

Fibrin glue in pulmonary resection: A prospective, randomized, blinded study.

Authors: Fabian T., Federico J.A., Ponn R.B.

Publication Date: 2003

Abstract:

Background. In contrast to the rare large-airway bronchopleural fistulas after lung resection, peripheral or alveolar air leaks (AAL) are very common, often prolong hospital stay, increase utilization of resources, and on occasion result in significant morbidity. Various adjuncts have been used in attempts to reduce AAL. One of these, the topical application of fibrin glue, has to date failed to demonstrate efficacy in small clinical trials. This study reexamines the role of fibrin glue in routine lobar and wedge pulmonary resections. **Methods.** Of 113 patients enrolled, 13 became ineligible because of intraoperative findings. The remaining 100 patients were randomly assigned to one of two groups at the conclusion of lung resection, regardless of the presence or absence of identifiable air leak. The control group received no additional intervention. The experimental group underwent application of 5 mL of fibrin glue delivered by a pressurized, aerosolized spraying mechanism. Postoperatively a blinded clinical observer recorded outcomes including the incidence and duration of AAL, prolonged AAL (PAAL), the volume of pleural drainage, the time to tube removal, and the postoperative length of stay (LOS), as well as any complications related to treatment. **Results.** Both groups were comparable with regard to demographics, diagnoses, and procedures. Statistically significant reductions were found in the experimental group in the overall incidence of AAL (34% versus 68%, $p = 0.001$), mean duration of AAL (1.1 versus 3.1 days, $p = 0.005$), mean time to chest tube removal (3.5 versus 5.0 days, $p = 0.02$), and the incidence of PAAL (2% versus 16%, $p = 0.015$). There was no significant difference in the volume of chest tube drainage or LOS (4.6 days glue and 4.9 days control, $p = 0.318$). There were no complications related to the use of fibrin glue.

Conclusions. Aerosolized fibrin glue appears to be safe and effective in reducing AAL. The overall incidence of AAL was reduced by 50% and PAAL occurred in only 1 treated patient (2% versus the usually reported 15%). Further studies with this and other methods are required to delineate routine versus selective use, to compare methods, and clarify cost benefit. © 2003 by The Society of Thoracic Surgeons.