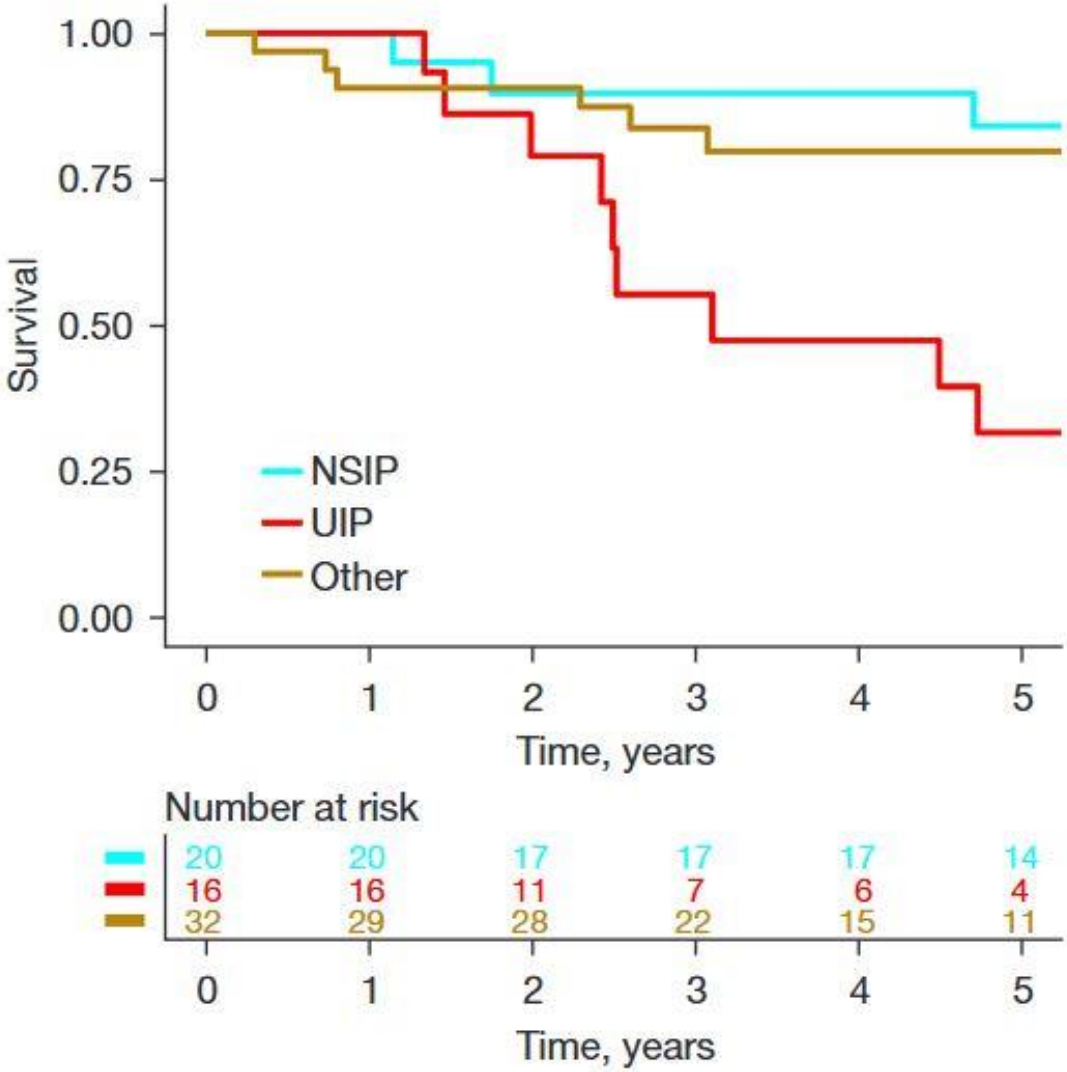

Figure 2 Overall survival of patients with NSIP and UIP compared to patients with other histology. NSIP, nonspecific interstitial pneumonia; UIP, usual interstitial pneumonia.

