



Pleural coverage with a PGA sheet and fibrin glue after VATS bullectomy for primary spontaneous pneumothorax

Ju Sik Yun , Sang Yun Song , Kook Joo Na

Department of Thoracic and Cardiovascular Surgery, Chonnam National University Hwasun Hospital,
Chonnam National University Medical School, Hwasun, Republic of Korea



Background

- Considerations for VATS bullectomy
 - Indication
 - Optimal timing
 - Approach
 - Chest tube
 - Additional methods (Pleural abrasion, Chemical pleurodesis, and various visceral pleural reinforcement)

Thoracoscopic Operation for Secondary Pneumothorax Under Local and Epidural Anesthesia in High-Risk Patients

Takahiro Mukaida, MD, Akio Andou, MD, Hiroshi Date, MD, Motoi Aoe, MD, and Nobuyoshi Shimizu, MD

Department of Surgery II, Okayama University School of Medicine, Okayama, Japan



maintained during the operation. The mean duration of the postoperative chest drainage was 5 days. No significant postoperative complication was encountered. No pneumothorax had recurred at a mean follow-up of 16 months.

Conclusions. Video-assisted thoracic operations can be performed safely under local and epidural anesthesia for the treatment of intractable secondary pneumothorax in high-risk patients. The air leakage can be controlled with the use of polyglycolic acid sheets and fibrin glue without bullectomy.

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A clinical study of efficacy of polyglycolic acid patch in surgery for pneumothorax: a systematic review and meta-analysis

Yuang Mao¹, Zulei Zhang¹, Weibiao Zeng¹, Wenxiong Zhang², Jianyong Zhang³, Guangmiao You¹ and Yiping Wei^{2*}



Abstract

Objectives: A polyglycolic acid (PGA) patch is often used in pulmonary bullae resection, but consensus has not been reached on its effect on patient recovery. The aim of the study is to conduct a systematic review and meta-analysis of studies of polyglycolic acid for bullectomy.

Methods: A comprehensive literature search was performed using ScienceDirect, EMBASE, Ovid MEDLINE, PubMed, The Cochrane Library, Scopus, and Google Scholar. Clinical trials that compared PGA versus non-PGA for bullectomy were selected. The clinical endpoints included postoperative recurrence, average postoperative air leakage, prolonged air leaks, drainage tube removal time, and postoperative hospital stay.

Results: A total of eight articles (1095 patients) were included. Compared to the non-PGA approach, the PGA approach was associated with lower rates of postoperative recurrence (95% confidence interval [CI]: 0.16 to 0.39,

The use of PGA patch might can prevent the postop recurrence of SP and decrease the rates of PALs

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Purpose

Efficacy of mesh coverage in surgical bullectomy for primary spontaneous pneumothorax: A systematic review and meta-analysis

Selvie Yeo^a, Jianye Chen^b, Lowell Leow^b, Haidong Luo^b, John Kit Chung Tam^{a,b,*}

^a Department of Surgery, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

^b Department of Cardiac, Thoracic and Vascular Surgery, National University Heart Centre Singapore, Singapore

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ABSTRACT

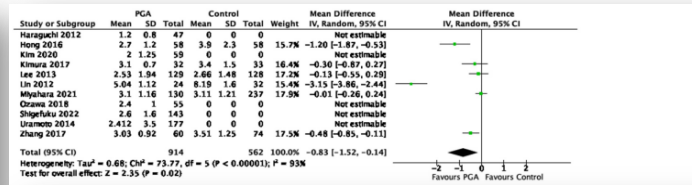
Background and purpose: Thoracic surgeons are now adopting a new method of using a mesh covering to reduce recurrence in surgical pleurodesis for pneumothorax. We aimed to review the literature and compare the outcomes of using mesh covering as an additional procedure during surgical pleurodesis.

Methods: A comprehensive search was performed from inception to October 2022 on PubMed, Embase, Cochrane and Scopus. Randomised controlled trials (RCTs) and observational cohort studies (OCSs) comparing the use of mesh coverage, and different materials were included. Data were extracted to compare recurrence and other outcomes using a random effect model.

Results: 23 studies consisting of 2 RCTs and 21 OCSs totalling 5092 patients were included. Patients with a mesh had a significantly lower recurrence (OR = 0.22, 95% CI 0.12–0.42, $p < 0.0001$) and a shorter duration of chest tube drainage (SMD = -0.74 days, 95% CI -0.28 to -1.20, $p < 0.0001$) but no significant difference in the length of operation. The use of polyglycolic acid (PGA) and vicryl mesh was associated with a significantly shorter duration of chest tube drainage [(PGA, SMD = 0.83 days, 95% CI 0.14–1.52, $p < 0.0001$), (vicryl, SMD = 1.06 days, 95% CI 0.71–2.82, $p = 0.0005$)]. They also had a shorter post-operative length of stay than oxidized regenerative cellulose (ORC) but this was not statistically significant.

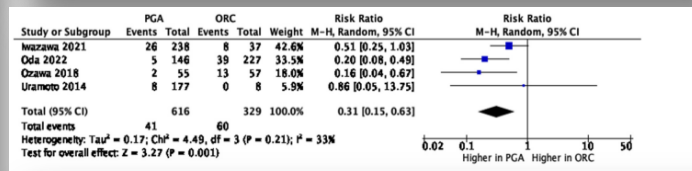
Conclusion: The use of a mesh material reduced the incidence of post-operative air leaks in the short term and the recurrence rate in the long term. Some mesh materials such as PGA and vicryl performed better than other materials.

