

THE PROGRESS OF ROBOTIC PULMONARY SLEEVE RESECTION AND RUIJIN EXPERIENCE

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Background

Pulmonary sleeve resection (PSR) was first attempted in the 1940s and began to be utilized in the 1980s for the treatment of lung cancer. Nowadays, the development of video-assisted thoracic surgery (VATs) and robotic surgery system made it possible to perform PSR in a minimally invasive way. Ruijin Hospital affiliated to Shanghai Jiao Tong University School of Medicine, as one of the earliest centers to perform robot-assisted thoracic surgery in China, has carried out more than 1,300 robotic lung cancer surgeries since May 2015, including robotic PSR (RPSR). This study aims to investigate the safety and efficacy of RPSR in the treatment of lung cancer by summarizing international studies along with the surgical experience of our center.

Method

A review of articles related to RPSR and summarize the results of RPSR performed at Ruijin Hospital affiliated to Shanghai Jiao Tong University School of Medicine.

Table. Operative data of 11 cases of RPSR conducted by our center

N	OT (min)	Bleeding (ml)	Postoperative hospital stay (days)	Chest tube stay (days)	Pathological stage	Complication	Mortality
Case 1	132	100	6	4	T2aN0M0	None	None
Case 2	230	150	7	5	T2bN1M0	None	None
Case 3	155	75	10	3	T1bN0M0	Atelactesis	None
Case 4	315	100	7	6	T2bN0M0	None	None
Case 5	320	2000	11	10	T1aN0M0	None	None
Case 6	130	100	6	5	T1aN0M0	None	None
Case 7	220	200	20	19	T1bN0M0	Pneumonia	None
Case 8	252	150	14	13	T1bN0M0	None	None
Case 9	210	600	5	3	T3N0M0	None	None
Case 10	315	300	10	7	T2bN0M0	Pleural effusion	None
Case 11	180	200	8	6	T1bN0M0	None	None

N number, OT operative time.

Conclusion

The series of studies and experience of our center showed that RPSR is a safe and feasible procedure for appropriate patients. Our limited experience demonstrates that operative time can be further shortened with the increase of experience in robotic surgery and the optimization of suture mode.

Results

Review:

- The first publication of RPSR was in 2011.
- In 2019, Qiu et al. compared robotic, video-assisted and open PSR: RPSR performed better in bleeding ($P < .001$), operative time ($P < .001$) and chest tube stay ($P < .001$).
- RPSR holds a potential benefit of lymph node dissection ($P = 0.003$) compared to video-assisted PSR (Jin et al. 2022).
- A cohort of 104 patients underwent RPSR: 73.0% OS rate and 67.9% DFS rate (Liu et al. 2022).

Our center:

- 11 cases of RPSR from 2015.5 to 2022.12
- Median operation time: 220 (range 167.5-283.5) min.
- Median length of postoperative hospital stay : 8 (range 6.5-10.5) days.
- Median length of chest tube stay : 6 (range 4.5-8.5) days