P16

VATS Resection of a Large Mediastinal Teratoma Abutting Great Vessels

Marco Lizwan[1], Ellis Jie Ying Cheong, Mingjie Huang[1]
[1] National Heart Centre Singapore

Mature mediastinal teratomas are rare, histologically benign tumours typically located in the anterior mediastinum. While often asymptomatic, larger teratomas may cause compressive symptoms and present surgical challenges, particularly when located near vital structures. We present a case of a 22-year-old male diagnosed with a large anterior mediastinal teratoma abutting the superior vena cava, brachiocephalic veins, aorta, and right phrenic nerve. After thorough evaluation, the patient underwent successful bilateral video-assisted thoracoscopic surgery (VATS) for resection of the tumour and subtotal thymectomy. Postoperative recovery was uncomplicated, and histopathological examination confirmed the diagnosis of a mature teratoma. This case demonstrates the feasibility of VATS for resecting large, anatomically complex mediastinal teratomas, challenging traditional contraindications for minimally invasive surgery. The findings suggest that VATS can be a safe and effective approach for selected patients with mediastinal teratomas, minimizing postoperative morbidity and enhancing recovery.

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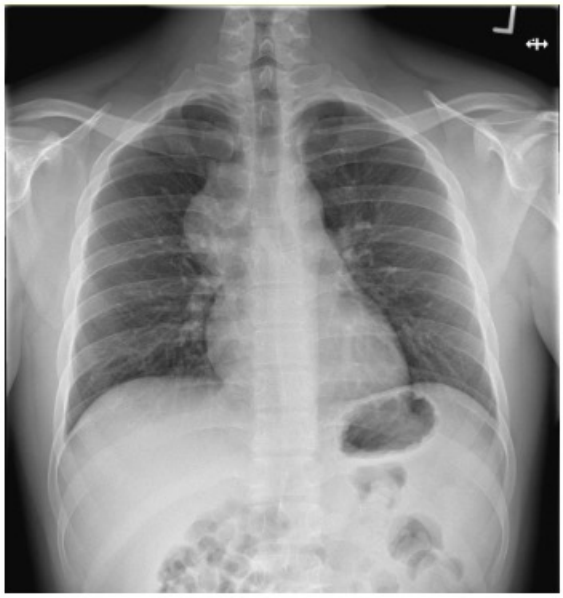

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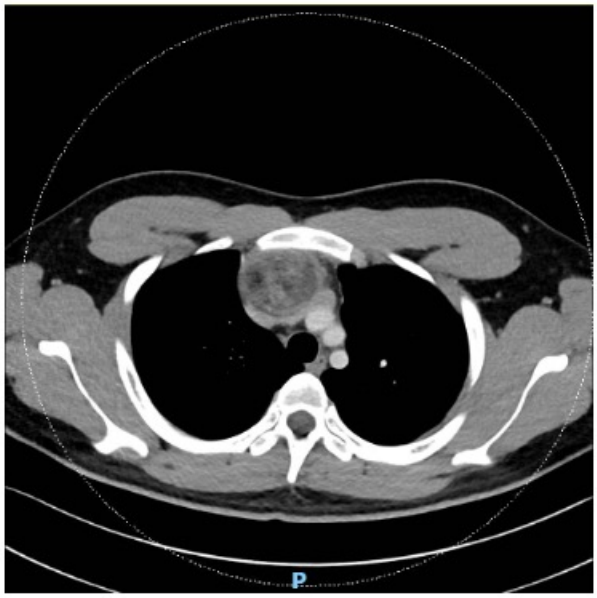

