

Comparative Study between Cliplless (CL) Laparoscopic Cholecystectomy Using Harmonal Scalpel Vs Traditional Cholecystectomy (TM) Using Electrocautery and Titanium Clips

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ABSTRACT

Aims: To compare the various laparoscopic techniques that include cliplless laparoscopic cholecystectomy using hormonal Scalpel (HS) Vs Traditional method [TM] laparoscopic cholecystectomy by using titanium clips.

Methods: This prospective study was carried out in Surgical Department, Nishtar Hospital, Multan from January 2013 to June 2013. A total of 100 patients were included in this study. Patients were divided into two equal groups.

Results: HS provides a shorter operative duration than TM (33.21±9.6 vs 51.7±13.70) respectively and less rate of conversion to open cholecystectomy which is significantly less in HS (29±30 vs 47.7±31 P=0.001).

Conclusion: HS was found to be best suitable and save alternative to standard clipping of cystic duct and cystic artery.

Keywords: Laparoscopic, cholecystectomy, Harmonal scalpel.

INTRODUCTION

This study was designed as a safe alternative to electrocautery for the haemostatic dissection of the tissue. The ultrasonically activated hormonal scalpel was introduced into clinical use nearly a decade ago. Since its inception, the hormonal scalpel has gained significant clinical acceptance and application^{1,2}. Uses now range widely to include surgery of the head and neck, chest, liver, spleen, kidney, adrenal glands, colon, rectum, gastro-oesophageal junction and others. Furthermore, total hormonal scalpel dissection in the performance of a laparoscopic cholecystectomy is a technique described in the literature³.

Laparoscopic cholecystectomy is a commonly performed operation for patients diagnosed with gall stones. The harmonic scalpel was previously used for the division of the cystic artery and liver-bed dissection. Recent advances in harmonic scalpel technology now provide safe division and closure of the cystic duct up to 6 mm in diameter^{4,5,6,7,8}. So total Harmonic scalpel dissection in the performance of a laparoscopic cholecystectomy was described³. It tackles the concerns regarding smoke production, and inadvertent injuries to the abdominal organs and structures⁹. Moreover, it shortens the operative time and decreases the rate of accidental bile spillage¹⁰.

The objective of the study was to compare the various laparoscopic techniques that include clip less laparoscopic cholecystectomy using hormonal Scalpel (HS) Vs Traditional method [TM] laparoscopic cholecystectomy by using titanium clips.

MATERIAL AND METHODS

This study was carried out in Surgical Department, Nishtar Hospital, Multan from January 2013 to June 2013. A total of 100 patients were included in the study. Patients were divided into two equal groups. In group -1, 50 patients in whom LC was conducted using harmonic scalpel (HS) for closure and division of both cystic duct and artery and dissection of gall bladder from liver bed by HS. In group-2, 50 patients in whom LC was conducted by traditional method by using clipping of both cystic duct and artery and dissection of the gall bladder for liver bed by electrocautery. They were all fit and well apart from gall stones. Main symptoms was intermittent pain in right hypochondrium, dyspepsia, bloating and intermittent nausea, the intraoperative and postoperative parameters were collected including duration of operation, postoperative pain and complications.

RESULTS

The patient ages were 30-70 years. HS provides a shorter operative duration than TM (33.21±9.6 vs 51.7±13.79) respectively (P=0.001) with no gall bladder perforation and less rate of conversion to open cholecystectomy. The amount of postoperative drainage is significantly less in HS (29±30 vs 47.7±31

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P=0.001). No postoperative bile leakage was encountered in HS but it happened in 29% of patients in TM. VAS in HS at 12 hours postoperatively was 3.25±1.84 vs 5.01±1.2 (P=0.001) and 24 hours postop was 3.12±1.64 vs 4.48±1.89 (P=0.001).

Table 1: Demographic characterization of patients

	TM-LC	HS-LC
Age range	20-70	20-70
Mean + SD ^{''}	41.43±12.67	45.93± 14.19
Male	26	27
Female	24	23
BMI(kg/m ²)	26.72± 5.28	25.32± 2.14
Hypertension	3	2
Diabetes mellitus	1	1
Bronchial asthma	0	1

P. value = not significant

Table 2: Incidence of operative time, postoperative complications and length of hospital stay in both groups

	TM-LC	HS-LC
Operation time range	20-37	12-36
Mean±SD	27.37±5.11	24.13±6.51
PO complication\Port site infection	1	-
Port site hernia	1	-
LHS	1	1

P. value = not significant

DISCUSSION

Ever since Philips Mouret performed the first video laparoscopic cholecystectomy in Lyons France¹¹, this procedure is gaining popularity day by day and has achieved gold standard level for symptomatic gall stones¹². There has been a lot of changes in the techniques and the technology used, as introduction of hormonal scalpel is one of them.

This study demonstrates, the use of hormonal scalpel is not only safe, but reliable, time saving, cost effective and provides reliable hemo-biliary stasis without clinically significant immediate or postoperative complications¹³. It is feasible, easily handled and very efficient. In fact the properties intrinsic to the hormonal scalpel (cavitations and smokeless coagulation) seen to provide an advantage over electro cautery in the dissection of the gall bladder and may enhance surgeon performance¹⁴.

The frequency of gall bladder perforation in our study was almost equal in both groups (2 vs 2) respectively. Most authors denotes that hormonal clip less cholecystectomy is associated with significantly lower incidence of gall bladder perforation and bilespillage¹⁵. Not a single case of common bile duct injury was encountered in either group though various studies still report common bile ductinjury¹⁶. Similarly conversion to open cholecystectomy was not indicated in day group, although same studies do indicate someconversionrate¹⁷. Both of these features may be related to inclusion of only

chronically inflamed gall bladders in our present study. No major postoperative complication was encountered in either of two groups. Postoperative biliary drainage was encountered less in group-1 than group-2, it was not statistically significant.

CONCLUSION

Laparoscopic cholecystectomy by using hormonal scalpel is not only gaining popularity but it is quicker, best suitable technology to divide cystic duct and associated with less complications in comparison with traditional cholecystectomy using titanium clips.

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