



EP07.21: Initial Experience With the Saroa Surgical System for Early-Stage Lung Cancer : A Comparative Study With the Da Vinci Surgical System

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INTRODUCTION

- The Saroa surgical system (Riverfield Inc., Tokyo, Japan) is a pneumatically driven robotic platform.
- The robot provides real-time haptic force feedback to the surgeon.
- The clinical data using Saroa for lung cancer surgery are limited.

METHODS

Design: Single-center retrospective study

Patients who underwent anatomical resection for lung cancer treatment between July 2023 and May 2025 at our institution (n = 325)

- Excluded:
- Thoracotomy
 - VATS or RATS by hinotori surgical system
 - pStage II or higher
 - R1/R2 resection
 - Previous lung resection
 - Combined resection

Included in final analysis (n = 60)

Saroa
(n = 30)

Da Vinci
(n = 30)



DISCUSSION AND CONCLUSION

DISCUSSION

- The Saroa was found to be comparable to the da Vinci Xi in terms of feasibility and safety in early stage lung cancer surgery.
- Given that the haptic force feedback function may reduce organ injury, we anticipated fewer cases of prolonged air leaks in the Saroa group.

CONCLUSION

- Our findings provide a clinical foundation for further investigations into the potential advantages of haptic feedback in robot-assisted thoracic surgery.

REFERENCES & ACKNOWLEDGEMENTS

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Artificial Intelligence (AI) Use Disclaimer

The authors did not use any AI tools or AI-assisted technologies in the preparation, writing, analysis, or revision of this poster.

RESULTS

Robots	Saroa (n = 30)	da Vinci (n = 30)	P value	Robots	Saroa (n = 30)	da Vinci (n = 30)	P value
Operative time, minutes	202 [180–247]	191 [149.8–246.2]	0.524	Blood loss, mL	50 [0–100]	40 [0–100]	0.994
Console time, minutes	142 [117–153]	141.5 [112.8–193]	0.505	Conversion to thoracotomy, n (%)	2 (6.7)	0 (0)	0.492
Surgical procedure				pT			
Lobectomy, n (%)	20 (66.7)	24 (80.0)		Tis, n (%)	1 (3.3)	2 (6.7)	
RUL	11	11		T1a, n (%)	6 (20.0)	6 (20.0)	
RML	3	0		T1b, n (%)	12 (40.0)	7 (23.3)	
RLL	1	3		T1c, n (%)	6 (20.0)	4 (13.3)	
RMLL	0	1		T2a, n (%)	5 (16.7)	11 (36.7)	0.367
LUL	3	2		Histological type			
LLL	2	7		Adenocarcinoma	25 (83.3)	25 (83.3)	
Segmentectomy, n (%)	10 (33.3)	6 (20.0)	0.382	Squamous cell carcinoma	4 (13.3)	4 (13.3)	
Right				Others	1 (3.3)	1 (3.3)	0.572
S2	1	1		Postoperative complication, n (%)	7 (23.3)	6 (20.0)	1.000
S6	1	1		POD1 pain (NRS, median)	3 [2–4]	3 [2–5]	0.597
S8	1	0		Postoperative hospital stays, days (median)	7 [6–8]	8 [6–10]	0.572
S7 + 8 + 9	1	0		30-day mortality, n (%)	0 (0)	1 (3.3)	1.000
S10	0	1					
Left							
S1 + 2	1	1					
S1 + 2 + 3	2	1					
S4 + 5	1	0					
S6	1	1					
S10	1	0					

Table. Perioperative outcomes and types of complications

RUL, right upper lobectomy; RML, right middle lobectomy; RLL, right lower lobectomy; RMLL, right middle and lower lobectomy; LUL, left upper lobectomy; LLL, left lower lobectomy; NRS, Numerical Rating Scale