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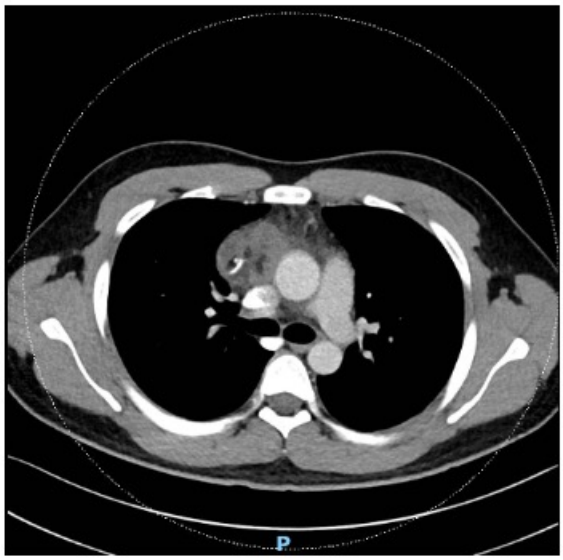

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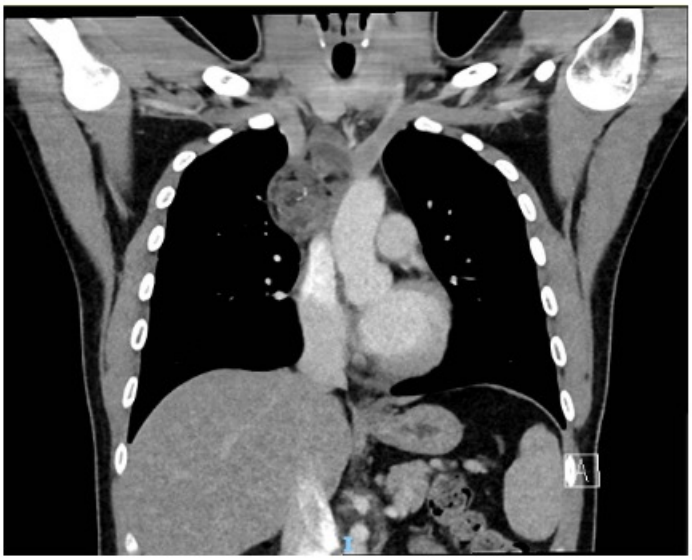


P17

Nationwide trends and outcomes of pulmonary metastasectomy

Carlos Magnús Rabelo[1,2], Halla Viðarsdóttir[1,3], Luis Gísli Rabelo[1,2], Tómas Guðbjartsson[1,2]

[1] Faculty of Medicine, University of Iceland, Reykjavík, Iceland, [2] Department of Cardiothoracic Surgery, Landspítali University Hospital, Reykjavík, Iceland, [3] Department of Surgery, Landspítali University Hospital, Reykjavik, Iceland

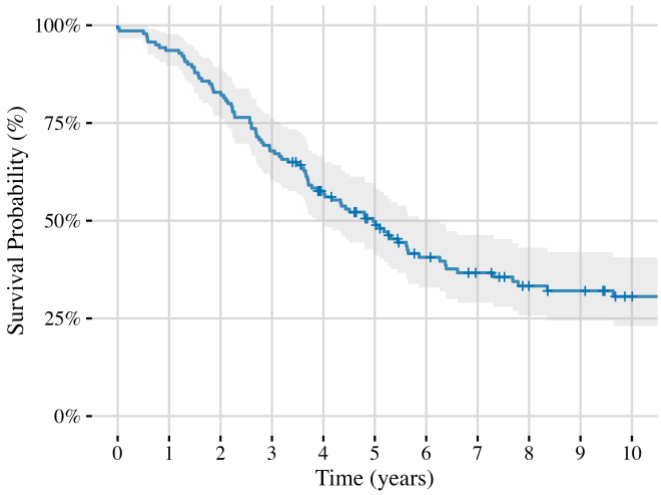
Background: Pulmonary metastases are generally associated with poor prognosis, and only a carefully selected subset of patients undergo surgery. However, population-level data on outcomes remain limited. This study aimed to evaluate outcomes and trends of pulmonary metastasectomy in a nationwide cohort.

