

Research Article

Role of drainage tube in laparoscopic cholecystectomies: A comparative randomized study

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Abstract: Routine drainage after laparoscopic cholecystectomy is still debatable. The present study is designed to assess the role of drain in laparoscopic cholecystectomies performed in symptomatic cholelithiasis cases. Aims and objective of the study is to compare the effects (post operative pain, bile leak/collection, infection & hospital stay) of placement/non placement of drain following laparoscopic cholecystectomy. This comparative randomized observational study was carried out in the Department of Surgery, PDVVVF'S Hospital, and Ahmednagar. During study period of 1 yr, 50 cases of symptomatic cholelithiasis underwent laparoscopic cholecystectomies. Cases were divided into two groups. Group A with drainage tube, Group B without drainage tube. Patients aged between 18 to 70, both sex with preoperative diagnosis of Gall bladder stones, gall bladder polyp were included in this study. Exclusion criteria : Age <18 and >70, acute cholecystitis, patients with suspected mirizzi syndrome, common bile duct stone, malignancy, portal hypertension, ascitis, empyema of gall bladder, patient with previous upper abdominal surgery, pregnancy. This study consists of 50 patients (males 14 and females 36) with male female ratio of 1:3 and mean age of 36 years. In Group A (with drainage tube) Post-operative discomfort and pain was more than group B (without drainage tube) at 48 hrs. An evidence of local collection in group A, Wound infection occurred in 2 patients of group A and in 1 patient of group B. Hospital stay, group A with drain (3.5 days) was longer duration than that of group B without drain (2 days). Patient's satisfaction was better in group B than Group A on 1st follow up. Differences were considered significant when P <0.05. There was evidence of a biliary peritonitis in a drainage tube placed patient. There was no mortality in any groups. In conclusion we found no significant advantage of using drain after laparoscopic cholecystectomy.

Keywords: Cholelithiasis, Laparoscopic cholecystectomy, Drain, Hospital stay

INTRODUCTION

Laparoscopic cholecystectomy is safe and effective surgical treatment for patients with gallstone. It reduces postoperative pain and time of hospital stay post operatively. It makes the patients fit for early return to work with minimum scar. Langenbach had introduced the placement of sub hepatic drainage tube after cholecystectomy in 1882 [1]. Cholecystectomy without drainage referred to as the ideal cholecystectomy was introduced in Germany in 1919 [2].

The advantages of drain tube are many. The tube allows drainage of abdominal cavity bile leakage from, the gall bladder bed, Cystic duct, damaged bile duct, Blood or exudates resulting from surgical trauma. Even if drain tube do not drain these fluid completely, they do warn the surgeons of such leakage and prompt

for early and necessary steps to deal with complications. It also reduces the side effects of pneumo peritoneum using carbon dioxide gas.

The disadvantages of drain tube are also many. Drain tube Converts sterile collection into an infected collection. The secretion of serous fluid also may get infected due to presence of drain. Blockage of drain tube by an omental plug or blood clot may lead to infection in the peritoneal cavity as well as, wound infection [3].

The need of the study is to evaluate the role of surgical drainage in laproscopic cholecystectomy, where the lack of evidence on usefulness of drainage tube is present [4].

Aims and objectives

To compare the effect of placement/non placement of drain following laproscopic cholecystectomy with respect to (5), Post operative pain, local collection, wound Infection and hospital stay.

MATERIAL AND METHODS

This comparative randomized study was carried out in Department of Surgery, PDVVPF's Hospital, and Ahmednagar. During the study period of one year, twenty five patients were simply randomized to have a drain tube (Group A), where as twenty five patients were randomized not to have a drain tube underwent laproscopic cholecystectomy. A written informed consent was obtained from all the patients and was told that there is a possibility to be converted to open surgery.

Inj. Cefuroxime 750 mg IV as standard preoperative antibiotic prophylaxis and post operative analgesia (diclofenac sodium 750 mg) intramuscularly. Post operative pain assessment was performed using visual analog scale (VAS), using linear scale between

zero (no pain) and 10 (strongest conceivable pain). Abdominal drainage was assisted in terms of quantity and quality of drainage. Post operative complications such as post operative nausea and vomiting, per hepatic collection bile leak, bleeding, wound infection were assessed. Abdominal ultrasonography was done only to patients suspected to have collection.

Operative procedure

Laproscopic cholecystectomy was performed using North American four port technique. Thirty degree telescope was used. Two midline 10 mm umbilical and one below the xiphisternum port, two lateral 5 mm one below the coastal margin(mid clavicular line) another in right lumbar region(anterior axillary line) parallel to the umbilical port placed. Abdominal cavity inspected, fundus of the gall bladder grasped towards diaphragm, infundibulum retracted outward and downward. Calot's triangle identified, cystic artery and duct dissected and clipped. Gall bladder removed with the help of gall bladder extractor. In Group A patients (randomized) 18 french size drain kept in sub hepatic space through lateral 5 mm port [6]. Fig-1 & 2.