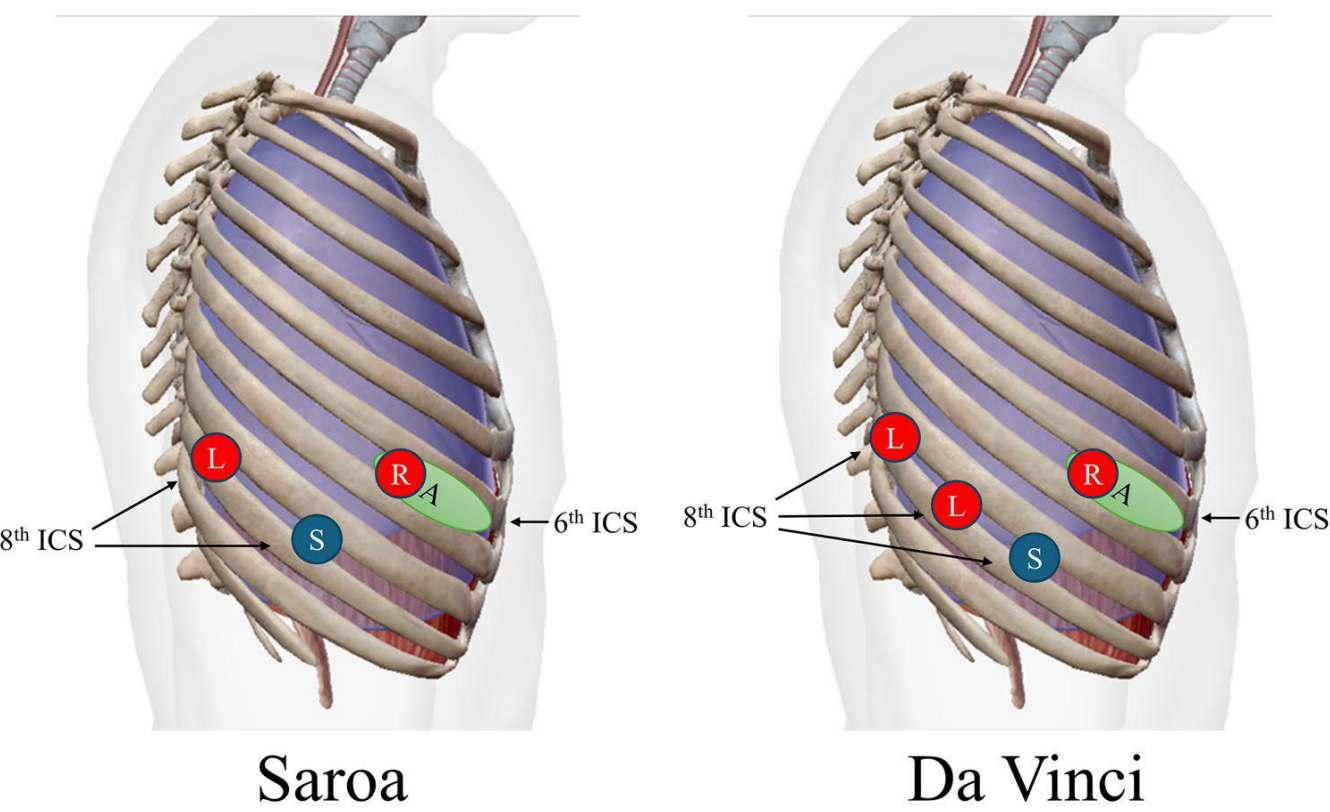


Figure 1: Illustration of port placement for the Saroa and da Vinci surgical systems. L, left arm port; S, scope port; R, right arm port; A, access port

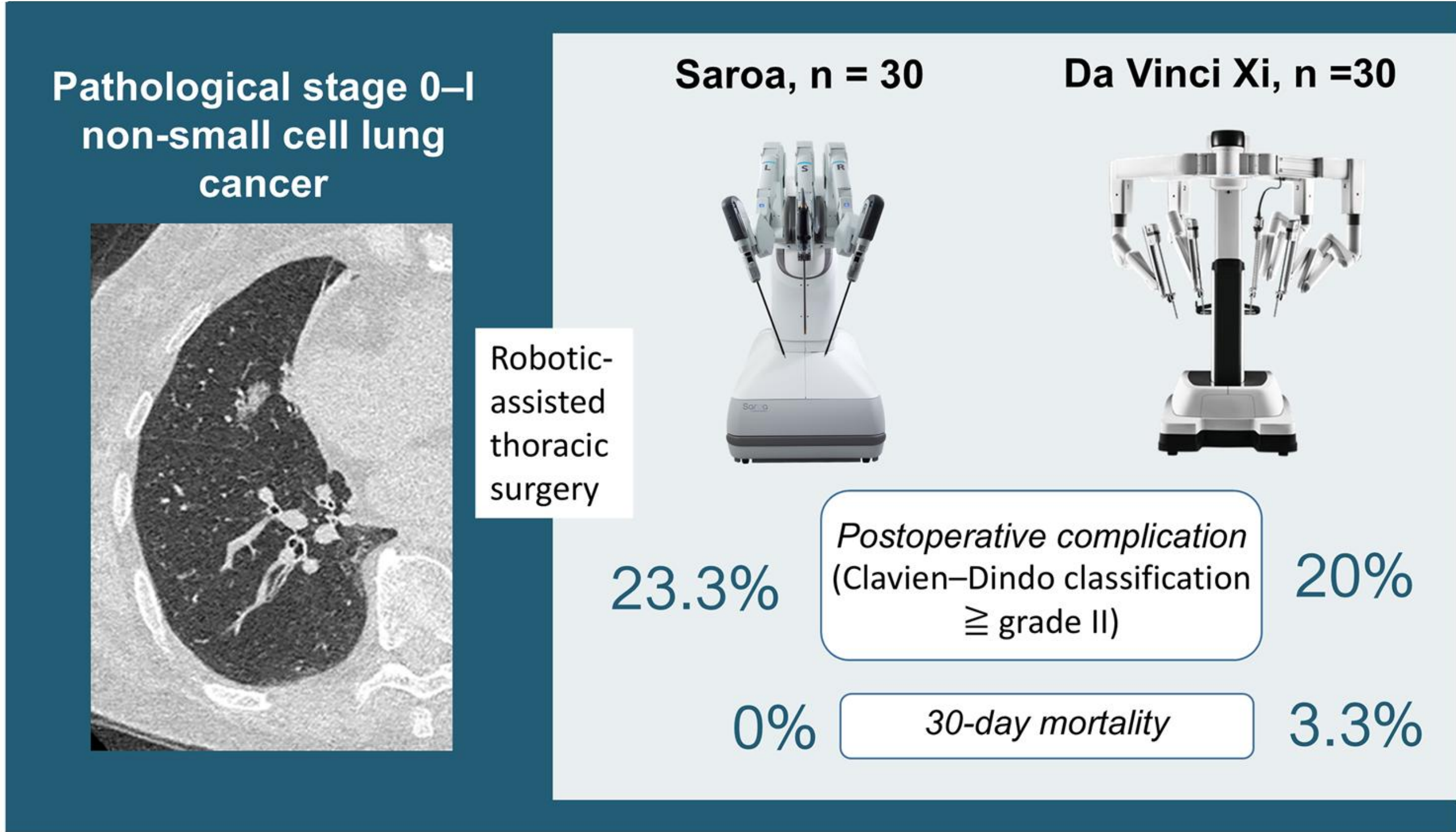


Figure 2: Comparison of perioperative outcomes between the Saroa and da Vinci groups