



LAPAROSCOPIC APPENDICECTOMY VERSUS OPEN APPENDICECTOMY IN A TERTIARY CARE HOSPITAL- A PROSPECTIVE STUDY

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ABSTRACT

INTRODUCTION: In case of acute appendicitis, Laparoscopic appendicectomy is the one of the commonest indication. But in rural places it is more challenging and remains controversial. Several studies show the advantages and disadvantages of Laparoscopic appendicectomy and open appendicectomy.^{1,2,3}

The aim of this study is what are the benefits of the Laparoscopic appendicectomy versus open appendicectomy and to compare the variables studied in this study with other studies conducted in various hospitals

MATERIALS AND METHODS: This prospective study is carried out over a period of 15 months from January 2016 to April 2017 in department of surgery at Govt Theni medical college, Theni. In this study we had taken 50 patients, clinically diagnosed as acute appendicitis. Among them 25 patients were selected for open appendicectomy and 25 patients were for Laparoscopic appendicectomy by random selection. Inclusion criteria were documented in a predetermined case record form and in post-operative ward history of return to normal duty or work was asked.

RESULTS: In this study, 25 patients underwent open appendicectomy and 25 patients underwent laparoscopic appendicectomy by random selection. More number of male (48%) patients were seen in open appendicectomy and more number of female patients (56%) were seen in Laparoscopic appendicectomy. Age group of the patients were between 15 to 50 yrs open appendicectomy was less time consuming, Patients had less post-operative pain and analgesic were reduced in Laparoscopic appendicectomy than open appendicectomy.

In follow up, wound infection was more after open appendicectomy when compared to Laparoscopic appendicectomy and in Laparoscopic appendicectomy the hospital stay, the mean time to return to daily activity or work was significantly reduced

CONCLUSION: In this present study Laparoscopic appendicectomy is associated with less post-operative pain and reduced analgesic requirements as compared to open appendicectomy.

Hospital stay is less and full recovery on the basis of return to normal activity was earlier in Laparoscopic appendicectomy, but the operative time was more and it was time consuming surgery in laparoscopic group, even though, operative time depends on the surgeon's ability to handle and the time can be reduced somewhat by experience of the surgeon.

Hence as compared to open appendicectomy, Laparoscopic appendicectomy is the best method of surgery opted for acute appendicitis if doing with better ability

KEYWORDS : Laparoscopic appendicectomy, open appendicectomy, acute appendicitis

INTRODUCTION

Now a days, laparoscopic surgeries are having more attention in all surgeries.^{4,5} In case of acute appendicitis, Laparoscopic appendicectomy is the one of the commonest indication. But in rural places it is more challenging and remains controversial. Several studies show the advantages and disadvantages of Laparoscopic appendicectomy and open appendicectomy.

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MATERIALS AND METHODS

This prospective study is carried out over a period of 15 months from **January 2016 to April 2017** in department of surgery at Govt Theni medical college, Theni. In this study we had taken 50 patients, clinically diagnosed as acute appendicitis. Among them 25 patients were selected for open appendicectomy and 25 patients were for Laparoscopic appendicectomy by random selection. Inclusion criteria were documented in a predetermined case record form and in post-operative ward history of return to normal duty or work was asked.

Inclusion criteria

1. Duration of surgery
2. Intraoperative findings
3. Post-operative course of recovery
4. Post-operative course of complication
5. Need of analgesic
6. Duration of hospital stay
7. Wound complications
8. Days required to return to daily duty or work

Exclusion criteria

1. Associated with other diseases DM/HT and others
2. Age <15 and >50 years are not selected
3. History of perforation

Operative procedure

Open appendicectomy was done by standard conventional method and Laparoscopic appendicectomy by three ports Open appendicectomy was done by standard method with a Lanz or Gridiron incision. Muscles split Peritoneum tented, opened, the appendix was skeletonised by clamping and cutting off the mesoappendix. Appendix was crushed at its base, a ligature tied and cut. Haemostasis achieved & peritoneum & Muscles closed with vicryl, skin with nylon suture.

Laparoscopic Appendicectomy was done by three ports. Pneumoperitonium created by **verees** needle through an umbilical incision, or by Hasson open technique depending on surgeon. 10 mm port inserted in umbilical incision for 30 degree scope with camera, second 5mm port in McBurney point in right iliac fossa & a **third 5mm port in left iliac fossa**. Appendix was skeletonised by bipolar cauterization of mesoappendix till base. Base ligated with 3endoloops of 1/0 chromic catgut. Appendix cut between 2nd&3rdendoloop ligature and extracted through 10mm port. Haemostasis achieved and diagnostic laparoscopy done and ports removed and port site sutured by 1/0 Nylon sutures.

