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Original Research Article.

Comparative Evaluation of Profile of Patients Undergoing Drainage versus Non-Drainage in Patients of Laparoscopic Cholecystectomy

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ABSTRACT

Background: Gall stone disease (cholelithiasis) remains one of the most common medical condition leading to surgical intervention. The present study was undertaken for evaluating the profile of patients undergoing drainage versus non-drainage in patients of laparoscopic cholecystectomy.

Materials & Methods: A total of 20 gallstone patients scheduled to undergo laparoscopic cholecystectomy were enrolled in the present study. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. All the patients were subjected to full history taking to document the onset, course and duration of the disease, associated symptoms and previous treatment obtained. All the patients were divided into two study groups; Group 1 included patients who received drain while Group 2 included patients who didn't received any drain. VAS score was used for assessment of pain. All the results were recorded and were analyzed by SPSS software.

Results: In the recovery room, postoperative pain was detected in 5 patients of Group 1 while it was detected in 4 patients of Group 2. After 6 hours, postoperative pain was detected in 9 patients of Group 1 while it was detected in all the 10 patients of Group 2.

Conclusion: Use of drains in laparoscopic cholecystectomy has not much to offer; in the contrary it can be associated with increased pain.

Key words: Drain, Laparoscopic.

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INTRODUCTION

Gall stone disease (cholelithiasis) remains one of the most common medical condition leading to surgical intervention Cholelithiasis continues to be a national and international health disorder. Asymptomatic gallstones can be managed expectantly but once gallstones become symptomatic, it becomes an indication for cholecystectomy.[1-3]

With the advent of LC, the use of drains may be justified because of the increased incidence of biliary injury and, consequently, bile leakage. The use of prophylactic drainage in LC to avoid bile and blood collection requiring subsequent treatment is largely diffuse. Surgical drains are of various types. It can be open or close and active or passive. It can be either sialistic or rubber drain.[2]

Because of the potential function of abdominal drains to signal early complications, such as postoperative hemorrhage and leakage of enteric suture lines, prophylactic drainage has gained wide acceptance as a useful method to prevent complications after gastrointestinal (GI) surgery. Recently, some studies have called into question the benefit of routine drainage.[3]

Open drains (Including corrugated rubber or plastic sheets) drain fluid onto a gauze pad or into a stoma bag. They are likely to increase the risk of infection. Closed drains are formed by tubes draining into a bag or bottle. Examples included chest, abdominal and orthopaedic drains.[4,5]

Generally, the risk of infection is reduced. Active drains are maintained under suction (which may be low or high pressure). Passive drains have no suction and work according to capillary action, gravity or overflow caused by slight pressure difference. Sialistic drains are relatively inert and induce minimal tissue reaction.[6,7]

Hence, the present study was undertaken for evaluating the profile of patients undergoing drainage versus non-drainage in patients of laparoscopic cholecystectomy.

MATERIALS & METHODS

The present study was conducted in the Department of General Surgery, Krishna Mohan Medical College & Hospital, Mathura, Uttar Pradesh (India) and it included assessment and comparison of profile of patients undergoing drainage versus non-drainage in patients of laparoscopic cholecystectomy. A total of 20 gallstone patients scheduled to undergo laparoscopic cholecystectomy were enrolled in the present study. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. All the patients were subjected to full history taking to document the onset, course and duration of the disease, associated symptoms and previous treatment obtained. Complete general physical examination and systemic examination was performed in each patient. These patients were also subjected to routine haematological, biochemical, and radiological investigations. All the patients were divided into two study groups; Group 1 included patients who received drain while Group 2 included patients who didn't received any drain. VAS score was used for assessment of pain. All the results were recorded and were analyzed by SPSS software.

Table 1: Gender-wise distribution

Gender	Group	
	Group 1	Group 2
Female	6	5
Male	4	5
Total	10	10

Table 2: Incidence of postoperative nausea

Nausea		GROUP	
		Group 1	Group 2
Recovery Room	No	7	4
	Yes	3	6
After 6 hours	No	9	6
	Yes	1	4

Table 3: Incidence of pain as assessed by VAS score

Pain		Group	
		Group 1	Group 2
Recovery Room	No	4	5
	Yes	5	4
After 6 hours	No	1	0
	Yes	9	10

RESULTS

In the group 1, there were 4 males and 6 females while in group 2, there were 5 males and 5 females. In the recovery room, postoperative nausea was detected in 3 patients of Group 1 while it was detected in 6 patients of Group 2. After 6 hours, postoperative nausea was detected in 1 patient of Group 1 while it was detected in 4 patients of Group 2. In the recovery room, postoperative pain was detected in 5 patients of Group 1 while it was detected in 4 patients of Group 2. After 6 hours, postoperative pain was detected in 9 patients of Group 1 while it was detected in all the 10 patients of Group 2.

