# Mesh fixation with glue versus suture for chronic pain and recurrence in Lichtenstein inguinal hernioplasty. [Review]

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## Abstract:

BACKGROUND: Chronic pain following mesh-based inguinal hernia repair is frequently reported, and has a significant impact on quality of life. Whether mesh fixation with glue can reduce chronic pain without increasing the recurrence rate is still controversial.

OBJECTIVES: To determine whether tissue adhesives can reduce postoperative complications, especially chronic pain, with no increase in recurrence rate, compared with sutures for mesh fixation in Lichtenstein hernia repair.

SEARCH METHODS: We searched the following electronic databases with no language restrictions: the Cochrane Central Register of Controlled Trials (CENTRAL; issue 4, 2016) in the Cochrane Library (searched 11 May 2016), MEDLINE Ovid (1986 to 11 May 2016), Embase Ovid (1986 to 11 May 2016), Science Citation Index (Web of Science) (1986 to 11 May 2016), CBM (Chinese Biomedical Database), CNKI (China National Knowledge Infrastructure), VIP (a full-text database in China), Wanfang databases. We also checked reference lists of identified papers (included studies and relevant reviews).

SELECTION CRITERIA: We included all randomised and quasi-randomised controlled trials comparing glue versus sutures for mesh fixation in Lichtenstein hernia repair. Cluster-RCTs were also eligible.

DATA COLLECTION AND ANALYSIS: Two review authors extracted data and assessed the risk of bias independently. Dichotomous outcomes were expressed as odds ratio (OR) with 95% confidence intervals (CI). Continuous outcomes were expressed as mean differences (MD) with 95% CIs.

MAIN RESULTS: Twelve trials with a total of 1932 participants were included in this review. The overall postoperative chronic pain in the glue group was reduced by 37% (OR 0.63, 95% CI 0.44 to 0.91; 10 studies, 1418 participants, low-quality evidence) compared with the suture group. However, the results changed when we conducted subgroup analysis with regard to the type of mesh. Subgroup analysis of included studies using lightweight mesh showed the reduction of chronic pain was less profound and insignificant (OR 0.77, 95% CI 0.50 to 1.17). Subgroup analysis of included studies using heavyweight mesh resulted in a significant benefit from the fixation with glue (OR 0.38, 95% CI 0.17 to 0.82).Hernia recurrence was similar between the two groups (OR 1.44, 95% CI 0.63 to 3.28; 12 studies, 1932 participants, low-quality evidence). Fixation with glue was superior to suture regarding duration of the operation (MD -3.13, 95% CI -4.48 to -1.78; 9 studies, 1790 participants, low-quality evidence); haematoma (OR 0.52, 95% CI 0.31 to 0.86; 10 studies, 1384 participants, moderate-quality evidence); and recovery time to daily activities (MD -1.26, 95% CI -1.89 to -0.63; 3 studies, 403 participants, low-quality evidence).We also investigated adverse events. There were no significant differences between the two groups. For superficial wound infection pooled analyses showed OR 1.23, 95% CI 0.37 to 4.11; 7 studies, 763 participants (low-quality evidence); for mesh/deep infection OR 0.67, 95% CI 0.16 to 2.83; 8 studies, 1393 participants (low-quality evidence). Furthermore, we investigated seroma (a postoperative swelling caused by fluid) (OR 0.83, 95% CI 0.51 to 1.33); and persisting numbness (OR 0.81, 95% CI 0.57 to 1.14).Finally, six trials involving 1009 participants reported postoperative length of stay, resulting in non-significant difference between the two groups (MD -0.12, 95% CI: -0.35 to 0.10)Due to the lack

of data, it was impossible to draw any distinction between synthetic glue and biological glue.Eight out of 12 trials showed high risk of bias in at least one of the investigated domains. Two studies were quasi-randomised controlled trials and the allocation sequence of one trial was not concealed. Nearly half of the included trials either did not provide adequate information or had high risk of bias regarding blinding processes. The risk of bias for incomplete outcome data of all the included studies varied from low to high risk of bias. Two trials did not report on some important outcomes. One study was funded by the manufacturer producing the fibrin sealant. Therefore, according to the 'Summary of findings' tables, the quality of the evidence (GRADE) for the outcomes is moderate to low.

AUTHORS' CONCLUSIONS: Based on the short-term results, glue may reduce postoperative chronic pain and not simultaneously increase the recurrence rate, compared with sutures for mesh fixation in Lichtenstein hernia repair. Glue may therefore be a sensible alternative to suture for mesh fixation in Lichtenstein repair. Larger trials with longer follow-up and high quality are warranted. The difference between synthetic glue and biological glue should also be assessed in the future.