

The effects of sheet-type absorbable topical collagen hemostat used to prevent pulmonary fistula after lung surgery.

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Abstract:

Background: Numerous reports have been published on the application of fibrin glues, biological adhesives used as sealants for air leaks after pulmonary resection; however, the use of blood products has been questioned from both safety and economic perspectives. Therefore we were prompted to attempt the use of Integran (method C), a sheet-type absorbable topical collagen hemostat that is neither expensive nor derived from blood. Objective: To compare the efficacy of method C with that of method G, a combined approach in which TachoComb or a polyglycolic acid (PGA) sheet was fixed with a fibrin glue in a randomized controlled trial to prevent pulmonary fistula formation after lung surgery. Materials and Methods: Of the patients who were scheduled to undergo pulmonary resection in 2006 at the Department of General Thoracic Surgery, Juntendo University, and who provided informed consent for the study before surgery, those who developed visible air leaks during lobectomy, segmentectomy, partial resection for lung tumor or pulmonary cyst, or intractable pneumothorax were included as the subjects of this study. The subjects were randomized for treatment with either of 2 procedures, namely, method C or method G. Pulmonary fistula was defined as an obvious air leak persisting until day 3 after surgery. Results: A total of 38 patients were assigned to method C and 34 to method G. Three patients (7.9%) assigned to method C (including 1 who underwent lobectomy and 2 who underwent partial resection), and 6 (17.6%) patients assigned to method G, including 3 who each underwent a lobectomy and partial resection, developed postoperative pulmonary fistula. The incidence of pulmonary fistula was significantly

lower in the group assigned to method C, with a statistically significant difference of $p = 0.044$.

Conclusions: In a Randomized Controlled Trial of Sealing with a Sheet-type Collagen vs. a Combined Approach of Fixing a Collagen Sponge, Using Fibrin Glue for Closure of Air Leaks, the use of Integran, a sheet-type absorbable topical collagen hemostat, is feasible to prevent pulmonary fistula after lung surgery. It is also affordable and safe because it is not a blood product. © 2010 The Editorial Committee of Annals of Thoracic and Cardiovascular Surgery.