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Original Research Paper

Surgery

A COMPARATIVE STUDY OF INTRACORPOREAL KNOTTING WITH THREAD vs CLIP IN LAPROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

Purpose: Our study aimed to evaluate the efficacy, safety of thread ligation clips application in laparoscopic cholecystectomy, and to compare the operative time and cost effectiveness of the two surgical approaches in laparoscopic cholecystectomy

Methods: **Fifty** patients were included and divided in group A (clipped) and group (ligated by thread) and compared.

Results: In our study we have seen that both clip and thread can be used safely in lap cholecystectomy. The mean time for ligation of cystic duct and artery was The mean time for clipping of the cystic duct and artery was 1.7 minutes (SD ±0.43) in group A and 2.6 minutes (SD ±0.65) in group B.The cost of material for thread is definitely much lower than that for Liga clips. For the use of clips, a clip applicator is required, but in case of thread ligation no special instrument is required and thread is also easily available even in peripheral settings.

Conclusion:

In this study we conclude that both clip and thread can be used. The suturing time slighty higher than clipping but use of thread is easy, safe and economical.

KEYWORDS : Thread, clip, laproscopic cholecystectomy

INTRODUCTION

Laproscopic cholecystectomy is the common operation and gold standard for symptomatic gall stones. During cholecystectomy cystic duct can be secured with the sutures or clips. Knot tying in open surgery can be easily be learned and performed. Cholelithiasis and its consequences are the main cause of surgical entry into the peritoneal cavity. In laparoscopic cholecystectomy (LC), cystic duct and cystic artery are normally secured with Titanium clips. However, application of clips is associated with some problems. These include dislodgement of the clip or bile duct necrosis resulting in postoperative cystic duct leak. Another clip related problem was reported at long term follow up, which is late post cholecystectomy clip migration. This was reported to result in the biliary stone formation, duodenal ulcer and even clip embolism. Alternative techniques have included the use of locking absorbable clips, and the Harmonic Scalpel. These are, however, more expensive, not readily available and used infrequently. Most studies describe separate and multiple ligations of cystic duct and cystic artery, which are viewed as technically demanding and time consuming. Similarly, the harmonic scalpel and ligasure are prohibitory expensive for resource limitations. After several modifications, the success of Intracorporeal Ligation of cystic duct with thread was observed. The time taken for tying varied from two to seven minutes, and no bile leak or other complication were noted. Thread is easy to handle and freely accessible anywhere, which is particularly important when working in rural centres. But for clipping, clip applicator and Liga clips are required. Also, special care is needed to handle and clean the instrument.

MATERIALS AND METHODS:

The study was conducted in patna medical college and hospital in 50 patients from January 2019 to dec 2019.

INCLUSION CRITERIA:

All consenting patients with Benign Gall bladder diseases such as

- Symptomatic Gall stone disease
- Gall Bladder Polyps >10mm
- Acute and Chronic Cholecystitis.

EXCLUSION CRITERIA :

The patients with following attributes and associated conditions were excluded from the study to avoid bias.

Age less than 16 years and more than 80 years

- Choledocholithiasis
- Previous Upper Abdominal surgeries
- Comorbidities like Cirrhosis, Ascites & Coagulopathy
- Anesthetic fitness

25 patients with Benign Gall bladder diseases planned for Laparoscopic Cholecystectomy were enrolled in the study. Random numbers were generated and used to allocate patients to each group with equal distribution with 25 patients in each group. Group A patients were subjected to Laparoscopic Cholecystectomy with conventional Clip Ligation of Cystic Duct. Group B patients were subjected to Laparoscopic Cholecystectomy with Suturing with thread.

