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Comparative evaluation of duration of surgery between conventional laparoscopic cholecystectomy & single incision laparoscopic cholecystectomy

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Abstract

Aim: Comparative analysis of duration of surgery between Single Incision Laparoscopic Cholecystectomy and conventional Laparoscopic Cholecystectomy.

Method: Patients suffering from symptomatic cholelithasis were randomly subjected to Single Incision Laparoscopic Cholecystectomy (SILC) and conventional four ports Laparoscopic Cholecystectomy (cLC). Data analyzed included cosmetic outcome,

Results: The mean time taken for conventional lap cholecystectomy was 22.80 minutes while that for SILC was as high as 40.20 minutes. The p-value for the comparison is 0.001 which depicts that significantly more time is required to complete SILC compared to cLC.

Conclusion: The significantly more time is required to complete SILC compared to cLC.

Keywords: - SILC, cLC, Duration of surgery

Introduction

Single-incision laparoscopic cholecystectomy (SILC) is a novel minimally invasive procedure to cholecystectomy and appears to have a similar safety profile as conventional laparoscopic cholecystectomy (CLC). Although patients prefer the cosmetic outcome of SILC over CLC , SILC procedure presents significant technical and workload challenges for surgeons.[1-3] By placing all the instruments through one incision, the single-incision procedure reduces the instruments' range of motion, increases the collisions between the instruments, and decreases the optics and instruments' degree of freedom [6]. These technical challenges could increase the surgeon workload related to the SILC. This high physical workload can increase the surgeons' musculoskeletal injury risk. Studies in a simulation setting have shown a significant decrease in task performance using SILC compared to CLC; this effect was consistent across all expertise levels and with different SILC instrumentations.[4-5] In summary,

SILC may adversely affect the surgeon's health and performance, which may also lead to a compromise of safety for patients' health and the health care delivery system.

Material and methods

The present prospective study included ultrasonographically proved 50 patients of symptomatic cholelithiasis posted for elective cholecystectomy. These patients were admitted in Surgical Wards of Indira Gandhi Medical College, Shimla. SILC was performed on 25 (50% of patients) and conventional laparoscopic cholecystectomy conducted in rest of 25 (50%) patients. The patients were selected randomly. All the patients were subjected to same general anesthesia, antibiotics, perioperative analgesics and intravenous fluids. SILC was done by infra-umbilical incision and conventional LC done by four Trocars Technique.

Patients having following conditions were excluded from the study.

1. Acute Cholecystitis /Pancreatitis.
2. Choledocholithiasis
3. Jaundice /Hypoproteinemia /Malignancy
4. History of Allergy , taking Steroids and Chemotherapy
5. Patients on Oral Contraceptive Pills or pregnant.
6. Patients requiring intra-operative blood transfusion.
7. Conversion of conventional LC to OC.
8. Intra operative injury to adjacent organs/structures.
9. Cholecystoenteric fistulae

Results

Time taken for completing conventional laparoscopic cholecystectomy varied from fifteen minutes to thirty minutes while that in SILC group was from twenty five minutes to ninety minutes. The time elapsed during the surgery were divided into four intervals for comparison **viz :** less than 20 minutes, 20-39 minutes, 40-59 minutes and more than 60 minutes. The mean time taken for conventional lap cholecystectomy was 22.80 minutes while that for SILC was as high as 40.20 minutes. The p-value for the comparison is 0.001 which depicts that significantly more time is required to complete SILC compared to cLC.

Table 1: Comparison of Duration of Surgery (DOS)

Time (in minutes)	SILC GROUP		cLC GROUP	
	No. of patients (n =25)	%	No. of patients (n =25)	%
<20	0	0	5	20
20-39	11	44	20	80
40-59	11	44	0	0
>60	3	12	0	0
MEAN	40.20		22.80	

p-value = <.001 (p <0.05- significant).

Discussion

11 (44%) patients undergoing SILC were operated in time interval 20-39 minutes while same numbers of patients were operated in time interval 40-59 minutes on the other hand 20 (80%) patients undergoing cLC were operated in time interval 20-39 minutes. Mean time required for SILC is 40.2 minutes while that required for cLC is 22.8 minutes. p-value for the comparison is 0.001 which shows that there is significantly more time required in completing SILC compared to cLC.

Conclusion

The significantly more time is required to complete SILC compared to cLC.

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