

Fibrin Sealant Patch Reduces Air Leak and Length of Stay After Robotic Pulmonary Resection

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BACKGROUND

- Air leak is a leading cause of delayed discharge after robotic anatomic lung resection.
- Postoperative day 1 (POD1) discharge remains uncommon.
- TachoSil® is an absorbable collagen patch coated with fibrinogen and thrombin, approved for hemostasis.
- We evaluated the effect of prophylactic patch application to the lung staple line on air leak and length of stay (LOS).

METHODS

Study Design: Retrospective cohort study using a prospectively maintained database

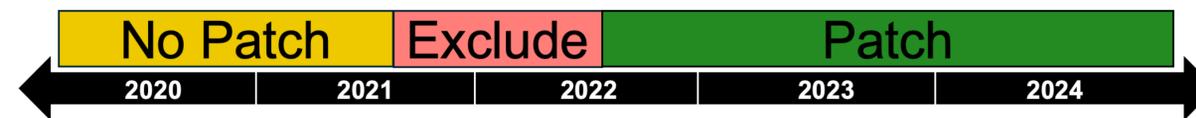
Participants: 223 consecutive robotic lobectomies and segmentectomies performed by a single surgeon (Jan 1, 2020 – Dec 31, 2024), grouped by patch use

Data Collected: Baseline characteristics, surgical characteristics, and perioperative outcomes

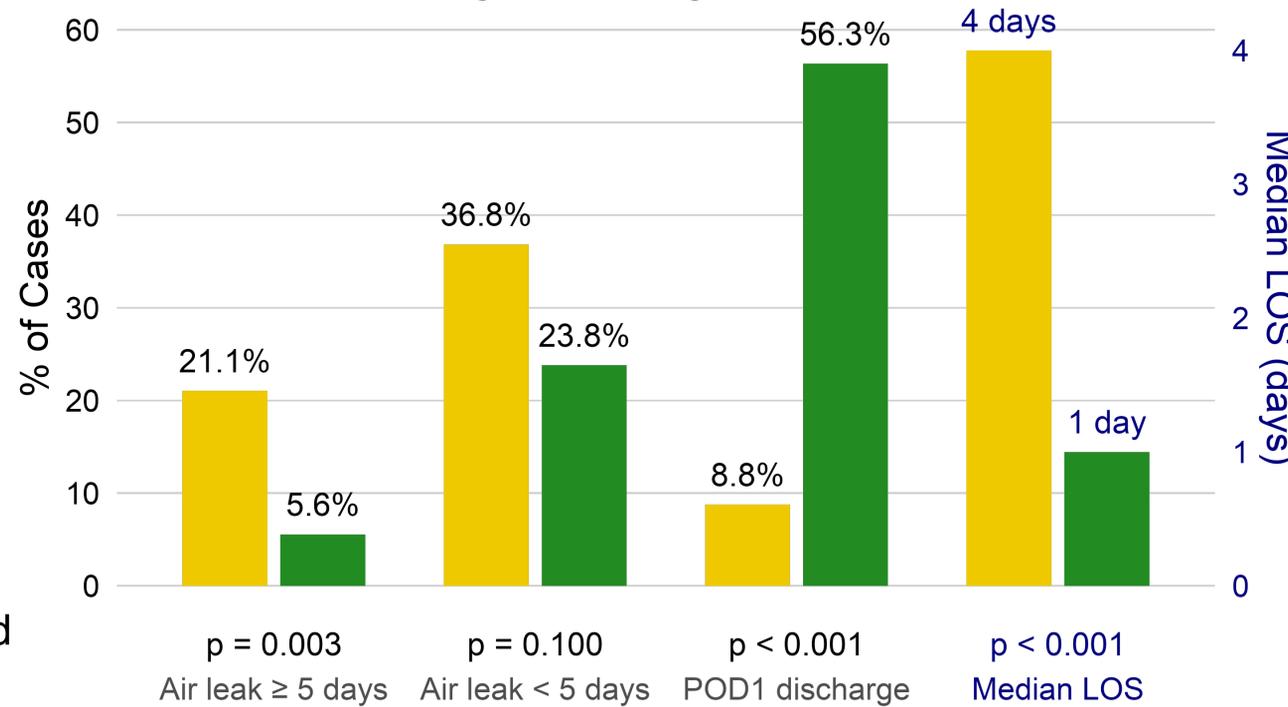
Outcomes: Post-operative air leak, LOS, and 30-day complications

Statistical Analysis: Descriptive and inferential statistics performed in R

RESULTS



Outcomes by Prophylactic Patch Use



Outcomes	No Patch (n = 57)	Patch (n = 126)	P Value
30-day readmission	4 (7.1%)	10 (8.0%)	1
30-day ER/UC Visit	6 (10.7%)	11 (8.8%)	0.895
Complications			
None	14 (24.6%)	76 (60.3%)	< 0.001
Other	21 (36.8%)	28(22.2%)	0.059

DISCUSSION

- Study limitations include time-based protocol changes and surgeon learning curve.
- In 2023, patch access was briefly lost; outcomes worsened during this period, suggesting the study's improvements were due to patch use rather than other time-based trends.
- Multicenter randomized trials are needed to define the patch's role in routine practice.

CONCLUSION

Use of a fibrin sealant patch during robotic lung resection is associated with significant reduction in prolonged postoperative air leak and length of stay.

ACKNOWLEDGEMENTS

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After robotic lung surgery, the staple line can leak air, which delays recovery. In this study, placing a sealant patch on the staple line reduced air leak, shortened hospital stays, and allowed more patients to go home the next day.