OUTCOME OF LAPAROSCOPIC CHOLECYSTECTOMY WITH & WITHOUT DRAIN

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ABSTRACT

BACKGROUND: Cholecystitis is common health problem and laparoscopic approach to gallstone disease is procedure of choice. Intra abdominal drain is used to prevent post operative sub hepatic collection. However drain insertion may increase pain discomfort and delay in discharge.

OBJECTIVE: To assess the benefits and harms of drain use in laparoscopic cholecystectomy

MATERIAL AND METHODS: A prospective, single centre, Study conducted on 200 patients in need of laparoscopic cholecystectomy at Rai Medical Complex Sargodha (affiliated with Rai Medical College) from April, 2009 to July 2011. All patients, after preoperative assessment, were operated under general anesthesia. Prophylactic antibiotic, inj. cefuroxime 1.5 gm prior to anesthesia and two further doses at 8 hour interval postoperatively were given in chronic cholecystitis and therapeutic doses, for seven days in acute cholecystitis. Patients having choledocholithiasis and open conversion were excluded from the study four port techniques were used for laparoscopic cholecystectomy. Patients were divided randomly in to two groups, 100 patients in each Group A, without drain and group B with drain. Data was recorded on standardized performa.

RESULTS: Out of 200 patients, 18 were male and 182 were female .Age range was 20 years to 90 years. 02 patients from group B, having acute cholecystitis, had epigastric port infection on 15th postoperative day. Drainage was done with uneventful healing. One patient from group A had s/hepatic abscess 03 weeks after surgery. Ultrasonographic guided aspiration was done in OPD with good recovery .No mortality, no open conversion and no CBD injury. Thirty patients from group A were discharged within 24 hours , 3 patients having drain were discharged after 72 hours and all others from both groups within 48 hours. 04 patients from group B had severe shoulder tip pain and relieved after removal of drain.

Postoperative pain was significantly higher in patients who had drain placed, median VAS was 5 (ranging 1-10) versus 3 in non drained group .Especially removal of drain was a painful procedure.

CONCLUSION: Routine use of intra abdominal drain in laparoscopic cholecystectomy is of no benefit but causes more discomfort to patient except in empyema gallbladder.

KEY WORDS: Laparoscopic cholecystectomy, intra abdominal drain.

INTRODUCTION

Cholecystitis with cholelithiasis is a common health problem and laparoscopic cholecystectomy has emerged as procedure of choice .Laparoscopic cholecystectomy provides a safe and effective treatment for patients with gallstones¹. First cholecystectomy was done in 1882. Then for 100 years there was no dramatic change in surgical approach to cholecystectomy until 1987 when first laparoscopic

cholecystectomy was done. Now instrument maker cannot cope with the demand of surgeons. When Langenbuch performed 1st cholecystectomy in 1882, he placed a peritoneal drain as part of procedure. The routine placement of drain became a part of operation for long period of time (Gouda El-Labban et al J Mini Access Surgery. jul- sep :8 (3) 90-92) 2012² Laparoscopic cholecystectomy reduces post-operative pain with almost invisible scar, shorter

hospital stay and earlier return to work³ decreased use of analgesics, intravenous fluids, decreased vomiting, decreased incidence of chest infection and atelectasis. It is safe, effective and economical. On the other side, many patients complain of abdominal pain, shoulder tip pain, and nausea/vomiting post-operatively⁴ especially having drain.

High pressure pneumoperitoneum using carbon dioxide gas was accused for these complications⁵. Thus, a drainage tube is inserted⁶. The value of surgical drainage in open cholecystectomy is an issue that is not resolved till now⁷. The same in laparoscopic cholecystectomy, where the lack of evidence on usefulness of drain is present. Again surgeons keep being divided among those placing a drain selectively, and those who never place a drain, based on their personal experience, beliefs, or bias⁸. Routine abdominal drainage was adopted for laparoscopic cholecystectomy as in open cholecystectomy. This routine use is questionable and may do harm.

MATERIAL AND METHODS

This study was conducted as prospective cross sectional comparative study, on 200 patients in need of laparoscopic cholecystectomy at Rai Medical Complex Sargodha. Two groups A and B were formed and patients randomized in group A with drain and group B without drain. 100 patients (8 males and 92 females) in group A and 100 patients (10 male and 90 female) in group B from April 2009 to July 2011.

All patients underwent preoperative assessment by author and anesthetist. Following laboratory investigations were done for each patient, complete blood count, blood sugar random, serum creatinin, liver function test, urine routine examination and abdominal ultrasonography. ECG and x rays chest were done where indicated.

Patient with symptomatic cholelithiasis with age 20 to 90 years were included. Patients with choledocholithiasis and open conversion were

excluded. However patients with previous laparotomy and cirrhosis having adequate platelet count and normal INR were included in the study.