Methods: This retrospective cohort study included all patients who underwent pulmonary metastasectomy in Iceland from 2001-2021. The study period was divided into three 7-year intervals for comparison. Survival was evaluated using Kaplan-Meier analysis, and prognostic factors were assessed using a multivariable Cox regression. Average follow-up was 5.7 years, with survival calculated from the primary pulmonary metastasectomy.

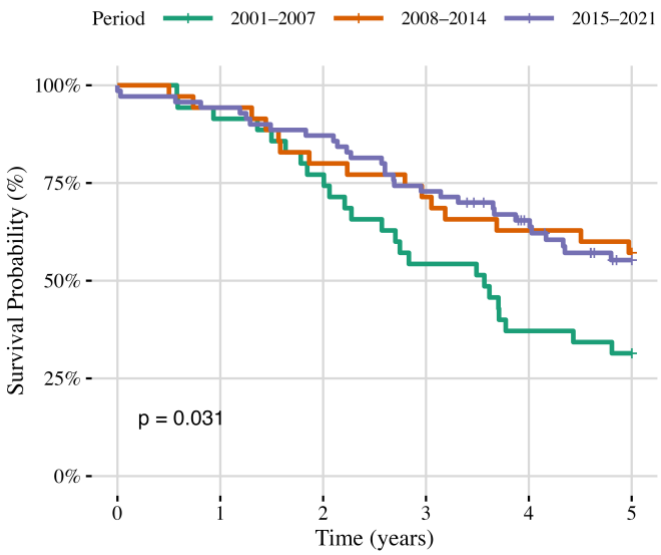
Results: A total of 179 pulmonary metastasectomies were performed, with most of the procedures (46.4%) occurring in the last period (2015–2021). Median age at the first metastasectomy was 62 years. The most common indication was metastatic colorectal cancer (39.3%), followed by renal cell carcinoma (16.4%) and sarcoma (9.7%). Early major postoperative complications occurred in 3.4% of cases, with a 30-day mortality rate of 1.1%. Five-year overall survival was 49.7% and increased significantly from 31.4% in 2001–2007 to 55.3% in 2015–2021 ($p = 0.031$). Other negative prognostic factors for survival included advanced age, a higher number of metastases, and sarcoma metastases.

Conclusions: The number of pulmonary metastasectomies performed in Iceland has increased over time, accompanied by improved long-term survival, likely due to better patient selection and enhanced adjuvant chemotherapy. The procedure has low major complication rates and 5-year survival comparable to international data.

Ten-Year Overall Survival



Five-Year Survival by Study Period



P18

Factors associated with veno-arterial extracorporeal membrane oxygenation (VA-ECMO) in Extracorporeal cardiopulmonary resuscitation (ECPR).

Suphansa Thunaphan Asdal

The authors have chosen not to publish the abstract

P19

Routine partial aortotomy for aortic valve replacement converted intraoperatively to Y-incision aortic annulus enlargement in patients with small body surface area

