

ORIGINAL ARTICLE

Evaluation of efficacy of three port laparoscopic cholecystectomy among gallstone patients

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ABSTRACT:

Background: The present study was conducted for assessing the efficacy of three port laparoscopic cholecystectomy (LC) among gallstone patients. **Materials & methods:** A total of 2. gallstone patients were enrolled in the present study. Inclusion criteria for the present study included indications for elective laparoscopic cholecystectomy and patients with 18 years of age and above. 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. **Results:** Mean age of the patients was 45.6 years with majority of the patients being females and of rural residence. Mean operative time was 61.2 minutes while postoperative complications were seen in 5 percent of the patients. There was a significant improvement in the VAS score at different postoperative follow-ups. Mean duration of hospital stay was 1.5 days. **Conclusion:** The three port technique is a safe technique for laparoscopic cholecystectomy being less painful, safe, and has fewer postoperative complications.

Key words: Laparoscopic cholecystectomy, Gallstones

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INTRODUCTION

The progressive evolution of the LC technique has led this procedure to become the gold standard in the treatment of symptomatic gallstones. As the technology improved, many surgeons began to reduce the number and size of the ports with the aim of achieving ever lower invasiveness, consequently reducing trauma and postoperative pain and improving the cosmetic results. There was thus a progression from conventional laparoscopic cholecystectomy (CLC) involving the use of 4 trocars to three-port cholecystectomy (3-port).

Three trocars and even two trocars were used to perform LC, as has using mini-instruments, authors of these new techniques claimed that these techniques took a similar time to perform and caused less postoperative pain than the standard laparoscopic cholecystectomy. Some authors even advised for procedures as needlescope cholecystectomy to be practiced routinely. The value of the lateral (fourth) trocar in the American technique used to hold the gall bladder fundus was challenged.¹⁻³

It has been argued that the fourth trocar may not be necessary, and laparoscopic cholecystectomy can be performed safely without using it. Cooperative manipulation of the surgical instruments is very important for this procedure, for exposing Calot's triangle and dissecting the gallbladder from the gallbladder bed when using the 3-port techniques. Several studies have reported that 3-port laparoscopic

cholecystectomy is technically possible.⁴⁻⁶ Hence; the present study was conducted for assessing the efficacy of three port laparoscopic cholecystectomy (LC) among gallstone patients.

MATERIALS & METHODS

The present study was conducted for assessing the efficacy of three port laparoscopic cholecystectomy (LC) among gallstone patients. A total of 2. gallstone patients were enrolled in the present study. Inclusion criteria for the present study included indications for elective laparoscopic cholecystectomy and patients with 18 years of age and above. 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

Mean age of the patients was 45.6 years with majority of the patients being females and of rural residence. Mean operative time was 61.2 minutes while postoperative complications were seen in 5 percent of the patients. There was a significant improvement in the VAS score at different postoperative follow-ups. Mean duration of hospital stay was 1.5 days.

Table 1: Surgical time

Parameter	Three port
Mean operative time (minutes) \pm SD	61.2 \pm 8.3
Minimum	44
Maximum	85

Table 2: Postoperative complications

Postoperative complications		Three port	
		Number of patients	Percentage
Wound infection	Present	1	5
	Absent	19	95

Table 3: VAS

Postoperative pain score on VAS	Three port	p- value
On day of surgery at 6 hours	6.12	0.001 (Significant)
At discharge	3.28	
At one week follow-up	1.98	

Table 4: Hospital stay

Parameter	Three port
Mean duration of hospital stay (days)	1.5
\pm SD	0.92

DISCUSSION

LC in 1992 soon after it became the new gold standard for gallstone patients. The benefits were assessed very soon afterward: less postoperative pain, shortened hospital stay, rapid recovery, and better cosmetic results. As the technique became a routine procedure, modifications were made in order to make it less invasive. Initially, a 3-port (LC3P) instead of the initial 4-port (LC4P) approach was preferred when the anatomy was clearly visualized at the time of the initial laparoscopic evaluation and no technical difficulties were anticipated.⁷⁻¹⁰ Hence; the present study was conducted for assessing the efficacy of three port laparoscopic cholecystectomy (LC) among gallstone patients.

Mean age of the patients was 45.6 years with majority of the patients being females and of rural residence. Mean operative time was 61.2 minutes while postoperative complications were seen in 5 percent of the patients. There was a significant improvement in the VAS score at different postoperative follow-ups. Mean duration of hospital stay was 1.5 days. In a previous similar study conducted by Tebala GD, authors evaluated efficacy of three-port laparoscopic cholecystectomy by harmonic dissection without cystic duct and artery clipping. One hundred consecutive patients with symptomatic cholelithiasis underwent 3-port LC entirely performed by harmonic dissector without cystic duct and artery clipping. In 8 cases, a fourth trocar was necessary. In 2 cases, the cystic duct was clipped after an unsafe ultrasound sealing. In 1 case, continuous bleeding from the liver required the use of diathermy. No common bile duct injury was registered.¹⁰

In another similar study conducted by Tagaya N et al, authors showed their experience with three-port

laparoscopic cholecystectomy. The procedure was successful in 119 patients. In 6 patients fourth port was used, and in another 5, the procedure was converted to open laparotomy. Cooperative manipulation of the surgical instruments between the operator and assistant is very important for this procedure, for exposing Calot's triangle and dissecting the gallbladder from the gallbladder bed. The use of an ultrasonic aspiration system made it easier to identify the cystic duct and artery, especially in patients with chronic inflammation or dense adhesions. They encountered no problems with cannulation into the cystic duct for intraoperative cholangiography, and there were no intra- and postoperative complications in this series. They achieved good results, similar to those achieved with the four-port technique. This technique is technically feasible and safe, and it has esthetic and cost advantages compared with the four-port technique.¹¹ Kumar M et al, in another previous study, compared the clinical outcomes of 3-port laparoscopic cholecystectomy versus conventional 4-port laparoscopic cholecystectomy. Seventy-five consecutive patients who underwent elective laparoscopic cholecystectomy were randomized to undergo either the 3-port or the 4-port technique. Four surgical tapes were applied to standard 4-port sites in both groups at the end of the operation. Demographic data were comparable for both groups. Patients in the 3-port group had shorter mean operative time for the 4-port group (P=0.04) and less pain at port sites. Overall pain score, analgesia requirements, hospital stay, and patient satisfaction score on surgery and scars were similar between the 2 groups.¹²

CONCLUSION

The three port technique is a safe technique for laparoscopic cholecystectomy being less painful, safe, and has fewer postoperative complications.

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