Prevention of alveolar air leakage after video-assisted thoracic surgery: Comparison of the efficacy of methods involving the use of fibrin glue.

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Abstract:

Background The aim of this study was to evaluate the appropriate condition of use of the fibrin glue plus polyglycolic acid (PGA) sheet combination to obtain the optimal sealing effect. Methods 126 consecutive patients underwent video-assisted thoracic surgery (VATS) were divided into groups as follows: fibrin glue sprayed on the PGA sheet placed over the pleural defect (Method I); fibrinogen and thrombin solutions sprayed separately on the PGA sheet soaked in thrombin and placed over the pleural defect after rubbing of fibrinogen solution on the area (Method II); fibrin glue sprayed on the PGA sheet placed over the pleural defect after rubbing of fibrinogen solution on the area (Method III). Method II and Method III were also examined in an animal model. Results Postoperative air leakage was more effectively prevented by Method III than by the other two methods ($p < 0.05$). In the experimental study, a significantly higher seal-breaking pressure was obtained for Method III than for Method II ($p < 0.05$). Conclusion Method III was the most effective for preventing alveolar air leakage.