Effect of subhepatic drainage after aparoscopic cholecystectomy

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ABSTRACT:

Background:

Laparoscopic cholecystectomy is associated with a high incidence of postoperative pain, nausea, and vomiting. To determine whether a drain in the peritoneal cavity during laparoscopic cholecystectomy is both a clinical and cost-effective method of reducing postoperative pain, nausea, vomiting and hospital stay.

Patients and methods:

Ninety nine patients undergoing successful laparoscopic cholecystectomy, randomized blindly into two groups subhepatic drainage group and a control group, using a visual analogue scale to assess postoperative pain, nausea and vomiting

Results:

The incidence of nausea was lower in the drainage group at 72 hours Although severity of pain was lower at 12, 24,72hours in the drainage group, the difference was not significant. There was also no difference between the groups regarding to hospital stay.

Conclusion:

There is no significant effect to put a subhepatic drain after laparoscopic cholecystectomy on postoperative pain, nausea, vomiting and hospital stay.

Key words:

Lap.choly, drain, pain, nausea, vomiting, hospital stay

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INTRODUCTION:

Cholelithiasis is a common problem affecting the gall bladder and cholecystectomy is the ideal treatment for symptomatic cholelithiasis, since 1913 when Langenbuch performed the first cholecystectomy. Another German surgeon introduced the technique of undrained cholecystectomy(ideal cholecystectomy) ,several subsequent investigators had advocated cholecystectomy without drainage under certain circumstances ,and they reported low postoperative morbidity,

decreased hospital stay, better cosmetic and less discomfort results.[1,2,3]
Although of all these ,there are controversies and wide variations in surgical practice about placing a drain after cholecystectomy .Regarding to whether put a drain or not, still most surgeons continued to drain the peritoneal cavity after cholcystectomy (1,3,4)

Inspite of number of reports have been shown satisfactory results can be obtained without drainage. (1,2,3) ,these controversial attitudes are present in laparoscopic cholcystectomy. Mouret,in Lyone (France) was the first surgeon to perform cholecystectomy in human using standard laparoscopic equipment . The first published report of the current multi puncture cholecystectomy was by Dubios in Paris, France in 1989, around the same time, the procedure was established by Perissat (Bordeaux, France), Reddick et al. (Nashville, USA). Since then, the practice of laparoscopic surgical procedure has developed across the various specialties[5].Laparoscopic cholecystectomy became more popular and gold standard technique for treatment of symptomatic gallstones because the advantage of laparoscopic surgery, with comparable or shorter operating times, shorter hospital stay (often day case),more rapid return to full activity and less morbidity/mortality compared to open surgery[6,7,8] . Despite these advantages laparoscopy has deleterious effects on cardiovascular and respiratory systems [9, 10].The problem of draining the peritoneal cavity in subhepatic area after laparoscopic cholecystectomy is controversial [11] , as some study reports a rare indication for use of drainage unless there is poorly localized bilious drainage preoperatively ,control of cystic duct is challenging[12],other studies stated that there is no any evidence supporting the use of drain after laparoscopic cholecystectomy and it increases wound infection and delays discharge from the hospital, while on other hand some studies adopted the use of intraperitoneal drain after laparoscopic cholecystectomy routinely especially in difficult cases to prevent reoperations due to bleeding and bile leak [13,14]Postoperative nausea and vomiting are the most unpleasant complaints after laparoscopic cholecystectomy with previous reports 45-92%,other study 63% incidence ,attributed mainly to residual CO2 and pain.[15]Furthermore pneumoperitoneum is also thought to be the cause of postoperative pain (PP), especially shoulder tip pain following laparoscopic cholecystectomy, and this is reported to occur in as many as 30% of patients [16].the site of pain is variable and is most commonly felt in the abdomen, shoulders, or back. Shoulder pain may occur in up to two thirds of patients [17,18] although it is most commonly transient and by 24 hours has decreased, rarely lasting more than 72 hours[19,20]. Distension of the abdomen alone causes pain, and mechanical elevation of the abdominal wall is as painful as traditional gaseous laparoscopy[21,22]. few studies reported effect of intraperitoneal drain on postoperative pain ,nausea,

vomiting and hospital stay therefore we try to evaluate the effect of drain in our patients.

