

Comparative Study of Laparoscopic Versus Open Appendicectomy

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Abstract

Background: Frequently commonly happened abdominal surgery is appendicectomy. Open appendicectomy (OA) first introduced by Mac Burney in 1884, as on now operation of choice in acute appendicitis. Laparoscopic Appendicectomy (LA) now a days is widely practiced but could not gain universal approval. LA was first done in 1983. All recent studies shows in favour of LA. Our study is to view the therapeutic benefits of LA by comparing with open appendicectomy. **Methods:** It is a prospective study in 101 cases underwent in district hospital Gulbarga which was attached to esic medical college. Our study series is taken from july 2017 to aug 2018 in LA and OA from jan 2018 to july 2018, and compared mean operating time, time of oral feeding, post operative stay, analgesics administered. **Results:** we observed that mean operating time for LA is 48 ± 8 and OA is 35 ± 10 , LA requires 1.1 shots less analgesics than OA, Oral feeding was resumed in 20 hours earlier following LA when compared to OA, Post operative stay 2.1 days shorter in LA than OA, In female patients we noticed other pathologies like ovarian cysts and peritoneal pathology, diagnosis done and managed laparoscopically in same sitting. **Conclusion:** In our study it is found that LA is more effective and safe procedure in both male and female sexes. LA has tremendous advantage having less post operative infection, hospital stay and less analgesia administered and early return of bowel movements.

Keywords: (LA) Laparoscopic Appendicectomy; (OA) Open Appendicectomy; Appendicitis.

Introduction

Appendicitis is very common among causative factor of acute abdomen requiring surgical procedure which will be an emergency.

Life incidence of about 8 to 9% in male and 6 to 7% in females [1].

Open appendicectomy (OA) was described by mc Burney in about 1884 still is a gold standard method of operation for acute appendicitis in old ages since about 100 years [2].

Laparoscopic appendicectomy (LA) first described by semm a german surgeon in about 1983. His approach has got more popularity since 3 decades [3].

The advantage of LA as of now is often little controversial, after having many trials which has meta analysis and systematic comparison in this two techniques the conclusion advantage is yet to suffice for each one procedure, which is to be superior and preferable.

The European Association of Endoscopic surgeon (EAES) has released guidelines for appendicitis operation in favour of laparoscopic approach [4].

In our hospital study there is no much cost difference between OA and LA.

It can be minimal expense by minimal invasive surgery.

The advantage of LA is less pain and less hospital stay and early return of bowel function, and early joining for duties and better cosmetic result [3].

The main is aim to have comparative study for time duration of surgery, stay in hospital, and early ambulation and less post operative complications with good results.

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Materials and methods

Prospective study of about 101 patients who underwent operation in district hospital Gulbarga, which was attached to ESIC medical college Gulbarga. OA jan 2018 to july 2018 and LA july 2017 to august 2018.

Diagnosis is done with clinical history, examination, and laboratory investigations and imaging procedures.

In operative steps only appendix removed via mac burney's incision has been studied, Operative time is monitored from time of incision to closure of wound, post operative stay in days is calculated from the time patient is taken out from operation theatre till discharge, how many analgesic injections given is recorded, time of allowing soft diet is noted in hours from the time of surgery done.

Data were analysed by standard statistical method by using Microsoft excel and P value is also calculated.

Laparoscopic procedure

Ten (10) mm trocar is used in infra umbilical region, 5 mm trocar is used mid way between pubic symphysis and umbilicus, another 5 mm trocar is used in right hypochondrium (Figure 1,4).

After identifying, isolation of appendix is done and mesoappendix is coagulated, after resection appendix base is ligated with rod loop constructed with roeder's Knot with no. 1 vicryl (Fig. 2,3), invariably two or three loops are inserted, hemostasis is secured by cautery then appendix is removed through 5 mm port of hypochondrium, if any collection, suction is to be used and irrigation done.

In open method grid iron incision is taken in mac burney's area, all abdominal layers opened, mesoappendix is ligated, base of appendix is ligated with non absorbable thread or silk, appendix is removed, appendix base is not buried. Cephalosporin antibiotics given for 5 days with metronidazole, soft diet is allowed after 3 days, then patient is discharged if no fever is present.

Result

This is a study of 101 patients, 50 (OA) and 51(LA).

Age of patients varies from 10 yrs to 74 yrs

Operating time 48 ± 8 minutes in LA, and 35 ± 10 minutes for OA.

No conversion of LA to OA is done in our series.