RESULTS

In this study, 50 patients clinically diagnosed as acute appendicitis were selected. 25 patients were underwent open appendicectomy and 25 patients were underwent laparoscopic appendicectomy by random selection.

In this study, 12(48%) of open appendicectomy and 11(44%) of

patients with laparoscopic appendectomy were male. 13(52%) patients of open appendectomy and 14(56%) of Laparoscopic appendectomy were female.

More number of male (48%) patients were seen in open appendectomy and more number of female patients (56%) were seen in Laparoscopic appendectomy.

Age group of the patients were between 15 to 50 yrs. Mean age was 23.18 yrs in open appendectomy and 26.04 yrs in Laparoscopic appendectomy.

The mean operative time for open appendectomy was 52.4+/-20.22 mts and that for Laparoscopic appendectomy was 70.20+/-26.50 mts. This showed that open appendectomy was less time consuming. Patients had less post-operative pain with Laparoscopic appendectomy than open appendectomy during 1st week post-operatively. This was measured by **Visual analogue scale (VAS)**. During the period of 24 hrs after surgery the average pain score was 2.92(+/- 0.98) in open group and 1.25(+/-0.46) in laparoscopic group, with p,0.05 which is significant.

Duration of analgesic used in parenteral was 2.30 days (3 doses) in Laparoscopic appendectomy group and 6.40 days(5.2 doses) in open appendectomy group. Above findings revealed that both pain and analgesic were reduced in Laparoscopic appendectomy than open appendectomy.

In follow up, wound infection was more after open appendectomy in 3(12%) cases and in laparoscopic cases it was 1(4%), and the p value is significant (p<0.05).

In open appendectomy, Laparoscopic appendectomy than open appendectomy the average post operative stay in the hospital was 6.78+/-2.18 days, which in Laparoscopic appendectomy was 2.62 +/-0.89 days. (p< 0.05). this showed that Laparoscopic appendectomy significantly reduced the hospital stay.

The mean time to return to daily activity or work was 21.68 +/- 6.14 in open appendectomy and in Laparoscopic appendectomy it was 14.5 +/- 2.12. again the p value is significant (p<0.05).

DISCUSSION

In this era of minimally invasive procedures, laparoscopic appendectomy has become a standard of care in case of acute appendicitis, particularly in females it can also rule out other common Genitourinary disorders. Several studies show the advantages and disadvantages of Laparoscopic appendectomy and open appendectomy.

The aim of this study is what are the benefits of the laparoscopic appendectomy than open and to compare the variables studied in this study with other studies conducted in various hospitals

The following variables are studied in our prospective study.

POST-OPERATIVE PAIN

It is proved that laparoscopic procedures cause less postoperative pain than their conventional counterparts. Scores were significantly less in patients undergoing Laparoscopic appendectomy. 24 hrs after surgery the average pain score was 1.28(+/-0.46) in laparoscopic group. Similar observations have also been reported by other authors.

Table 1: Post operative pain score Pain score (0-4) (Mean)

Studies	Open	Laparoscopy
Ortega AE et al	43.25	2.01
Swneeny KJ et al	73.01	2.25
Moses ingty et al	2.72	1.28
Present study	2.92	1.25

Analgesia requirement :

laparoscopic procedures cause less postoperative pain thus requiring less analgesics after laparoscopic appendectomy. In this study analgesic required for open was 6.44 days as compared to 2.28 days for laparoscopic group. Thus the post-operative analgesic required was more in open group as compared to laparoscopic group. Similar results have also been found in the following study.^{6,7,8,9}

Table 2: Post operative anal

Studies	Open	Laparoscopy
Ortega AE et al	46.95	2.29
Geeta.K.R et al	67.05	3.31
Moses ingty et al	6.44	2.28
Present study	6.40	2.20

Operative Time;

In general operative time is more time consuming in laproscopic procedure, like that also in laparoscopic appendectomy also. In laparoscopic procedure the time calculation is taken from the introduction of first trochor to end of skin suturing.^{10,11,12}

Table 3: Mean time (minutes)

Studies	Open	Laparoscopy
Heikkinen T.J et al	3 82	91
Ortega AE et al	4 58	68
Geeta.K.R et al	6 58.2	74.13
Moses ingty et al	54.20	71.20
Present study	52.4	70.20

Hospital stay:

LA has significant advantages over open appendectomy with respect to length of hospital stay,13,14 rate of routine discharge, and post-operative in-hospital morbidity and this result is well matched when compared to other series. Thus hospital stay has decreased significantly in patients who underwent LA than open surgery.