After taking informed consent for laparoscopic cholecystectomy and if needed open conversion, all patients were operated under general anesthesia. Prophylactic antibiotic inj cefuroxime 1.5 gm i/v before induction of anaesthesia and two more doses at 8 hour interval were given. In acute cholecystitis therapeutic dose of antibiotic for 5 to 7 days was given.

Four port techniques for laparoscopic cholecystectomy were used. One under umbilicus, 1 cm, for telescope, one epigastric, 1 cm, two of 5 mm in right hypochondrium. Pneumoperitoneum was created with co2 insufflations, and operated at 10 mm of Hg pressure. All patients were operated on, dissecting and clipping cystic duct and artery first, then dissecting gallbladder from hepatic surface by a combination of blunt and sharp dissection. Haemostasis was obtained by electrosurgical diathermy. In group B, suction drain of 14 FR was placed in sub hepatic space through lateral port. In patient with acute Cholecystitis and empyema gallbladder, sub hepatic space was irrigated with normal saline and sucked to dry before drain insertion. Oral sips were allowed after 8 to 12 hours post surgery. Drain was removed when output was less than 10 ml per day.

Postoperative pain was assessed by visual analogue scoring system using a graph with zero no pain and 10 severe pains as shown below.

TABLE NO. 1 PAIN

Vas	No. Of patient (drain group)	No. Of patient (no drain group)
1 – 3	10	76
4 – 6	76	24
7 – 10	14	0

TABLE NO. 2 SEX

Total	Male	Female
200	18	182

TABLE NO. 3 INFECTIONS

Total	Drain group	No drain group
3	2	1

TABLE NO. 4 AGE (20 TO 90)

Age	No. Of patient
20 – 30	20
31 – 40	95
41 – 50	55
51 – 70	20
71 – 90	10

DISCUSSION

Laparoscopic cholecystectomy is now the gold standard for symptomatic gall stone disease and has rapidly emerged as procedure of choice. Mean age of patients in the present study was about 41.6 years (20 to 90 years) as compared to other studies (48.4, 50, 35 years). The duration of surgery in this study is less (32-33 min) as compared to others 81.4 min. Surgeons have routinely drained sub hepatic space after laparoscopic cholecystectomy because of the fear of collection of bile or blood requiring open procedure⁸. We think that the surgeon should make sure before taking out scope that there is no bile leak or bleed.

A higher proportion of patients with nausea and vomiting has also been noted¹⁰ and these complications are less in gasless laparoscopic cholecystectomy¹¹. Studies have shown higher wound infection rate¹² and longer hospital stay in the drain group¹³.

Hospital stay in drain group ranged from 1 to 3 days and the majority of cases were discharged on the second day, while it ranged from 1 to 2 days and 30 cases were discharged on the first day in the no-drain group. That showed significant differences. Gurusamy¹⁴ and Satinsky with his associates¹⁵ have also reported significant differences with longer hospital stay in drained patients. Hawasli and Brown¹⁶ found that there were minor but not statistically significant differences between drain group and non drain group in terms of postoperative

severity and duration of the abdominal pain and shoulder pain. Also, in this study, postoperative pain was assessed using VAS and there was more pain in drain group at 24 and 48 h. Kazuhisa¹⁷ found that the mean VAS scores were significantly greater in drain group than in non drain group at 24 and 48 h especially in women. Wound infection occurred in 2 patients of drain group versus 1 patient in no drain group and that showed significant difference is consistent with the study of Gurusamy¹⁴. All cases responded well to oral antibiotics. However, Hawasli, Brown¹⁶ and Playforth with his team¹⁹ reported that no significant differences were present regarding wound infection in their trials.

Intra abdominal drain is used to avoid fluid collection in peritoneal cavity and its complications. In our study the amount of fluid drained was about 20 ml+₋15 ml which is less as compared to other studies (40.4+₋28.4 ml). Limited data on the value of prophylactic drain for laparoscopic cholecystectomy is probably due to fact that such approach was not justified.

The routine use of drain in elective laparoscopic cholecystectomy has nothing to offer; in contrast it is associated with increased pain.

We used suction drain and more pain was noted in patient with drain as compared to patient without drain. At the end of procedure we used to evacuate carbon dioxide by opening all trocars outlet, wait for a few minutes and then remove the trocars. We do not feel justification to put in drain for degassing peritoneal cavity. Although it is suggested that carbon dioxide gas itself causes postoperative pain.

After elective laparoscopic cholecystectomy s/hepatic collection has been reported up to 4.08%. In our study one patient in no drain group developed sub hepatic abscess, which was aspirated percutaneously under ultrasound guidance. This patient had empyema gallbladder. We think that routine use of drain in laparoscopic cholecystectomy has nothing to do but causes more discomfort to patient except in

patient having empyema gallbladder. Marcello Picchio et al journal of SAGES & EAES-2012²⁰ concluded that his study was unable to prove that drain was useful in elective uncomplicated laparoscopic cholecystectomy without acute Cholecystitis, cholangitis, pancreatitis & no significant intraoperative morbidity.

