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Original Research

Assessment of efficacy of three-port laparoscopic cholecystectomy in gall stone patients: An observational study

Suvek Varshney[1], Vinod Kumar Saxena[2]

[1]Assistant Professor, Department of General Surgery, Major SD Singh Medical College and Hospital, Farrukhabad, U.P., India;
[2]Assistant Professor, Department of General Surgery, Venkateshwara Institute of Medical Sciences, Gajraula, U.P., India

ABSTRACT:
Background: Cholecystectomy is the treatment of choice for symptomatic gall stone disease. Laparoscopic cholecystectomy requires skill, dexterity, and the ability to perform surgery with a two-dimensional view of the patient's organs. Hence; the present study was undertaken for assessing the efficacy of three-port laparoscopic cholecystectomy in gall stone patients. **Materials & methods:** A total of 25 gallstone patients were enrolled in the present study. All the procedures were carried out under the hands of skilled and experienced surgeons. In 3-port laparoscopic cholecystectomy, a 10-mm supraumbilical port, 10-mm subxiphoid, and 5-mm subcostal port was used. Our primary outcome measure was pain score after surgery. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** Postoperative wound infection was found to be present in 3 patients. In the present study, mean VAS on day of surgery at 6 hours was found to be 6.96 while at discharge was found to be 3.82. Mean VAS at one week follow-up was found to be 2.25. Mean hospital stay was found to be 1.3 days. **Conclusion:** Three port technique is a safe technique for laparoscopic cholecystectomy. The main advantages of the three port technique are that it is less painful, safe, and has fewer postoperative complications.
Key words: Three port, Laparoscopic cholecystectomy.

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Corresponding Author: Dr. Vinod Kumar Saxena, Assistant Professor, Department of General Surgery, Venkateshwara Institute of Medical Sciences, Gajraula, U.P., India

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INTRODUCTION

Cholecystectomy is the treatment of choice for symptomatic gall stone disease. Laparoscopic cholecystectomy requires skill, dexterity, and the ability to perform surgery with a two-dimensional view of the patient's organs. It also requires coordination of hand motions that may appear reversed on the video monitor if the camera is directed at the surgeon. The most important advantage of laparoscopic cholecystectomy (LC) is that it abolishes the trauma of access as well as the transient ileus that follows open abdominal surgery.[1-3]

Cholesterol crystal nucleation is considered the earliest step in cholesterol gallstone formation. As the technique became a routine procedure, modifications were made in order to make it less invasive and more cosmetic. A 3-port LC (LC3P) instead of the standard 4-port LC (LC4P) approach was preferred when the anatomy was clearly visualized at the time of the initial laparoscopic evaluation and no technical difficulties were anticipated.[2]

The incidence of biliary complications is thought to increase if lesser invasive techniques like SILS (single incision laparoscopic surgery) are used and thus these techniques have not been well accepted all over the world.[4-6]

Hence; the present study was undertaken for assessing the efficacy of three-port laparoscopic cholecystectomy in gall stone patients.

MATERIALS & METHODS

The present study was conducted in the department of general surgery and it included assessment of efficacy of three-port laparoscopic cholecystectomy in gall

stone patients. 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. A total of 25 gallstone patients were enrolled in the present study.

Inclusion criteria:

- Indications for elective laparoscopic cholecystectomy.
- Patients with 18 years of age and above

Exclusion criteria:

- Empyema gall bladder.
- Patients who are not fit for laparoscopic surgery.

All the procedures were carried out under the hands of skilled and experienced surgeons. In 3-port laparoscopic cholecystectomy, a 10-mm supraumbilical port, 10-mm subxiphoid, and 5-mm subcostal port was used. Our primary outcome measure was pain score after surgery. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

In the present study, a total of 25 gallstone patients scheduled to undergo 3-port LC were included. Mean age of the patients of the present study was 46.8 years. 84 percent of the patients were females while the remaining were males. Mean operative time was found to be 58.28 minutes. Postoperative wound infection was found to be present in 3 patients. In the present study, mean VAS on day of surgery at 6 hours was found to be 6.96 while at discharge was found to be 3.82. Mean VAS at one week follow-up was found to be 2.25. Mean hospital stay was found to be 1.3 days.

Table 1: Age-wise distribution

Age group (in years)	Three port	
	Number of patients	Percentage
18- 30	2	8
31-40	6	24
41-50	12	48
51-60	4	16
More than 60	1	4
Total	25	100

Table 2: Gender-wise distribution

Gender	Three port	
	Number of patients	Percentage
Males	4	16
Females	21	84
Total	25	100

Table 3: Operative time

Parameter	Three port
Mean operative time (minutes)$\pm$ SD	58.28 $\pm$ 9.11
Minimum	41
Maximum	82

Table 4: Postoperative complications

Postoperative complications		Three port	
		Number of patients	Percentage
Wound infection	Present	3	12
	Absent	22	88

Table 5: VAS

Postoperative pain score on VAS	Three port	p- value
On day of surgery at 6 hours	6.96	0.00 (Significant)
At discharge	3.82	
At one week follow-up	2.25	

Table 6: Hospital stay

Parameter	Three port
Mean duration of hospital stay (days)	1.3
$\pm$SD	0.58

DISCUSSION

The revolution in laparoscopic surgery began three decades ago when laparoscopic cholecystectomy (LC) was introduced. It did not take long for a consensus to develop and for the National Institutes of Health to pronounce LC as, "the treatment of choice for many patients with symptomatic cholelithiasis." The procedure had immediate acceptance by patients and surgeons based on clinical experience, and became rapidly popular without randomized trials. Retrospective data shows LC to be safe and effective, and when compared to open cholecystectomy the advantages of LC have been described as, "obvious and compelling."[7- 9] Hence; the present study was undertaken for assessing the efficacy of three-port laparoscopic cholecystectomy in gall stone patients.

