A single-surgeon randomized trial comparing sutures, N-butyl-2-cyanoacrylate and human fibrin glue for mesh fixation during primary inguinal hernia repair.

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Abstract:

BACKGROUND: We sought to determine the efficacy of sutures, human fibrin glue and N-butyl-2-cyanoacrylate for mesh fixation in patients undergoing the plug and mesh procedure for groin hernia. METHODS: A total of 156 patients with 167 inguinal hernias (11 bilateral) underwent a plug and mesh procedure and were randomly assigned to received either sutures (n = 59 hernias), human fibrin glue (n = 52) or N-butyl-2-cyanoacrylate (n = 56) for mesh fixation. RESULTS: The overall morbidity rate was 38.98% in the suture group, 9.62% in the fibrin glue group and 10.71% in the N-butyl-2-cyanoacrylate group (suture v. fibrin glue, $p < 0.001$; suture v. N-butyl-2-cyanoacrylate, $p < 0.001$). There was no significant difference in morbidity between the fibrin glue and N-butyl-2-cyanoacrylate groups. Overall, short-term morbidity was significantly higher in the suture group (27.12%) than in the fibrin glue (9.62%, $p = 0.01$) or N-butyl-2-cyanoacrylate (8.93%, $p = 0.004$) groups, but there was no significant difference between the fibrin glue and N-butyl-2-cyanoacrylate groups. There was no significant difference between the groups in terms of mean postoperative stay (32.6 h in the suture group v. 30.8 h in the fibrin glue group v. 32.0 h in the N-butyl-2-cyanoacrylate group) or mean time to return to work (20.4 d in the suture group v. 20.3 d in the fibrin glue group v. 19.8 d in the N-butyl-2-cyanoacrylate group). Overall, long-term morbidity was significantly higher in the suture group (11.86%) than in the fibrin glue (0%, $p = 0.001$) or N-butyl-2-cyanoacrylate (1.78%, $p = 0.03$) groups. There was no recurrence in any of the groups. Two cases (3.39%) of chronic groin pain were reported in patients in the suture group. A sensation

of extraneous body was reported in 5 (8.47%) patients who received sutures and in 1 (1.78%) patient in the N-butyl-2-cyanoacrylate group; there were no reported cases in the fibrin glue group (suture v. fibrin glue, p = 0.01; suture v. N-butyl-2-cyanoacrylate, p = 0.03; fibrin glue v. N-butyl-2-cyanoacrylate, p = 0.30). CONCLUSION: The use of human fibrin glue or N-butyl-2-cyanoacrylate is better tolerated than sutures in tension-free inguinal open repair using the plug and mesh technique in terms of overall immediate results, and there is a better trend in the long-term data.