Duration of hospital in days

Table 4: Number of days (Mean)

Studies	Open	Laparoscopy
Attwood SE et al	9 3.8	2.5
Yong JL et al	5 4	3
Geeta.K.R et al	6 4.36	3.31
Moses ingty et al	7.68	2.84
Present study	6,78	2.62

Time to full recovery (days)

In the present study, full recovery on the basis of return to normal activity was seen earlier in LA group and give superior results

Table 5: Return to daily activity or work (days)

Number of days (Mean)

Studies	Open	Laparoscopy
Ortega AE et al	14	0 9.0
Pedersen AG et al	26.5	14.0
Wei HB Hung et al	13.7	9.1
Geeta.K.R et al ⁵	19.44	13.86
Moses ingty et al	20.80	13.52
Present study	21.68	14.51

CONCLUSION

In this present study Laparoscopic appendectomy is associated with less post-operative pain and reduced analgesic requirements as compared to open appendectomy.

Hospital stay is less and full recovery on the basis of return to normal activity was earlier in Laparoscopic appendectomy. but the operative time was more and it was time consuming surgery in laparoscopic group, even though, operative time depends on the surgeon's ability to handle and the time can be reduced some what by betterment of the surgeon. Hence as compared to open appendectomy, Laparoscopic appendectomy is the best method of surgery opted for acute appendicitis if doing with better ability for best life expectancy of the patient

REFERENCES

- Mishra M1, Agarwal V. Randomized clinical trial of Laparoscopic versus Open Appendectomy in over weight patients. Dissertation carried out at Sir J.J Hospital and Grant Medical College, 2005.
- Srivastav. Randomized clinical trial of laparoscopic versus open appendectomy. Dissertation carried out at Sir J.J Hospital and Grant Medical College, 2003.
- Attwood SE, Hill AD, Murphy PG, Thornton J, Stephens RB. A prospective randomized trial of laparoscopic versus open appendectomy. *Surgery* 1992;112:497-501.
- Mc Burney C. Experience with early operative interference in cases of disease of the vermiform appendix. *NY Med J* 1889;50:676.
- Cox MR, McCall JL, Touli J, Padbury RT, Wilson TG, Wattchow DA, et al. Prospective randomized comparison of open versus laparoscopic appendectomy in men. *World J Surg* 1996;20:263-6.
- Frazer RC, Robert JW, Symmonds RE. Open versus Laparoscopic appendectomy. *Ann Surg* 1994;219:715-28.

7. Salky BA. Palanivelu's Text Book of Surgical Laparoscopy, 2005. 13
8. Zollkofger R. Zur Laparoscopic Schweiz Med Wschr, 1924.
9. Wallbridge PH. Double appendix. Br J Surg 1962;50:3
10. Bailey H, Williams NS. Bailey & Love's Short Practice of Surgery. 25 th ed. A Hodder Arnold Publication; 2011.
11. Gaskin TA, Isobe JH, Mathews JL, Winchester SB, Smith RJ. Laparoscopy and the general surgeon. Surg Clin North Am 1991;71:1085-97. [PUBMED]
12. Hellberg A, Rudberg C. Prospective randomized multi centric trial study of laparoscopic versus open appendectomy. BJS 1999;86:53-84.
13. Huang MT, Wei PL, Wu CC, Lai IR, Chen RJ, Lee WJ. Needleoscopic, laparoscopic, and open appendectomy: A comparative study. Surg Laparosc Endosc Percutan Tech 2001;11:306-12.
14. Khalili TM, Hiatt JR, Savar A, Lau C, Margulies DR. Perforated appendicitis is not a contraindication to laparoscopy. Am Surg 1999;65:965-7
15. Geeta K.R. Annappa Kudva. Bhavatej: "Laparoscopic appendectomy versus open appendectomy: A comparative study of clinical outcome and cost analysis - Institutional experience". Indian J Surg (May-June 2009) 71:142-146