DISCUSSION

Cholelithiasis and associated complications are the leading cause of surgical entry into the peritoneal cavity in Northern India. Cholecystectomy remains the treatment of choice for symptomatic gall stones despite the challenges of dissolution therapy and lithotripsy. Although these last two appear to have a lower morbidity, their overall success rates were too low for clinical practice. The advent of laparoscopic cholecystectomy coincided with the realization that dissolution and extracorporeal shock-wave lithotripsy fell short of expectations. The drains permit the entry of bacteria into the wound from the skin and air-borne organisms can be drawn into the wound via drains.[8,9]

S. Gupta et al concluded that drainage was only recommended if there is persistent oozing or contamination. Some authors have suggested that the use of drains was associated with significant increase in the length of post-operative hospital stay. Increase use of injectable analgesics and prolongation in the time to start a regular diet had also been reported by other authors, in cases with the drain in cholecystectomies. The above findings were associated with increased cost, prolonged catabolism and delay in return to normal function.[9] Brewster N.T., King P.M. et al performed a study on passive tube and suction drainage after elective cholecystectomy. In this study daily ultrasonography of the gallbladder bed was performed in patients with suction or passive tube drains after elective cholecystectomy. A total of 19 patients were randomized to suction drainage and 17 to passive tube drainage. A policy of early drain removal was followed. No significant difference was found between the volume drained and the size of collection detected in either group. Significant bile leaks were detected and were adequately drained by suction and passive tube drains. There were no complications from drains and short-term drainage of the gallbladder bed was advocated after both open and laparoscopic cholecystectomy using the drain of the surgeon's choice.[10]

Contini S et al performed a study on laparoscopic Cholecystectomy and found that it is useful in initial training and has prevented some reoperations when biliary leak and small hemorrhage from GB bed was present. They suggested to always put a drain after laparoscopic cholecystectomy specifically during the initial experience and after particularly difficult operation.[11] Saad AMA et al conducted a prospective study in 100 patients who underwent elective cholecystectomy for symptomatic gallstones. These patients were randomized to have subhepatic drains (group A, n=50 patients) or to have no drains (group B, n=50 patients). In group A, 14 patients (28%) developed spikes of temperature of 38^{o}C or more while only 5 patients (10%) in group B developed such episode.[12] Yilmaz Z et al planned a study to investigate the necessity of routine drainage after cholecystectomy. Two surgical teams and two groups of 100 patients each were established. The first surgical team used drains after cholecystectomy; the second surgical team did not use drain. A comparison of postoperative complications and duration of hospitalization was made between the two groups. Postoperative wound infection rates were 2% in the undrained group and 6% in the other group. This group was hospitalized for 4-14 days with a mean of 6.4 days. So they concluded that drainage following an uncomplicated cholecystectomy can increase the duration of hospitalization and the postoperative complication rate.[13]

Picchio M et al assessed the role of drains in reducing complications in laparoscopic cholecystectomy. An electronic search of Medline, Science Citation Index Expanded, Scopus, and the Cochrane Library database from January 1990 to June 2013 was performed to identify randomized clinical trials that compare prophylactic drainage with no drainage in laparoscopic cholecystectomy. The odds ratio for qualitative variables and standardized mean difference for continuous variables were calculated. Twelve randomized controlled trials were included in the meta-analysis, involving 1939 patients randomized to a drain (960) versus no drain (979). The morbidity rate was lower in the no drain group (odds ratio, 1.97; 95% confidence interval, 1.26 to 3.10; P = .003). The wound infection rate was lower in the no drain group (odds ratio, 2.35; 95% confidence interval, 1.22 to 4.51; P = .01). Abdominal pain 24 hours after surgery was less severe in the no drain group (standardized mean difference, 2.30; 95% confidence interval, 1.27 to 3.34; P < .0001). No significant difference was present with respect to the presence and quantity of subhepatic fluid collection, shoulder tip pain, parenteral ketorolac consumption, nausea, vomiting, and hospital stay. Their study was unable to prove that drains were useful in reducing complications in laparoscopic cholecystectomy.[14] Some publications recommend the use of a short-term drain postoperatively based on the theory that high-pressure CO2 insufflation during the operation and the accumulation of gas in the right subphrenic area leads to these complaints. Routine drain use after laparoscopic cholecystectomy is still debatable. The main indication for drain use after laparoscopic cholecystectomy is to prevent a biloma or hematoma. Red rubber drains can induce an intense tissue reaction sometimes allowing a tract to form (this may be considered useful for example with biliary t-tubes).[15]

CONCLUSION

Use of drains in laparoscopic cholecystectomy has not much to offer; in the contrary it can be associated with increased pain. However, furthers studies are recommended.

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