

OPEN CHOLECYSTECTOMY WITHOUT INTRAPERITONEAL DRAINAGE

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Background: Cholecystectomy through laparotomy with or without intra-peritoneal drain has been the standard operation for the gall bladder disease for the last 100 years. It implies removal of gall bladder and is performed mainly for symptomatic gall stones. The Objectives was to analyse the outcome of open cholecystectomy without drain in term of complications. **Methods:** Patients who underwent open cholecystectomy without drainage from January 2005 to December 2008, at Department of Surgery, Liaquat University Hospital, Jamshoro, Pakistan were included in the study. This was a 4 years prospective analysis of open cholecystectomy performed without drainage on 212 patients. Patients were randomly allocated for the procedure who presented with uncomplicated Cholelithiasis. Exclusion Criteria included carcinoma gall bladder, empyema gall bladder, Choledocholithiasis and porcelain gall bladder. All these patients underwent open cholecystectomy under general anaesthesia through various incisions. Operative time, post operative complications and hospital stay were recorded on a performa and analysed using SPSS-13. **Results:** Two hundred and twelve patients, 199 females (93.9%) and 13 males (6.13%), age range 15 to 70 years, underwent open cholecystectomy without drainage for uncomplicated cholelithiasis. The most common complication observed includes seroma (5.66%), followed by surgical site infection both superficial and deep (3.30%) and bile leakage (1.14%). However biliary peritonitis, sub hepatic abscess and Wattman Walter's syndrome were not observed in any case. Mean operating time was 35 minutes. Mean hospital stay was 1.5 days with no mortality during the period of hospitalisation. The overall complications rate and hospital stay was significantly less when compared to open cholecystectomy with intra-peritoneal drain. **Conclusion:** In selected cases with a dry gall bladder bed, routine use of intra peritoneal drainage is unnecessary.

Keywords: open cholecystectomy, intra peritoneal drain, complications

INTRODUCTION

Cholecystectomy through laparotomy with or without drain has been the standard operation for gall bladder disease for the last 100 years. It implies removal of gall bladder and is performed mainly for symptomatic gall stones.^{1,2} Although laparoscopic gall bladder surgery introduced in 1987 is now accepted as a gold standard treatment globally but open cholecystectomy is still being practiced with reasonable and acceptable outcome in developing countries.^{3,4}

First open cholecystectomy was performed in 1882 by Carl Langenback while in 1913, Spivak⁵ performed 1st cholecystectomy without intraperitoneal drainage. Since then, many researchers have advocated open cholecystectomy without drainage under certain circumstances.⁶⁻¹⁴ Drainage in open cholecystectomy is a matter of considerable debate. Surgeon use drains primarily to prevent sub-hepatic abscess or bile peritonitis from un-drained bile leak. Critics of drain condone its use as it increases wound and chest infection. With the popularity of laparoscopic cholecystectomy, open cholecystectomy has undergone various modification to reduce the morbidity such as modification of surgical incisions, minimal dissection and use of no drain.¹⁵ The objective of this study was to

analyse the outcome of open cholecystectomy without intra peritoneal drainage in terms of complications.

PATIENTS AND METHODS

All patients who underwent open cholecystectomy without intraperitoneal drain at Department of Surgery, Liaquat University Hospital, Jamshoro from January 2005 to December 2008 were included in the study. Exclusion criteria include empyema gall bladder, choledocholithiasis, carcinoma gall bladder and porcelain gall bladder. The incision used was classical right subcostal (12–15 cm) in 50% of the cases, transverse right subcostal (6–8 cm) in 40% of the cases or mini-open incision in 10% cases. The skin and superficial fascia and aponeurosis of external oblique muscle were cut in line of incision in all cases. In 60% of cases rectus abdominus muscle was cut along the line of incision and in 40% of the cases rectus abdominus was retracted medially and only flat muscle was cut lateral to the rectus abdominus without cutting major neurovascular bundle. After three sponges packing and retraction, dissection was performed under direct vision in Calot's triangle. Cystic artery and duct were tied separately. Gall bladder was dissected from its bed and haemostasis secured

using diathermy. After removal of the gallbladder a clean sponge was kept in the gallbladder bed and near the tied stumps of the cystic artery and duct for 5 minutes. If clean sponge after five minutes remained dry with no stains of either blood or bile, no drains were kept and a part of greater omentum was plugged near the gallbladder bed and wound closed back in layers. Sub-cuticular stitches were applied and dressing done. On the next morning patients had an ultrasound abdomen done to see any collection near the gallbladder bed in the sub-hepatic area. If ultrasound was found unremarkable, patients were discharged and asked for a follow-up visit in the next OPD with a fresh ultrasound report. They were finally followed-up after one month.

RESULTS

Two hundred and twelve patients underwent open cholecystectomy without intra-peritoneal drainage for uncomplicated Cholelithiasis. There were 199 females (93.9%) and 13 males (6.13%) with a male to female ratio 1:12. Their age ranged from 15 to 70 years. The mean operating time was 35 minutes. The hospital stay in this series was from 1–2 days with an average stay of 1.5 days (Table-1).