AIM OF THE STUDY

To evaluate the effect of using intraperitoneal right subhepatic drain on postoperative pain, nausea, vomiting and hospital stay in patients with laparoscopic cholecystectomy.

PATIENTS AND METHODS

This prospective study was carried out in The department of Surgery, Basrah General Hospital and Al-Hussien teaching hospital in Nassyriah between 2004-2010.

PATIENTS SELECTION:

This prospective randomized controlled double-blinded clinical study by using sealed envelopes to be with or without intraperitoneal drainage ,all patients gave informed consent, the indications of laparoscopic cholecystectomy were symptomatic cholelithiasis and if present accompanying acute cholecystitis.Patients who were converted to open cholecystectomy, those refused laparoscopic cholecystectomy and patients refused to give informed consent were excluded from the study. During the period of study, 106 patients were scheduled for laparoscopic cholecystectomy, of these 99 laparoscopic cholecystectomies were performed successfully and 7 converted to open cholecystectomy. Therefore 99 patients were evaluated (there were 50 cases with drainage, and 49 cases without drainage ,control group) .In addition to demographic data ,smoking history, previous operations and accompanying systemic diseases were recorded.

METHODS

The patient was prepared and draped in the standard fashion ,the abdomen was insufflated with CO2 by open technique (Hasson) through infra or supraumblical incision .Two 10mm and tow 5mm trocars were inserted through infra. or supraumblical, subxiphoid, subcostal midclavicular, subcostal anterior axillary incisions, pneumoperitoneum pressure and CO2 flow rate were set at 14 mmHg and 2 L/min respectively.Cholecystectomy was performed by usual method, following cholcystectomy a polyethylene 20F tube drain was placed in right subhepatic area, the drain was threaded through the most lateral 5mm trocar and connected to a collecting bag . Anticoagulants were not used; prophylactic antibiotics (cefotaxime) were given to all patients. Post operative nausea and vomiting and pain were assessed via a ward nurses. Preoperatively the patients were asked to point out with the tip of the pen, their most severe nausea and pain scores related to cholelithiasis on a 10-point visual analog scale (VAS). These scores were recorded at 8h, 12h, 24h, 48h, and 72h postoperatively. The patients were started on oral feedings 8-10 h postoperatively and were usually discharged on the first postoperative day. The drain was removed after the 24-h measurements. The statistical analysis was performed by **z** value and chi squared.

RESULTS

Postoperative nausea and vomiting:

The total incidence of nausea and VAS scores was higher in control group, the number of patients suffering from nausea did not differ significantly at different times (Table 2 and Fig. 1,2) except in

patients within 72 hours, the incidence is higher in the without drainage group (control group) in which 2 patients from 49 patients had nausea while no patient in drainage group had nausea, postoperative vomiting is higher in control group except in 12hours postoperatively.

Postoperative pain:

Although the presence of postoperative pain in patients of without drainage group are higher than those of drainage group but neither incidences nor locations differ significantly (Table 4 ,5) , the values of visual analogue score of drainage group are less than those of without drainage patients group but the differences are insignificant (Fig. 3).

DISCUSSION:

Laparoscopic cholecystectomy has become the main treatment for chronic calculous cholcystitis. The operation is advantageous over traditional cholecystectomy as it leads to less discomfort, shorter hospitalization, and earlier return to normal activity Therefore it is important that the patient has a comfortable postoperative period.