Average number of doses of analgesics in OA is 4 while for LA is 2. Average feeding starts after 60 hours in OA, and 24 hours in LA, the difference is 36 hours, in favour of LA.

The post operative stay was 5 days in OA and 3 days in LA. LA required 2 days less stay compared to OA.

Two cases of ovarian cyst pathology in laparoscopic group is seen, cystectomy done accordingly.

Table 1: Comparative study between LA versus OA

Time	LA	OA	P value
Operating time	48 ± 8 mins	35 ± 10 mins	<0.001
Analgesics given	2	4	
Diet resumed orally	24 hours	60 hours	<0.001
Hospital stay	3 days	5 days	<0.001
Wound infection	1	5	<0.001

Table 2: Other pathologies

Other pathologies in LA	
Ovarian cyst	2 (cystectomy done)
Peritoneal biopsy	2
Any adhesions	-

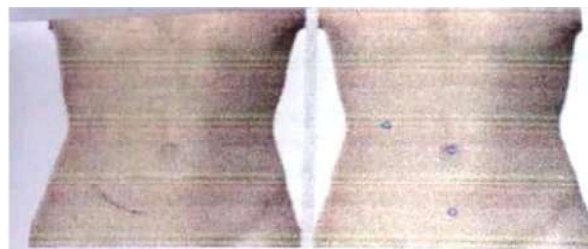


Fig. 1: shows mac burney's incision and laparoscopic holes.



Fig. 2: Roeders instrument.

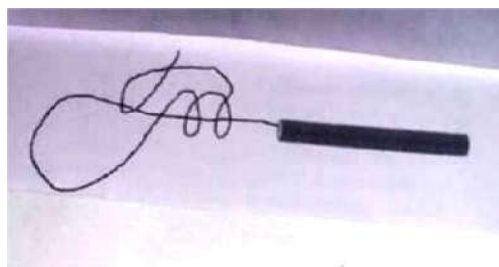


Fig. 3: Roeders knot.

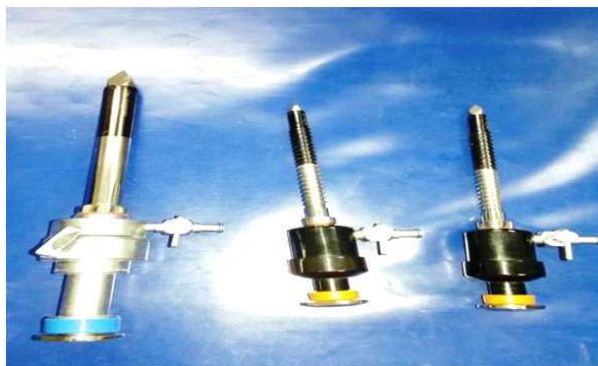


Fig. 4: Trochar 10 mm and trochar 5 mm.

Discussion

Since three decades onwards there is tremendous amount of shift from open surgery to minimal access surgery. The operation classical is open appendectomy method which is simple and more effective. But complications like wound infection, painfulness, and delayed recovery are present.

Another option is LA, in small incision and wider clear vision are advantage over open method.

The comparatively study of open versus laparoscopic surgery, laparoscopy is small incision, more access and clear vision, wide field with telescope camera, but benefit is still not much clear. Will keep in mind that laparoscopic surgery and open surgery has been complimentary related to each other. The advantages having several study there are minimal or decreased mortality rate, short stay in hospital, quick return to work and less cost [5]. But more so controversy still continues about these advantages and laparoscopic appendectomy has not replaced the open method as laparoscopic cholecystectomy has done [6]. No conversion from LA to OA was present in this series. Mean operating time of LA was 15 ± 6.1 minutes longer OA, other authers Quoted similar results [7,8]. But operation as a whole both OA and LA is dependent upon patient choice and his/her preference. There are more complications in OA like, wound infection rate is high as compared to LA. One case in LA group and five cases in OA group.

Infact major advantage in LA is less wound infection and its preference of choice and having major benefit to patient. There is remarkable decrease in stay in the hospital in LA. ($p < 0.001$) [9].

And less analgesics significantly ($p < 0.002$). The average cost of LA in total is about 30% more

when compared to OA in general.

But in our group both LA and OA cost is same.

Conclusion

LA is a safe and effective procedure in patients having high BMI and patients having a differential diagnosis where diagnosis is in dilemma. Another benefit is that other pathologies like ovarian cyst, early tubal pregnancy, laparoscopic tubectomy or adhesiolysis can be performed with less complications and less stay in hospital.

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Approval from institutional ethical committee is taken.

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