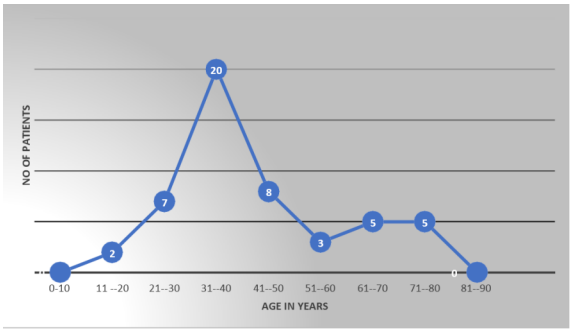
OBSERVATION AND RESULT:

Simple metal clips have been used by most surgeons to close the cystic duct since Muhe reported the first successful Laparoscopic cholecystectomy in 1985. However, the use of simple metal clips has many disadvantages. Postoperative cystic duct leaks occur in up to 2%of cases. Cystic duct leak is a potentially serious complication causing bilioma formation or biliary peritonitis. Cystic duct leak- age can occur for the following variety of reasons: in- adequate closure of the duct due to mismatch of the clip arms, necrosis of the duct at the site of clipping, or slip- page of the clips off the end of the duct. Furthermore, in the process of application, the metallic clips can fall from the applicator. There are other disadvantages to using metal clips. There is a significant inflammatory reaction to metallic clips. Metallic clips also can migrate. Cetta et al. reported that clip migration occurred in 18 of 71 patients over the course of 1 year. We compare the total operating time, time taken to clip or suture with thread, and economical burden of clip over thread to the patients.

A total number of 50 patients were randomly selected and divided into two groups, A and B. Those in whom the cystic pedicle was clipped were assigned to group A (25 cases) and the subjects in whom suture material as thread were used to group B (25 cases). The mean time for completion of the entire operation after anesthesia was 32.4 min (SD ±3.64) for group

A and 34.32 min (SD ±3.32) for group B (P value <0.05). In group A, the maximum time taken for clipping of the cystic duct and artery was 1-2 minutes in 22 patients, and 2-3 min in 3 patients, whereas in group B it was 2-3 minutes in 15 patients, 3-4 minutes for 6 patients and 1-2 minutes for 4 patients for both cystic duct and artery . We observed that the colour of the cystic duct changed to whitish with appreciate ligation (by thread) of the cystic duct proximally and distally. The mean time for lclipping of the cystic duct and artery was 1.7 minutes (SD ±0.43) in group A and 2.6 minutes (SD ±0.65) in group B. No major differences were seen between groups in terms of inpatient stay, postoperative complications and safety of the procedure. Hospital stay in both groups was similar (two to three days). Ryle's tube was removed in the evening on the same day of surgery if placed.

We observe this study between 16 years and 80 years of age.
Table-1



Age distribution of the patients selected for study

Tables-2

TOTAL OPERATIVE TIME (MINUTES)	GROUP A (no of patients)	GROUP B (no of patients)
25-30	3	2
30-35	18	13
35-40	4	10

Total time of completion of surgery in minutes

Table-3

TOTAL TIME IN MINUTES	GROUP A (cystic duct and artery clipping)	GROUP B (cystic duct and artery ligation using thread)
1-2	22	04
2-3	03	15
3-4	0	06

Total clipping and ligation time

CONCLUSION-

Knotting using thread can be used in the ligation of cystic duct during the procedure of Laparoscopic Cholecystectomy .This technique can be used as safe and effective alternative for the Conventional clip technique in Laparoscopic Cholecystectomy. Suturing technique can be used by experienced hands and in cases where cystic duct is large and cannot be occluded by the use of clips for ensuring safety .Thus Suturing technique would be an effective technique in laparoscopic cholecystectomy for ligation of cystic duct in primitive setup and case instruments failure and in peripheral set up without increasing morbidity to the patients. We studied the efficacy and safety of thread as compared to clip application for cystic duct and artery ligation separately. We observed that both techniques were safe and less time consuming, but thread ligation has been proven to be more secure than clip application. Even thread can be easy to handle and freely accessible anywhere, which is particularly important when working in rural centres. But for clipping, clip applicator and Liga clips are required.Thread is very cheap and easily available for use and also less instruments is required to suture.

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