We successfully completed laparoscopic cholecystectomy in 99 patients, 7(6.6%) requiring conversion to open cholecystectomy. There was no mortality and negligible morbidity in 50 cases tube drain was kept in Morrison's pouch.Postoperative nausea and vomiting are the most common complaints after surgery. It has been emphasized that most patients undergoing laparoscopic cholecystectomy are at higher risk for post operative emetic symptoms which are more significant in operative day and early first operative day, they study a variety of means to reduce these symptoms like prophylactic administration of metaclopromide or ondansetron or combination of dexamthasone with one of them was reported to be more efficacious than antiemetic in reducing the incidence of postoperative nausea and vomiting after laparoscopic cholecystectomy.The aetiology of postoperative nausea and vomiting after laparoscopic cholecystectomy is not fully understood. Risk factors such as a long period of CO_2 insufflation; gall bladder surgery; intraoperative use of isoflurane, fentanyl, and glycopyrrolate; female sex; and postoperative pain may contribute to these episodes There is statistical significant difference in postoperative nausea incidence at 72h post operatively between cases with drain and those without drain; otherwise there is no significant difference in remaining time groups. There is also no significant difference to put drain in reducing severity of postoperative nausea and vomiting (visual analogue scale) between two groups .there was study showing difference between two groups especially in 72hours postoperatively Postoperative pain is a subjective sensation, and its measurement and analysis is difficult. Pain is not only a sensory stimulus, but has motivational and affective components, and is experienced in the extent of cultural learning, previous experience, anxiety and depression Pain after laparoscopy is common, the site of pain is variable and most commonly felt in abdomen, shoulder or back. Shoulder pain may occur in up to two third of patients, distention of the abdomen cause pain. Most trials assessing pain after laparoscopic cholecystectomy use a visual analogue scale (VAS) or verbal rating scale. These scores show a high level of correlation, although the VAS

is thought to be more sensitive for detection of small difference in pain levels·There are many trials to assess methods of reducing pain after laparoscopic cholecystectomy such as non steroidal anti-inflammatory drugs, intraperitoneal local anaesthetic, wound local anaesthetic, intraperitoneal saline and removal of insufflation gas. Regarding drainage of insufflation gas there is reduction of a shoulder pain. In our study insertion of subhepatic drain, although there is reduction in incidence of a shoulder pain in drainage group but the difference statistically not significant.In the gynecological literature the use of a gas drain left in the umbilical incision has been shown to reduce postoperative pain significantly About 60% of cases in drainage group discharged from hospital in first 24hours postoperative while in cases without drainage 67% discharged from hospital, and in 72hours only 3 cases from either group were still present in hospital but the differences again were not significant.

CONCLUSION

Although there is decrease incidence of post operative nausea after drainage after 72hours but there was no significant difference in the incidence or severity at others different time points. So in conclusion there is no significant effect of drainage after laparoscopic cholecystectomy in relation to postoperative pain, nausea, vomiting and hospital stay.

Table (1)General characteristics of the patient groups with and without drainage

	WITH	WITHOUT	Z VALUE
Sex M/F	**10/40**	**7/42**	**0.766**
Age(years)	**17-80**	**18-70**	**0.682**
Previous laparotomy	**5/50**	**4/49**	**0.832**
Comorbid disease	**10/50**	**12/49**	**0.164**
Active smoking state	**9/50**	**7/49**	**0.071**
Nausea before operation	**5/50**	**8/49**	**0.294**
Pain before operation	**36/50**	**32/49**	**0.237**
Acute cholecystitis	**5/50**	**2/49**	**0.306**
Duration of operation (min)	**15-75**	**15 -70**	**-**
Bile spillage	**16/50**	**12/49**	**0.245**
Retained stone	**3/50**	**1/49**	**0.326**
Analgesia injection (once)	**34/50**	**37/49**	**0.163**
Analgesia injection (twice)	**16/50**	**14/49**	**0.119**
Antiemetics requirement	**3/50**	**4/49**	**0.132**

All **Z** values are < 1.96 so the p value is > 0.05, the differences between two groups are insignificant

Table (2) Incidence of nausea at different postoperative times (8–72 hours) in patients with and without drainage.

Nausea					
Post op. time	**With**	**%**	**Without**	***%***	***Chi squ***
8 hours	11/50	22%	15/49	30%	0.95
12 hours	5/50	10%	5/49	10%	0.01
24 hours	5/50	10%	10/49	21%	2.07
48 hours	2/50	4%	4/49	8%	0.75
72 hours	0/50	0%	2/49	4%	4.62
Total incidence	23	46%	36	63%	

When Chi squared values >3.87 ,the p value is < 0.05 and the value is significant

Table (3)Incidence of vomiting at different postoperative times (8–72 hours) in patients with and without drainage

Vomiting					
Postoperative time	**With**	**%**	**Without**	**%**	**Chi squ**
8 hours	4/50	8%	8/49	16%	2.10
12 hours	4/50	8%	1/49	2%	1.88
24 hours	1/50	2%	1/49	2%	0.04
48 hours	0/50	0%	0/49	0%	_
72 hours	0/50	0%	0/49	0%	_
Total incidence	9	18%	10	20%	_

Table (4)Incidence of postoperative pain at different postoperative time points (8 –72 h) in patients with and without drainage.