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	Length of chest drainage
PGA	2.62 days
Control	3.45 days
Overall	2.93 days

Fig. 19 – Length of chest drainage.



	Rate of recurrence
PGA	0.0666
ORC	0.182
Overall	0.107

Fig. 22 – Rate of recurrence.

- The most effective pleural coverage method has not been established
- This study aimed to investigate the effectiveness of pleural coverage using a PGA sheet and fibrin glue

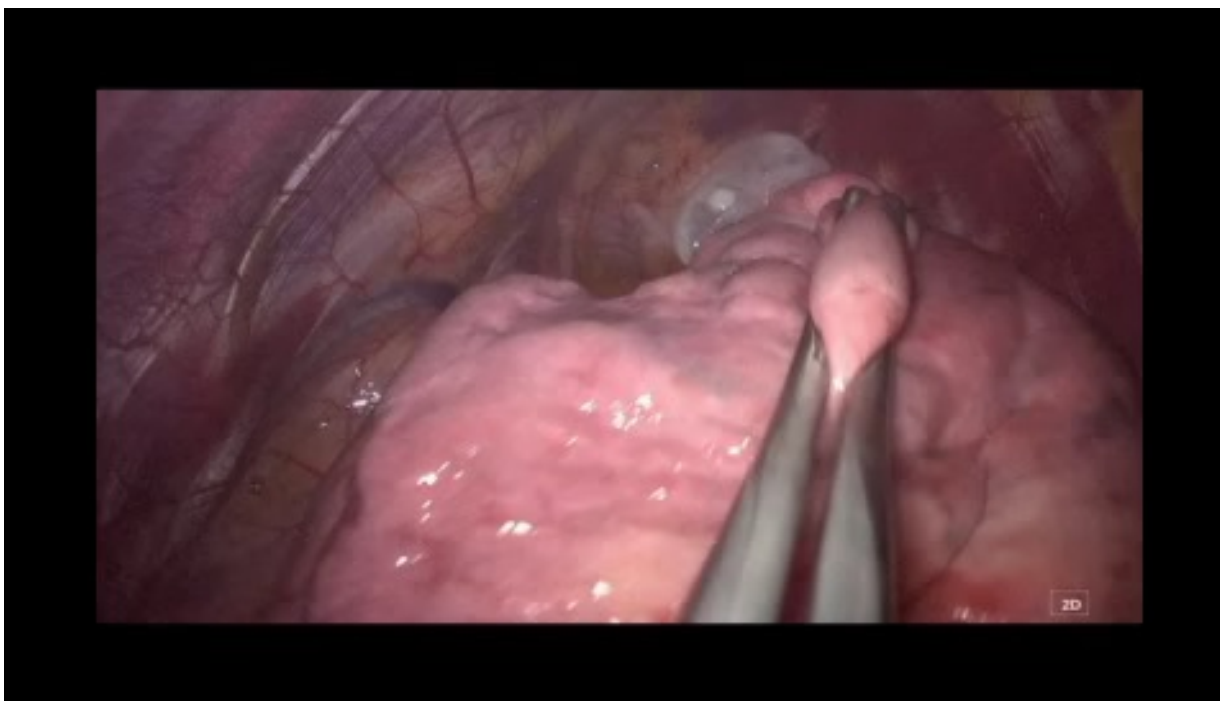


Methods

- From 2012 to 2021,
 - The total of 206 pts who underwent VATS bullectomy
 - Primary spontaneous pneumothorax, < 40 yrs of age : 102 pts
- Pleural coverage was divided into a group using only fibrin glue (Group A, 46 pts) and a group using PGA sheet and fibrin glue (Group B, 56 pts)
- Postoperative outcomes and recurrence were comparatively analyzed
- Statistics
 - T-test & Chi-Square test



Surgical procedure



Results

- Male : Female = 87 : 15
- Lt : Rt (Pnx location) = 46 : 56
- Postop chest tue duration = 2.58 ± 2.82 days
- Hospital stay = 3.58 ± 2.86 days
- During the follow-up period, recurrence was confirmed in 10 patients

Treatment for recurrence	Group A (n = 6)	Group B (n = 4)
Observation	1	2
Oxygen inhalation	1	2
Closed thoracostomy	3	
Reoperation	1	



Results

- Comparative analysis

Variable	Group A (n = 46)	Group B (n = 56)	P value
Age (years)	21.9 ± 6.6	21.1 ± 6.1	0.495
Gender, Male : Female	42 : 4	45 : 11	0.163
Lesion(s), Lt : Rt	22 : 24	24 : 32	0.691
Length of hospital stay (days)	4.3 ± 3.5	3.1 ± 2.0	0.038
Chest tube duration (days)	3.3 ± 3.5	2.0 ± 1.9	0.036
Prolonged air leak (>4 days) (%)	11 (23.9)	3 (5.4)	0.009
Postoperative recurrence (%)	6 (13.0)	4 (7.1)	0.340



Conclusion

- Performing pleural coverage of the stapled line using a PGA sheet and fibrin glue after VATS bullectomy with primary spontaneous pneumothorax is effective and is expected to lower the recurrence rate.
- However, additional data is necessary to confirm this.



THANK YOU
FOR YOUR ATTENTION

