

Fibrin Glue Reinforcement of Choledochotomy Closure Suture Line for Prevention of Bile Leak in Patients Undergoing Laparoscopic Common Bile Duct Exploration with Primary Closure: A Pilot Study

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Abstract : Introduction: Laparoscopic common bile duct exploration (LCBDE) allows cholecystectomy and the removal of common bile duct (CBD) stones to be performed during the same sitting, thereby decreasing hospital stay. CBD exploration through choledochotomy can be closed primarily with an absorbable suture material, but can lead to biliary leakage postoperatively. In this study we tried to find a solution to further lower the incidence of bile leakage by using fibrin glue to reinforce the sutures put on choledochotomy suture line. It has haemostatic and sealing action, through strengthening the last step of the physiological coagulation and biostimulation, which favours the formation of new tissue matrix. Methodology: This study was conducted at a tertiary care teaching hospital in New Delhi, India, from 2011 to 2013. 20 patients with CBD stones documented on MRCP with CBD diameter of 9 mm or more were included in this study. Patients were randomized into two groups namely Group A in which choledochotomy was closed with polyglactin 4-0 suture and suture line reinforced with fibrin glue, and Group 'B' in which choledochotomy was closed with polyglactin 4-0 suture alone. Both the groups were evaluated and compared on clinical parameters such as operative time, drain content, drain output, no. of days drain was required, blood loss & transfusion requirements, length of postoperative hospital stay and conversion to open surgery. Results: The operative time for Group A ranged from 60 to 210 min (mean 131.50 min) and Group B 65 to 300 min (mean 140 minutes). The blood loss in group A ranged from 10 to 120 ml (mean 51.50 ml), in group B it ranged from 10 to 200 ml (mean 53.50 ml). In Group A, there was no case of bile leak but there was bile leak in 2 cases in Group B, minimum 0 and maximum 900 ml with a mean of 97 ml and p value of 0.147 with no statistically significant difference in bile leak in test and control groups. The minimum and maximum serous drainage in Group A was nil & 80 ml (mean 11 ml) and in Group B was nil & 270 ml (mean 72.50 ml). The p value came as 0.028 which is statistically significant. Thus serous leakage in Group A was significantly less than in Group B. The drains in Group A were removed from 2 to 4 days (mean: 3 days) while in Group B from 2 to 9 days (mean: 3.9 days). The patients in Group A stayed in hospital post operatively from 3 to 8 days (mean: 5.30) while in Group B it ranged from 3 to 10 days with a mean of 5 days. Conclusion: Fibrin glue application on CBD decreases bile leakage but in statistically insignificant manner. Fibrin glue application on CBD can significantly decrease post operative serous drainage after LCBDE. Fibrin glue application on CBD is safe and easy technique without any significant adverse effects and can help less experienced surgeons performing LCBDE.

Keywords : bile leak, fibrin glue, LCBDE, serous leak

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