Fig-1: shows drain in position following laproscopic cholecystectomy

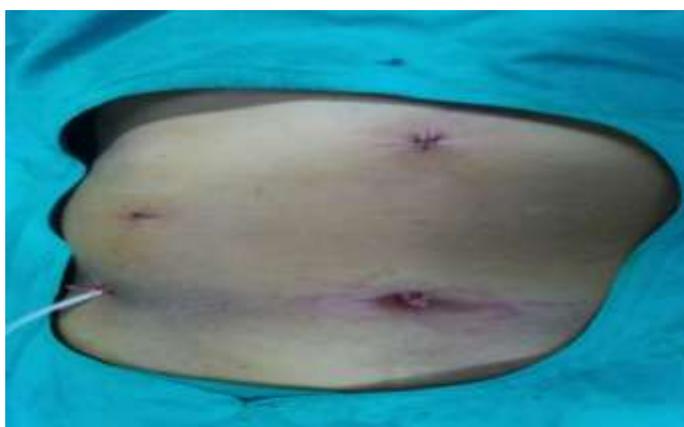


Fig-2: shows no drain following laproscopic cholecystectomy

RESULTS

This study consists of 50 patients (male-14 & female 36) with male: female ratio 1:3. Mean age group involved-36yrs. In Post operative pain (VAS), no significant difference at 24hrs (P value=0.558) and significant difference at 48 hrs (P value =0.044) was found. On 1st follow up, after 01 wk of surgery, both group patients were pain free. Ref – Table 1

There was evidence of bile leak in one patient in Gr A. So re exploration was done. Difference was no significant (P value = 0.510). Wound infection occurred in 2 (4%) patients in group A and one patient in group B 1(2%). difference was no significant (P value =0.5515). Hospital stay, in group a (3.5 days) was longer than group B (2 days).Difference was significant (P value 0.00). Ref –Table 2.

Table- 1: Shows: VAS in post op pain.

Post operative pain(vas)	24 hrs	48 hrs	1 st week
GROUP A	4	1.46	-
GROUP B	3.5	2.5	-

Table- 2: Shows – Difference between Grp A and B in bile leak, wound infection and hospital stay

	GROUP A	GROUP B
BILE LEAK	1	0
RE EXPLORATION	1	0
WOUND INFECTION	2(4%)	1(2%)
HOSPITAL STAY (MEAN)	3.5	2

DISCUSSION

Langenebuch performed 1st cholecystectomy in 1882. He placed peritoneal drain as a part of procedure. The routine placement of drain becomes a part of operation for a long period of time without any scientific evidence. Surgeons have routinely drained after laproscopic cholecystectomy because of fear of collection of bile or blood. Another reason for draining is to allow CO2 insufflated during laparoscopy to escape via drain site to reduce the side effect of CO2.

In our study, Post operative pain (VAS) had significant difference at 48 hrs (P value=0.044) and at 1st week of follow up, there is no significant difference. (P value=0.521) Hawasli and brown found that there was no significant difference between two groups in post operative pain (7). On the contrary, Tzovaras *et al.*; suggested that the routine use of a drain in elective laparoscopic cholecystectomy has nothing to offer and it is associated with increased pain [8]. In our study, post operative pain in group A was due to pulling of drainage tube during change in position of patients in bed and subsequent post operative ambulation of the patients.

Wound infection occurred in 2(4%) in group A and 1 (2%) in group B, resulting in no significant difference (P value=0.5515). Study of Gurusamy *et al.*; showed , wound infection in drain group 15 patients (18.75%) and in non drain group 4 patients (5%), resulting in significant difference [9]. In our study wound infection occurred due to inadequate antibiotic doses and poor personal hygiene as patients was economically and educationally poor.

Hospital stay in group A was 3.5 days & in group B 2 days. That showed significant difference (P value=0.00). Gurusamy *et al* reported significance difference with longer hospital stay in drained patients [9]. In present study, longer hospital stay in group A was due to pain at drainage tube site.

CONCLUSION

We found no significant advantage of using drain after laparoscopic cholecystectomy, the use of drains in laparoscopic cholecystectomy has not much to offer; in the contrary it can be associated with increased discomfort, pain and wound infection. Therefore, its routine use cannot be recommended as there is higher incidence of postoperative pain and longer duration of hospital stay with its use. However in selected group of patients it can be justifiable to leave drain when there is fear of unsolved or potential bile leak. Thus, use of drain does increase morbidity, but the operating surgeon should be the best judge to decide whether to place a drain or not. For better opinion, further study is required.

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