

9.17 Robotic Assisted Thoracic Surgery - Early Results of an Expanding Program

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Background: Robotic assisted thoracic surgery (RATS) patients experience shorter chest drain duration and hospital stays, as well as reduced post-operative pain, compared to VATS and open procedures.¹ Literature reports post-operative length of stay (LOS) averaging 4 days.^{2,3} This review of early outcomes for our expanding robotic programme combined with enhanced recovery protocol includes length of stay, chest drain duration and post-operative complications.

Methods: 34 robotic cases were performed since late 2022 - 2023. Demographics and PFT's were reviewed (Table 1). Analysis was performed using STATA analysis software. Analgesia, complications and final histology were also considered.

Results: 32 patients were reviewed; 2 patients were excluded due to VATS conversion. 53% were female, with median age of 65.5 years. 79% of resections were for malignancy. Median post-operative day of discharge was day 2. Median chest drain duration was 1 day. Refer to Table 2. 18% of patients had a post-operative air leak. All patients discharged to home well with a mortality rate of 0%. Pain was well-controlled with intercostal blocks, PCA, NSAIDs and paracetamol.

Conclusion: Review of early results of the RATS program in our institution demonstrated a shorter duration of chest drainage and post-operative length of stay as well as reduced post-operative complications.

Keywords: robotic thoracic surgery, chest drain, discharge

Disclosures: None

Conflict of interest: The authors declare that they have no conflict of interest.

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Table 1:

Gender	Age	FEV1	DLCO	Operation	Post-operative Discharge Day	Chest drain duration	Complications	Histology
Female	55	92	86	RATS LLL Metastectomy	1	1	None	17mm CRC
Male	74	92	80	RATS RLL	1	1	None	17mm Adeno pT1(mi)N0
Female	65	65	47	RATS RLL	2	1	None	10mm SqCC, pT1aN0
Male	67	101	80	Right chest wall mass excision	1	1	None	40mm, Desmoid-type fibromatosis
Female	38	N/A	N/A	Diagnostic Wedge RUL, RML, RLL	1	1	None	Lymphoma, MALT type
Male	62	95	38	Diagnostic RATS LUL + LLL wedge	1	1	None	UIP
Female	66	125	108	RATS LLL	3	1	None	24mm, Adeno pT1aN0
Female	26	N/A	N/A	RATS right thymectomy	2	1	None	Thymic hyperplasia
Male	67	100	94	RATS LUL + LLL metastectomy	3	1	None	Metastatic SqCC
Male	39	40	73	Right RATS Thymectomy	5	3	None	Thymoma, type B2, 2.3cm
Male	49	N/A	N/A	Right RATS resection of retrocrural mass + left thoracotomy	2	1	Seroma / Chylothorax	A somatic malignancy arising from / in a teratoma metastasis
Female	80	154	95	RATS RLL	6	3	Surgical emphysema	15mm, Adeno, pT1bN0
Female	63	98	91	RATS LUL	3	1	None	9mm, Adenosquamous, pT1aN0
Male	72	73	48	Left RATS Thymectomy	2	1	None	Thymoma, Type A, 60mm, pT1aNX
Female	71	109	79	RATS RUL	2	1	None	25mm, Adeno, pT1cN0M0
Female	49	N/A		Left RATS Lymph Node Biopsy	1	1	None	Relapsed EBV positive lymphoma

Female	61	106	142	Right RATS resection of posterior mediastinal mass	2	1	None	41mm, Benign ganglioneuroma,
Female	62	109	53	RATS RUL	8	7	Conservative Mgt Airleak	36mm, Adeno, pT2aN1
Female	65	101	65	RATS RUL, wedge RML	7	6	Conservative Mgt Airleak	18mm, Adeno, pT1bN0
Female	49	125	108	RATS RLL	2	1	None	19mm, a Adeno pT1bN0
Male	75	64	64	RATS RLL	2	1	R2 – f/u Open Resection	pTxN0 SqCC
Male	68	95	97	RATS LLL	2	1	None	55mm, Adeno, pT3N0
Female	75	122	83	RATS LUL	4	3	None	12mm, SqCC, pT1bN0
Male	69	86	61	RATS RUL	3	2	None	17mm + 13mm SqCC + Adeno, pT1b(m)N0
Female	53	99	36	RATS LUL posterior segmentectomy + apical wedge	79	1	Pancreatitis, ICU admission	5mm + 15mm, Adeno, cT2a (m) N0
Female	66	124	48	RATS LLL	11	10	VATS repair of airleak	41mm, Adeno, pT2bN1
Female	79	108	61	RATS RUL	5	3	None	15mm + 10mm Adeno, pT1a (m) N0
Male	75	114	100	RATS left apical segmentectomy LL	2	1	None	25mm, pT2aN0M0, Adeno
Male	79	105	77	RATS LLL	15	14	VATS repair of airleak	10mm, pT1aN0, Adeno
Male	52	68	58	RATS LLL	3	2	None	51mm, pT3N0, SqCC
Male	73	76	47	RATS LLL	21	14	VATS repair of airleak	17mm, pT1bN0, Adeno
Male	56	102	57	RATS LUL	11	10	VATS repair of airleak	55mm Adeno, pT4N0M1a

Abbreviations: Robotic Assisted Thoracic Surgery (RATS), Left Lower Lobectomy (LLL), Left Lower Lobectomy (LUL), Right Upper Lobectomy (RUL), Right Middle Lobectomy (RML), Right Lower Lobectomy (RLL). Video Assisted Thoracic Surgery (VATS), Squamous Cell Carcinoma (SqCC), Adenocarcinoma (Adeno).

Table 2:

Category	Mean	Median
Female	53%	50%
Age (years)	62.5	65.5
FEV1	98.1	100.5
DLCO	74	62.5
Post op day of d/c	6.6	2
Chest drain duration	3.03	1