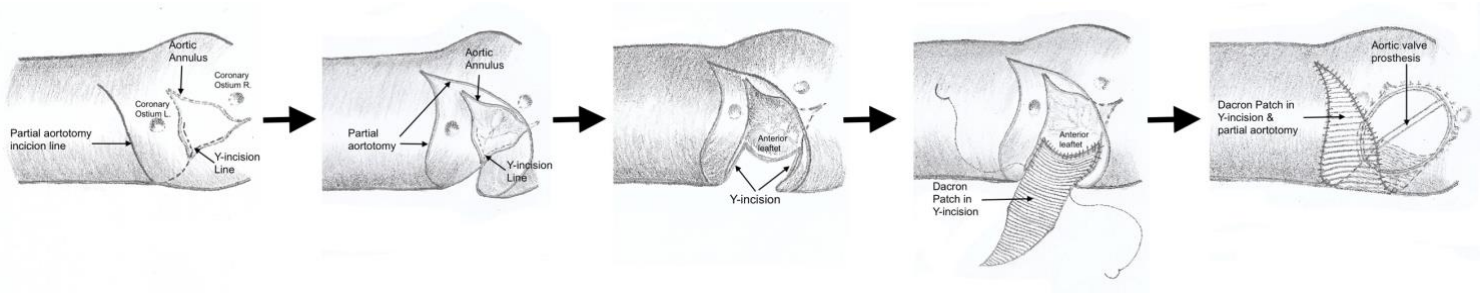
Yang Yanqi[1], Lu Zhang[1], Yongjia Qiong[1], Zhuxuan Liu[1], Minnan Gao[1], Mengjun Ma[1], Sijin Li[1], Yue Peng[1], Kuan Zeng[1], Hans Granfeldt[2]
[1] The Eighth Affiliated Hospital of Sun Yat-sen University, Shenzhen, China, [2] University Hospital, Linköping, Sweden

Background: Partial aortotomy for aortic valve replacement (AVR) in patients with small body surface area (BSA) might require conversion intra-operatively to Y-incision aortic annulus enlargement (Y-incision AAE). In the present study a modification of Y-incision AAE following initial partial aortotomy for AVR is described.

Methods: Three patients were female with ages of 39, 65 and 77 years, average BSA of 1.38m2 and average aortic annulus of 18.9mm. One patient had previous aborted AVR due to small aorta root. Another one had a biological valve in aortic position for 17 years and chronic renal failure requiring peritoneal dialysis. The patients underwent AVR with partial aortotomy initially which was converted to Y-incision AAE intra-operatively because valve sizer of number 21 couldn't be put into the root. The partial aortotomy was extended toward the commissure of left and non-coronary sinus. The incision was then extended according to Y-incision AAE. A 60x30mm rectangular patch of Dacron or Bovine pericardium was sewn into the incision in same manner of Y-incision AAE. Two to three sizes larger prosthetic valves were put into the enlarged annulus supra-annularly. The distal part of patches was trimmed triangularly and sewn into the incision to close the partial aortotomy (Figure). Operation video is available for presentation.

Results: Prosthetic valves of number 21 or greater were implanted into the patients. There was no reoperation for bleeding or 30-day mortality.

Conclusion: The modified Y-incision AAE technique adapting to partial aortotomy can be safely used for AVR in patients with small BSA.


Aortic Annulus
Coronary Ostium R.
Coronary Ostium L.
Partial aortotomy incicion line
Y-incision Line
Aortic Annulus
Partial aortotomy
Y-incision Line
Anterior leaflet
Y-incision
Anterior leaflet
Dacron Patch in Y-incision
Aortic valve prosthesis
Dacron Patch in Y-incision & partial aortotomy

P20

Reliability and Measurement Error in Cardiac Computed Tomography Evaluation of Surgical Left Atrial Appendage Closure

Kristina Gosvig[1,2], Henrik Hansson[1,2], Richard Whitlock[3,4], Lars Riber[1,2]

[1] Odense University Hospital, Odense, Denmark, [2] University of Southern Denmark, Odense, Denmark, [3] Hamilton General Hospital, Hamilton, Canada, [4] McMaster University, Hamilton, Canada

Background: Surgical left atrial appendage (LAA) closure during cardiac surgery is a well-established strategy for stroke prevention, but effectiveness may be compromised by incomplete or unsuccessful closure. This study aims to assess the reliability and measurement error in evaluation of cardiac computed tomography (CT) after surgical LAA closure.