Time	*Presence of pain*				
	With	**%**	**Without**	**%**	**Chi squ.**
8 hours	46/50	92%	47/49	96%	0.659
12 hours	44/50	88%	45/49	91%	0.08
24 hours	31/50	62%	29/49	59%	0.165
48 hours	11/50	22%	11/49	22%	0.002
72 hours	1/50	2%	1/49	2.3%	0.009

Table (5)Location of postoperative pain at different postoperative time points (8 –72 hours) in patients with and without drainage (IA incisional plus abdominal pain, SB shoulder tip plus back pain)

Pain location (IA/SB)			
Postoperative Time	**with**	**without**	**Chi squ.**
8 hours	41/5	42/9	0.247
12 hours	41/3	44/6	1.128
24 hours	28/3	26/5	0.082
48 hours	9/2	8/3	0.2
72 hours	1/0	1/0	0.006

Table (6)Time of discharge of patients with and without drainage after laparoscopic cholcystectomy

Time of discharge from hospital	with drain	%	without drain	%	chi-squ.
12 hours	50/50	100%	49/49	100%	---
24 hours	30/50	60%	33/49	67.9%	2.816
48 hours	17/50	34%	13/49	26%	0.638
72 hours	3/50	6%	3/49	6.1%	0.016

Fig (1) Percentages of incidence of postoperative nausea in patients with and without drainage.

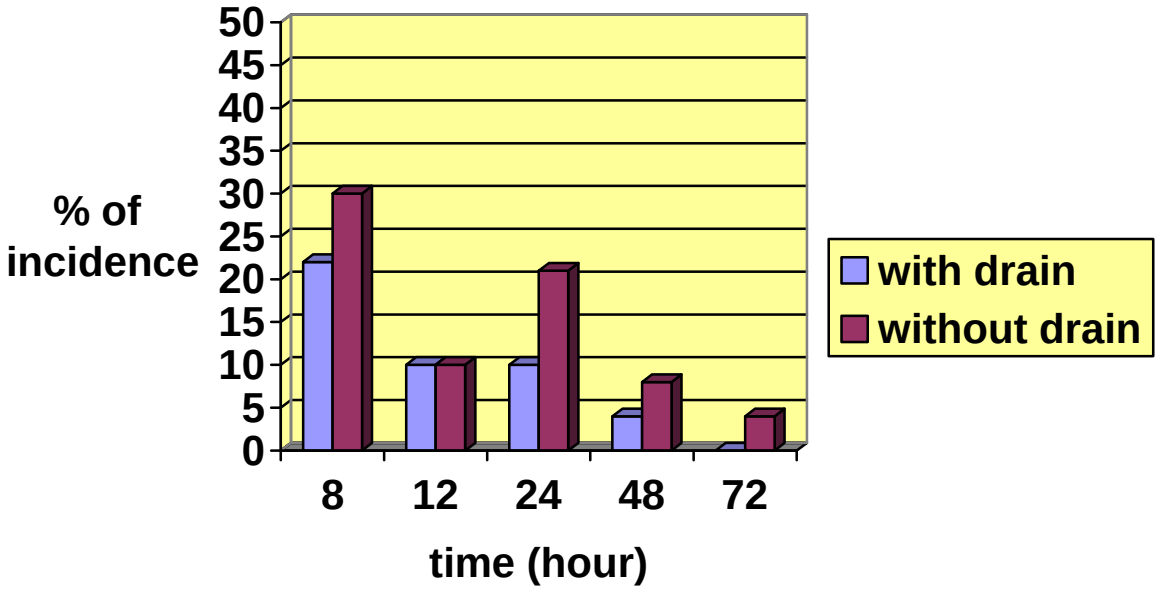


Fig. (2) Percentage of incidence of vomiting at different postoperative times (8 – 72 hours) in patients with and without drainage after laparoscopic cholecystectomy