Postoperative complications were seen in 29 (13.6%) cases. Seroma was the most frequent complication without any evidence of infection seen in 12 (5.66%) cases. Other complications included surgical site infection both superficial and deep in 5 (2.35%) and 2 (0.94%) cases respectively. The bile leakage responded to expectant treatment in only 3 (1.14%) cases. Other insignificant problems seen included trivial cough and transient rise in body temperature that subsided spontaneously within next 24 hours in 3 (1.14%) and 4 (1.88%) cases respectively (Table-2). Major complications like biliary peritonitis, sub hepatic abscess or Wattman Walter’s syndrome were not observed in any case of this series. The incidence of complication (bile leakage) that can specifically be attributed to the no drain technique was observed in only 1.41%.

No mortality was recorded during the period of hospitalisation in this series. The overall complication rate and hospital stay was significantly less when compared to open cholecystectomy with intra-peritoneal drain.

Table-1: Demographic data of the patients (n=212)

Data	Values
Male	13 (6.13%)
female	199 (93.3%)
Male/Female Ratio	1:12
Age of the Youngest Patient	15 years
Age of the Oldest Patient	70 years
Operating Time (Average)	35 minutes
Post-Op Hospital Stay (Average)	1.5 days

Table-2: Complications (n=29)

Complications	Number	Percentage
Seroma	12	5.66
Superficial Wound Infection	5	2.35
Deep Wound Infection	2	0.94
Biliary Leakage	3	1.41
Post Operative Pyrexia	4	1.88
Respiratory Infections	3	1.41

DISCUSSION

Most surgeons routinely place drain at sub-hepatic space after open cholecystectomy which is not scientifically proved.^{7,14} Mostly drains are advocated in empyema and gangrene gall bladder, CBD exploration, incomplete haemostasis, anticipated biliary leak, abscess formation, and difficult cholecystectomy.¹⁶

Using no drain technique at our local set up, we achieved results almost identical to other published studies. The greater incidence of infective complications after drained cholecystectomies is due to the drain; probably it allows bacteria to gain access to the gallbladder bed or the abdominal wall that predisposes to contamination and infection.^{8,13}

The mean postoperative stay of our patients after un-drained cholecystectomies was 1–2 days which is approximately 3 days shorter than the drained cholecystectomy.^{7,8,14} The major reason for drained cholecystectomy is the fear of bile leakage leading to sub hepatic collection/abscess, peritonitis, intra abdominal haemorrhage and Watmann Walter’s Syndrome.¹⁷ Many cases have been reported where surgical drains failed to prevent these complications.^{13,18–19} The belief that surgical drains serve as an early warning of bile leakage, impending bile peritonitis, or intra-abdominal haemorrhage is also disputed.^{13,18} Many cases have been reported where bile peritonitis has occurred weeks after open cholecystectomies with drainage.^{13,19,20} Hence truly stated by Frederick Coller ‘bile is not educated to climb drains’.²¹

Absence of bile from drains cannot be interpreted as absence of bile leakage or impending bile peritonitis.^{18,22} Pleuro-biliary fistula –a delayed complication following uncomplicated open cholecystectomy with drain has been reported.²³ The possibility of iatrogenic bowel injury should be kept in mind secondary to surgical drain after cholecystectomy.²⁴ Sometimes drains can be clogged by omentum or blood clots, and rarely it kink within the peritoneal cavity.

Open cholecystectomy without drain has similar mortality but a low morbidity compared to drained cholecystectomy.^{6–13} The complication rate in our series was 13.6% which is quiet low compare to a high rate of 18.7% to 28% reported when drain is used after cholecystectomy.^{25,29} Mello *et al* also reported a

low complication rate of 10.5% when no drain was used.²⁵ After cholecystectomy drain delays early mobility and predisposes old patients to DVT and increases the harm to the patients without providing any additional benefit.²⁶ Overall current census is that prophylactic drains after uncomplicated gastrointestinal surgery should have no place in surgical practice.²⁷ Met analysis conducted by S. Schule *et al*²⁸ has shown that drainage after cholecystectomy offers no advantage, instead it is associated with increased rate of infectious complications. Identical results have been reported nationally in the past²⁹ and recently³⁰. In general, open cholecystectomy without drain is associated with fewer incidences of wound and pulmonary complications, less post-operative discomfort, early mobilisation that decreases the risk of deep venous thrombosis and shorter hospital stay with early return to work. Results of neither this audit nor others contradict the use of drains in the presence of infection or bile leakage.

CONCLUSION

Although laparoscopic gall bladder surgery is an accepted gold standard treatment worldwide, in the developing countries like ours where economic constraints are major concern, open cholecystectomy is still a good alternative in practice in teaching and non-teaching hospitals with reasonable and acceptable results. Results of this study suggest that in selective cases with a dry gallbladder bed, routine use of intra-peritoneal drainage is unnecessary.

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