

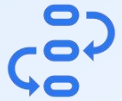
Initial Experience of Da Vinci Single-Port Robotic System in Thoracic Surgery



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1 Description of Team

3 SP-certified thoracic surgeons
3 trained nurse specialists including
**a robotics coordinator,
a scrub nurse, a circulating nurse**
2 anesthesiologists
1 biomedical engineer



1.Pre-Op: Verify long-shaft instrument availability; Using foam pads to prevent nerve compression
2.Docking: Align patient cart ipsilaterally; Line-guided cart positioning system
3.Intra-Op: Using a "hybrid table" to manage instruments
4.Emergency strategies: setting a protocol to convert to VATS
15 procedures were executed without conversion

4 Implementation

2 Preparation and Planning

1. Training: SP docking, emergency skills, and instrument troubleshooting; 60° lateral positioning; instrument transitions
2. Workflow:
① **Setting checklist** to verify instruments
② **Time mapping** to prepare for SP setup
③ **Plan a route** for Patient-side cart moving



Nurse prep time: 10.9 ± 2.1 min.
Incision prep time: 23 (16–29) min
Bipolar graspers, Hook, Cadiere, Port Access Large were 100% used
Post-op VAS (48h) was 3.1 ± 0.9
EQ-5D recovery:
Baseline $5.73 \pm 1.03 \rightarrow 7.60 \pm 1.99$ (2w) $\rightarrow 5.47 \pm 0.74$ (6m) ($p < 0.05$)

5 Outcome

3 Assessment

1.Positioning: 90° lateral positioning may cause diaphragmatic tension
2.Instrument: Standard arms maybe insufficient for posterior mediastinum access
3.Workflow: Unstructured setup may increase nurse prep time



1.Positioning: 60° lateral positioning maximizes diaphragmatic mobility which adopted as new standard for SP robotic thoracics
2.Training: SP cases require nursing skills both in robotic and conventional thoracic surgeries
3.Nurse-driven standardization is the important condition of successful robotic program

6 Implications