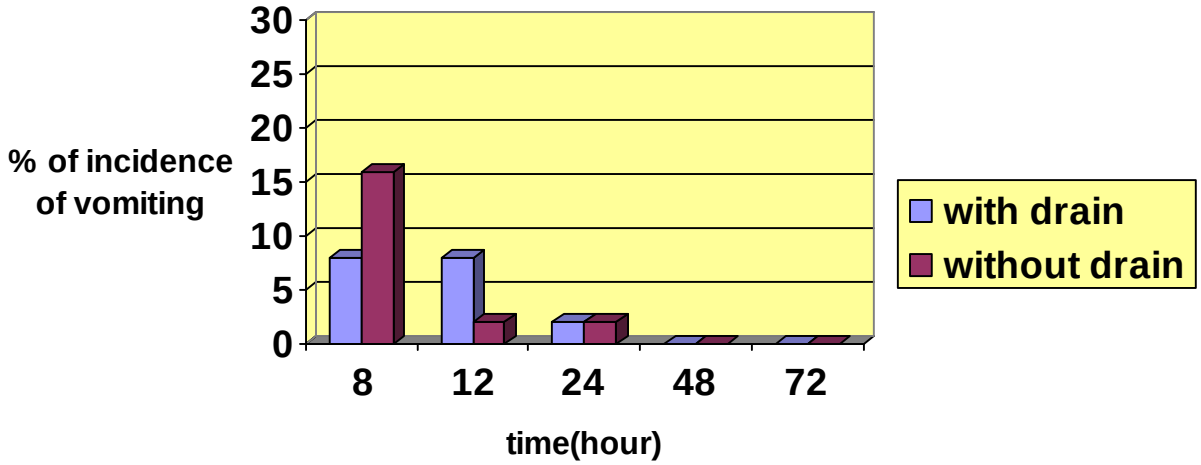


Fig. (3)Visual analogue scale scores of Postoperative nausea of the patients

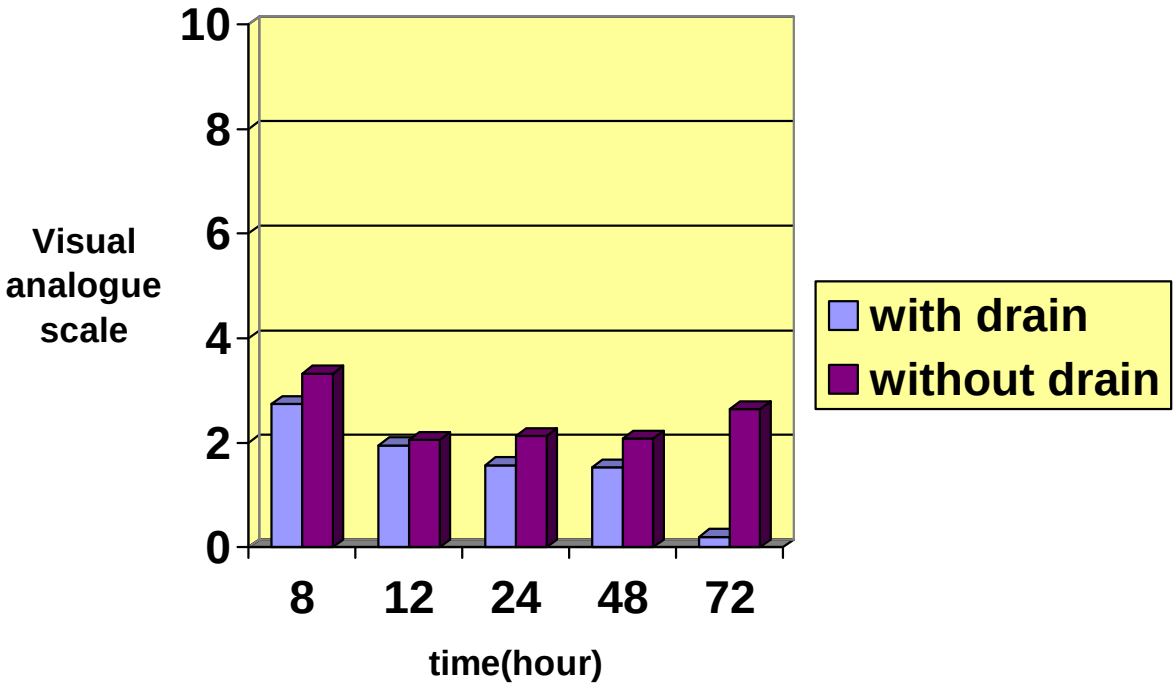
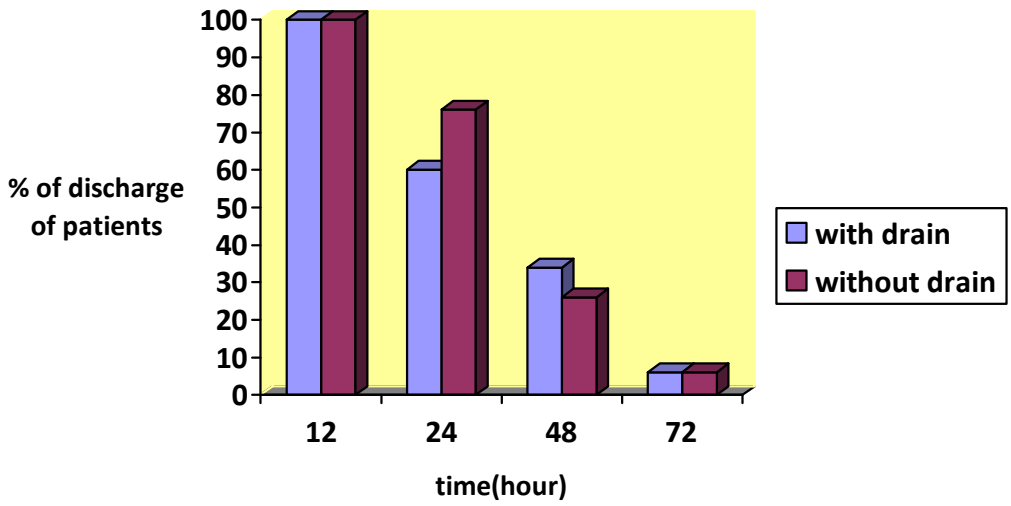


Fig (4)Percentage of discharge of patients with and without drainage after laparoscopic cholecystectomy



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تأثير وضع صونده البزل تحت الكبد بعد عمليات رفع المرارة بالناظور

*** د. علي نايف عاصي ،** د. احمد عبد الصاحب***د. مهند عبد الرضا**

المقدمة:-

في عمليات رفع المرارة بالناطور ،نسبة عالية من المرضى يشكون من الألم بعد العملية ،الغثيان والتقيؤ .

الهدف من البحث :-

لتقدير فيما اذ بزل البطن بعد العملية يؤثر في نسبة هذا المشاكل وكذلك بقاء المريض اكثر فتره من الزمن في المستشفى .

طرق البحث :-

تم إجراء ٩٩عملية رفع المرارة بالناظور تم تقسيمهم الى مجموعتين بصورة عشوائية المجموعة الأولى تم وضع صوندة بزل تحت الكبد بعد العملية والمجموعة الثانية بدون بزل وتم تقدير نسبة الألم ، الغثيان ، التقيؤ في كلا المجموعتين

النتائج:-

نسبة الألم والغثيان بعد العملية اقل في مجموعة البزل لكن الاختلاف ضئيل لايوجد فرق بين المجموعتين فيما يتعلق ببقاء المريض في المستشفى .

الاستنتاج : ــ

لا يوجد اختلاف واضح فيما يخص الألم ، الغثيان ، التقيؤ ، والبقاء في المستشفى فيما وضع او لم يوضع أنبوب البزل تحت الكبد في عمليات رفع المرارة بالناظور .

مفتاح الكلمات:-

رفع المرارة بالناظور، صوندة البزل ، الالم ، الغثيان ، التقيؤ ، والبقاء في المستشفى.

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