

DOES ABRASION PLEURODESIS INCREASE THE MORBIDITY OF VIDEO ASSISTED THORACIC SURGERY FOR PRIMARY PNEUMOTHORAX?

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OBJECTIVE: Pneumothorax surgery is a frequently used model to investigate the impact of surgical approach on postoperative morbidity. However, the criticism that abrasion pleurodesis during such surgery may confound results by introducing additional morbidity has not been specifically investigated.

METHODS: Prospectively collected data on consecutive patients receiving Video-Assisted Thoracic Surgery (VATS) for primary pneumothorax were retrospectively reviewed. Patients with secondary pneumothorax were excluded. All patients received similar surgery with bleb resection, with or without pleural abrasion performed according to surgeon preference. The size of the study cohort was calculated to demonstrate a difference in 1 point on a 10-point analog pain score (alpha 0.05; power 80%).

RESULTS: The data for this cohort are summarized in the Table. There was no difference between the study arms in all major demographic and clinical characteristics. There was no mortality or major complication in all patients. Intraoperatively, pleural abrasion did not increase operation times or blood loss. Postoperatively, mean chest drain durations and lengths of stay were similar in the two study arms. Abrasion patients had a trend for higher total volume of fluid drained at the time of drain removal, but the absolute difference was clinically trivial (63ml). On a 10-point analog scale, pain scores on the 1st and 2nd days after surgery were similar between the study arms, with a non-significant trend for lower mean score in the abrasion group on the 1st postoperative day. All patients were given regular acetaminophen, and the requirement for additional analgesia (oral tramadol) for breakthrough pain was similar in the two study arms. After discharge, the study arms were similar in terms of time until completion resolution of pain, time until resumption of normal activity/work, and incidence of paresthesia.

CONCLUSIONS: Abrasion pleurodesis does not add significant pain or morbidity to primary pneumothorax surgery. The pneumothorax surgery model can continue to be used to assess different surgical approaches. Further study is needed to determine the role of abrasion pleurodesis on pneumothorax recurrence.

	No Abrasion (n=22)	With Abrasion (n=14)	P value
<i>Baseline characteristics</i>			
Sex	18 (81.8%)	11 (78.6%)	0.810
Mean age (years)	26.9 ± 7.7	31.9 ± 8.7	0.092
Smoking history	6 (27.3%)	5 (35.7%)	0.592
Previous episodes of pneumothorax	11 (50.0%)	4 (28.6%)	0.204
Duration of symptoms prior to admission (hours)	65.3 ± 101.6	121.1 ± 140.5	0.211
Presentation with chest pain	22 (100.0%)	13 (92.9%)	0.204
Presentation with dyspnea	2 (9.1%)	4 (28.6%)	0.126
Presentation with cough	3 (13.6%)	1 (7.1%)	0.546
Right side pneumothorax	13 (59.1%)	7 (50.0%)	0.593
Estimated size of pneumothorax on presentation (%)	50.5 ± 24.3	57.1 ± 24.2	0.430
<i>Outcomes</i>			

Mean operation time (mins)	75.9 ± 31.9	81.3 ± 32.4	0.641
Mean blood loss (ml)	16.4 ± 7.7	18.6 ± 18.8	0.681
Mean chest drain duration (hours)	40.1 ± 77.2	37.1 ± 26.6	0.872
Mean total drainage at time of drain removal (ml)	76.3 ± 97.6	139.3 ± 110.1	0.097
Mean length of stay (days)	3.7 ± 1.6	3.9 ± 1.9	0.687
Mean pain score on postop day 1 (0-10)	3.0 ± 0.9	2.4 ± 0.8	0.068
Mean pain score on postop day 2 (0-10)	2.5 ± 0.6	2.1 ± 0.9	0.172
Mean use of 'as required' Tramadol on post-op day 1 (mg)	125.0 ± 99.7	146.4 ± 79.6	0.481
Mean use of 'as required' Tramadol on post-op day 2 (mg)	104.5 ± 104.6	100.0 ± 76.0	0.881
Mean duration until complete absence of pain (days)	45.5 ± 53.1	37.9 ± 30.8	0.586
Mean duration until resumption of normal activity/work (days)	21.7 ± 12.7	26.4 ± 25.4	0.530
Paresthesia after surgery	14 (63.6%)	5 (35.7%)	0.102