Methods: Adults who previously underwent surgical LAA closure in Denmark between 2010 and 2023 were invited for contrast-enhanced, ECG-gated cardiac CT. Two blinded observers independently (i) assessed qualitative variables in terms of presence of trabeculation, hour-glass configuration, and thrombus in the residual pouch, and (ii) measured quantitative variables in terms of the residual stump length and volume. Agreement was quantified with Cohen's kappa and intraclass-correlation coefficients (ICC). Measurement error was evaluated with Bland-Altman analysis.

Results: Fifty-five scans were analysed. Interobserver agreement for qualitative variables showed kappa values of 0.88 for trabeculation, 0.74 for hourglass configuration, and 1.00 for thrombus. The mean stump length was 12 ± 4.3 mm, and the mean volume was 5.15 ± 2.59 ml. Interobserver agreement for quantitative measurements demonstrated ICC of 0.86 for length and 0.83 for volume. Bland–Altman analysis showed limits of agreement >40% of the mean values for both length and volume.

Conclusion: Cardiac CT provides satisfactory qualitative assessment of surgical LAA closure, but quantitative residual stump measurements show some variability. The homogeneous cohort limits the external validity. More studies are needed before CT-based definitions of procedural success can be confidently applied in routine evaluation of LAA closure.

P22

Moving on to pulmonary segmentectomies, the next natural step in the implementation of a complete robotic thoracic surgery program.

Andreas Westerlind[1,2], Maya Landenhed Smith[1,2]

[1] Department of Cardiothoracic Surgery, Sahlgrenska University Hospital, Gothenburg, Sweden, [2] Department of Molecular and Clinical Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

Objectives: During 2021 to 2023 we implemented a robotic thoracic surgical program focusing on pulmonary lobectomies. In a prior report (1) we described the learning curve peaking after 44 robotic-assisted thoracic surgery (RATS) lobectomies for a single surgeon experienced in uniportal video-assisted thoracic surgery (uVATS). We here describe our short-term results of our first experience of 20 robotic segmentectomies compared to uVATS segmentectomies performed during the same time interval by the same surgeon.

Methods: All segmentectomies performed in the robotic system by a single surgeon from January 2022 to June 2025 were retrospectively compared to concomitant uVATS segmentectomies performed by the same surgeon. Patients under 18 years of age, patients with primary diagnosis of lung abscess, and bilateral procedures were excluded from analysis.

Results: 20 patients underwent pulmonary segmentectomy by RATS while 74 were operated on with uVATS technique. There were no significant differences between groups in operation time, days with chest tube or postoperative length of stay.

Conclusion: Moving onwards to anatomical segmentectomies after an initial learning curve of lobectomies is feasible and not associated with higher rates of complications than for uVATS. Teams working with RATS should be encouraged to take this natural step once the RATS lobectomy procedure has been successfully implemented.

References:

1. Westerlind A, Landenhed-Smith M, Malm C-J, Dellgren G. Implementation of a robotic-assisted thoracic surgery program for anatomical lung resections, a single surgeon's experience. J Thorac Dis. 2025 Mar 31;17(3):1335-1348.

	RATS n:20	**uVATS n:74**	***p***
Age (years)	66 (56-75)	69 (62-77)	0.301
Sex (male)	10 (50%)	29 (39%)	0.384
BMI (kg/m^2)	25 (22-28)	27 (24-31)	0.080
Operation time (min)	102 (91-120)	112 (95-130)	0.274
Console time (min)	80 (67-90)		
Total number of lymph node stations sampled	5 (3-5)	4 (2-5)	0.093
Station 7 lymph nodes sampled (yes)	16 (80%)	44 (59%)	0.090
Days with chest tube	1 (0-1)	1 (1-1)	0.765
Postoperative length of stay (days)	2 (1-2)	2 (2-2)	0.116
Reoperation within 30 days	0	3 (4%)	0.360

Continuous variables are presented as median and 25^{th}-75^{th} quartiles. Proportions are presented as counts and percentages. RATS (Robotic-assisted thoracic surgery), uVATS (uniportal video-assisted thoracic surgery)