A unique method for repairing intraoperative pulmonary air leakage with both polyglycolic acid sheets and fibrin glue.

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Abstract:

In the present study we present a unique maneuver, using both fibrin glue and polyglycolic acid (PGA) sheets, for repairing intraoperative pulmonary air leakage, and report our clinical results. Based on the results from in vitro experiments, we retrospectively investigated the clinical effects of our method for repairing intraoperative pulmonary air leakage in 377 consecutive patients, who underwent a pulmonary resection for primary lung cancer or metastatic lung tumors from 2004 to 2009. From April 2004 through September 2007, repair of intraoperative pulmonary air leakage was performed in 204 patients using only fibrin glue. From October 2007 through December 2009, the repair was performed in 173 patients with a unique application of both fibrin glue and PGA sheets, i.e., (1) rubbing fibrin glue A solution, (2) applying a PGA sheet cut to an appropriate size, (3) rubbing fibrin glue B solution on the PGA sheet, and (4) reapplying fibrin glue A solution and rubbing. The mean duration of postoperative pleural drainage was significantly shorter in the latter time period when both fibrin glue and PGA sheets were used than in the former period when fibrin glue was used alone. The incidence of prolonged air leakage longer than 1 week was also significantly lower in the latter era than in the former era. Our unique application of both fibrin glue and PGA sheets for the intraoperative repair of pulmonary air leakage effectively resulted in a shortening of the duration of postoperative pleural drainage.