In the present study, a total of 25 gallstone patients scheduled to undergo 3-port LC were included. Mean age of the patients of the present study was 46.8 years. 84 percent of the patients were females while the remaining were males. Mean operative time was found to be 58.28 minutes. Postoperative wound infection was found to be present in 3 patients. Manositisak P compared between modified three – port laparoscopic cholecystectomy and standard four – port cholecystectomy. Sixty patients with symptomatic gall stone, who were admitted at the hospital were operated. These patients were divided into two groups equally. Group I patients were operated by modified three port laparoscopic cholecystectomy. Group II patients were operated by standard four – port laparoscopic cholecystectomy. Both groups were operated by the same surgeon. The operation time , postoperative pain , length of hospital stay, postoperative complication and hospital cost were analyzed. Thirty patients in group 1 were 10 males and 20 females at 27- 77 year of age. The body weights were 45 – 82 kilograms average 66.5 ± 8.7 kilograms. There were 1 patient who had DM and 1 patient had hypertension and one patient with both diseases. Group II consisted of 9 males and 21 females at 20 – 76 year of age. Their body weight was 44-84 kilograms. There was 1 patient who had DM; one patient had Hypertension and one case with both diseases. There were no difference in operating time, hospital stay and postoperative complication. In group I post-operative pain and hospital cost were less than Group II significantly. Modified three - port laparoscopic cholecystectomy was as safe as the standard four port laparoscopic cholecystectomy and it caused less pain and less expensive.[10]

In the present study, mean VAS on day of surgery at 6 hours was found to be 6.96 while at discharge was found to be 3.82. Mean VAS at one week follow-up was found to be 2.25. Mean hospital stay was found to be 1.3 days. Mujahid MD et al compared the outcome of three vs four port laparoscopic cholecystectomy and detect safety of three port laparoscopic cholecystectomy (LC) as routine procedure. All patients were divided into two groups. Group A: three port laparoscopic cholecystectomy was done. Group B: Conventional four port laparoscopic cholecystectomy was done. Outcome is determined in terms of postoperative pain (determined by visual pain scale) and complications (bleeding, infection, bile duct injury). 35 patients in Group A had low pain score and 15 were high pain score. In group B, 24 had low pain score and 26 high pain score. In group A only 10 patient needed nalbuphine as compared to 35 patient in group B. Both groups have almost same operating time (48.5min A and 48min B). Hospital stay is same (48h). Complications like port site bleeding (2 patient in A and 4 in B), wound infection (2 in A and 3 patients in B), abdominal pain (3 in group A and 4 in group B) of three port laparoscopic cholecystectomy are comparable with four port cholecystectomy. No patient in both groups suffered bile duct injury. The three-port technique is as safe as the standard four-port for LC. The main advantages of the three-port technique was that it is less painful, safe, less chances of wound infection and leaves fewer scars.[11]

CONCLUSION

Three port technique is a safe technique for laparoscopic cholecystectomy. The main advantages of the three port technique are that it is less painful, safe, and has fewer postoperative complications.

REFERENCES

1. Cuschieri A, Berci G, McSherry CK. Laparoscopic cholecystectomy. Am J Surg. 1990;159(3):27
2. Waqar SH, Zahid MA. Two port laparoscopic cholecystectomy: An early experience. J Surg Pak. 2009;14:179–81.
3. Kroh M, Rosenblatt S. Single-port, laparoscopic cholecystectomy and inguinal hernia repair: First clinical report of a new device. J Laparoendosc Adv Surg Tech 2009;19:215-7
4. Ramachandran CS, Arora V. Two-port laparoscopic cholecystectomy: An innovative new method for gallbladder removal. J Laparoendosc Adv Surg Tech A. 1998;8:303–8
5. Poon C M, Chan K W, Lee D W H, Chan K C, Ko C W, Cheung H Y, Lee K W. Two-port vs four-port laparascopic cholecystectomy: A prospective randomized controlled trial. urg Endosc 2003;17:1624–7, epub 2003 July 21
6. Tacchino R, Greco F, Matera D. Single-incision laparoscopic cholecystectomy: surgery without a visibles car.SurgEndosc2009;23:896-9.
7. Davidoff AM, Pappas TN, Murray EA, Hilleren DJ, Johnson RD, Baker ME et al. Mechanisms of major biliary injury during laparoscopic cholecystectomy. Ann Surg. 1992;215(3):196- 202.
8. Kumar P, Rana AKS. Three-port versus four-port laparoscopic cholecystectomy: a comparative study at a tertiary care centre in North India. Int Surg J 2018;5:426-32.
9. Kumar M, Agrawal CS, Gupta RK. Three-Port Versus Standard Four-Port Laparoscopic Cholecystectomy: a Randomized Controlled Clinical Trial in a Community-Based Teaching Hospital in Eastern Nepal. JSLS. 2007 Jul-Sep; 11(3): 358–362.
10. Manositisak P. Comparative Study Between Modified Three-Port and Standard Four-Port Laparoscopic Cholecystectomy in Kalasin Hospital. Srinagarind Med J. 2010; 25(3): 228- 232.
11. Mujahid MD, Hameed F, Riaz O, Saleem M, Hussain R. Three Port Versus Four Port Laparoscopic Cholecystectomy. A.P.M.C. 2011; 5(2): 80- 84.