CONCLUSION

We concluded that routine use of intra abdominal drain is not needed rather it increases discomfort and pain to the patient. It should be used only when clearly indicated like empyema gallbladder.

REFERENCES

1. Dubois F. Laparoscopic cholecystectomy, the French technique. In: Phillips EH, Rosenthal RJ, editors. *Operative strategies in laparoscopic surgery*. Berlin, Heidelberg and New York: 1995. pp. 30–8.
2. (Gouda El-Labban et al J Mini Access Surgery. 2012 jul-sep :8 (3) 90-92) (2) Laparoscopic cholecystectomy reduces post-operative pain with almost invisible scar, shorter hospital stay and earlier return to work.
3. Talamini MA, Gadacz TR. Laparoscopic equipment and instrument. In: Zucker KA, Baily RW, Reddick EJ, editors. *Surgical Laparoscopy*. Missouri: Quality Medical Publishing Inc., St. Louis; 1991. pp. 45–6.
4. Sarli L, Costi R, Sansebastiano G, Trivelli M, Roncoroni L. Prospective randomized trial of low-pressure pneumoperitoneum for reduction of shoulder-tip pain following laparoscopy. *Br J Surg*. 2000;87:1161–5. [PubMed]
5. Perrakis E, Vezakis A, Velimezis G, Savanis G, Deverakis S, Antoniadis J, et al. Randomized comparison between different insufflation pressures for laparoscopic cholecystectomy. *Surg Laparosc Endosc Percutan Tech*. 2003;13:245–9. [PubMed]
6. Abbott J, Hawe J, Srivastava P, Hunter D, Garry R. Intraperitoneal gas drain to reduce pain after laparoscopy: Randomized masked trial. *Obstet Gynecol*. 2001;98:97–100. [PubMed]
7. Lewis RT, Goodall RG, Marien B, Park M, Lloyd-Smith W, Wiegand FM. Simple elective cholecystectomy: To drain or not. *Am J Surg*. 1990;159:241–5. [PubMed]
8. Askew JA. Survey of current surgical treatment of gall stones in Queensland. *Aust NZJ Surg*. 2005;75:1086–9. [PubMed]
9. Hawasli A, Brown E. The effect of drains in laparoscopic cholecystectomy. *J Laparoendosc Surg*. 1994;4:393–8. [PubMed]
10. Nursal TZ, Yildirim S, Tarim A, Noyan T, Poyraz P, Tuna N, et al. Effect of drainage on postoperative nausea, vomiting, and pain after laparoscopic cholecystectomy. *Langenbecks Arch Surg*. 2003;388:95–100. [PubMed]
11. Lindgren L, Koivusalo AM, Kellokumpu I. Conventional pneumoperitoneum compared with abdominal wall lift for laparoscopic cholecystectomy. *Br J Anaesth*. 1995;75:567–72. [PubMed]
12. Thiede U, Eggert A. Drainage after laparoscopic cholecystectomy. *Minim Invasive Chir*. 1994;3:90–2.
13. Nomdedeu J, Escrig J, Salvador JL. Systematic placement of drains in laparoscopic cholecystectomy. A prospective study. *Rev Soc Valencia Patol Dig*. 1996;15:299–300.
14. Gurusamy KS, Samraj K. Routine abdominal drainage for uncomplicated open cholecystectomy. *Cochrane Database Syst Rev*. 2007;2:CD006003. [PubMed]
15. Satinský I, Mitták M, Foltys A, Dostálík J. [Subhepatic drainage in laparoscopic cholecystectomy—a necessity or an overused tradition?] *Rozhl Chir*. 2003;82:427–31. [PubMed]
16. Hawasli A, Brown E. The effect of drains in laparoscopic cholecystectomy. *J Laparoendosc Surg*. 1994;4:393–8. [PubMed]
17. Uchiyama K, Tani M, Kawai M, Terasawa H, Hama T, Yamaue H. Clinical significance of drainage tube insertion in laparoscopic cholecystectomy: A prospective randomized controlled trial. *J Hepatobiliary Pancreat Surg*. 2007;14:551–6. [PubMed]
18. Tzovaras G, Liakou P, Fafoulakis F, Baloyiannis I, Zacharoulis D, Hatzitheofilou C. Is there a role for drain use in elective laparoscopic cholecystectomy? A controlled randomized trial. *Am J Surg*. 2009;197:759–63. [PubMed]
19. Playforth MJ, Sauven P, Evan M, Pallock AV. Suction drainage of the gallbladder bed does not prevent complications after cholecystectomy: A random control clinical trial. *Br J Surg*. 1985;72:26
20. Marcello Picchio et al journal of SAGES & EAES-2012 10.1007/500464-012-2252-1

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