ORIGINAL RESEARCH

A hospital-based assessment of the efficacy of laparoscopic appendectomy as well as conversion rate of laparoscopic appendectomy to open appendectomy

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ABSTRACT

Aim: The aim of the present study was to assess the efficacy of laparoscopic appendectomy, patients' demographic profile as well as conversion rate of laparoscopic appendectomy to open appendectomy. **Methods:** A Hospital based retrospective study of patients who had undergone laparoscopic appendectomy at emergency theatre in the last on month was included for this study irrespective of age and sex. 50 patients had undergone laparoscopic surgery in the last one month. The files of the patients were collected from the medical record section of hospital and studied. **Results:** There were 60% males and majority of the patients belonged to 21-40 years (56%). Most of the patients (80%) were presented with complains of pain localized in lower abdomen associated commonly with vomiting. The duration of hospital stay was shorter as 3 days for most of the patients (40%) under study. Only 24% patients had post-operative complications, most common being pain at surgical site, followed by wound infections. Conversion rate from laparoscopic appendectomy to open appendectomy was only 10% with cause being uncontrolled bleeding, perforation of base of appendix and appendicular lump, without any known mortality and case of redo during period of this study. **Conclusion:** Laparoscopic appendectomy is associated with fewer post-operative complications, shorter hospital stays, less operative time. Laparoscopic appendectomy is safe and feasible without risk of mortality.

Key words: Appendectomy, appendicitis, conversion, emergency, laparoscopic, mortality

INTRODUCTION

Appendicitis is the most common cause of surgical abdomen in all age groups.[1,2] Approximately 7-10% of the general population develops acute appendicitis with the maximal incidence being in the second and third decades of life.[3] Open appendectomy has been the gold standard for treating patients with acute appendicitis for more than a century, but the efficiency and superiority of laparoscopic approach compared to the open technique is the subject of much debate nowadays.[3-5] There is evidence that minimal surgical trauma through laparoscopic approach resulted in significant shorter hospital stay, less postoperative pain, faster return to daily activities in several settings related with gastrointestinal surgery.[6,7] Currently, the choice of operative approach is mostly at the surgeons' discretion. Golub *et al.* 1 in his meta-analysis of 16 prospective randomized studies and Sauerland[8] in his Cochrane Review of 45 studies reported a lower wound infection, higher operating time & higher incidence of intra-abdominal abscess (IAA) for LA than OA. Similarly Yau *et al.* [9] and Pokala *et al.* [10] reported lower wound infection rate and higher rate of IAA when compared with OA.

Bearing in mind that laparoscopic appendectomy, unlike other laparoscopic procedures[11], has not been found superior to open surgery for acute appendicitis, we designed the present study to determine any possible benefits of the laparoscopic approach. Laparoscopic technology advances and surgeons' expertise increases, many surgeons have successfully performed a multitude of laparoscopic procedures in presence of these relative contraindications. In a study comparing laparoscopic and open appendectomy for complicated appendicitis in adult patients, Taguchi *et al*. found that the minimally invasive approach was safe and feasible in this setting, though it did not significantly reduce complications.[12] If intraoperative complications that cannot be handled with laparoscopy arise during laparoscopic appendectomy, conversion to open appendectomy is indicated. It is crucial to understand the circumstances in which such conversion is warranted.[13,14]

The aim of the present study was to assess the efficacy of laparoscopic appendectomy, patients' demographic profile as well as conversion rate of laparoscopic appendectomy to open appendectomy.

MATERIALS AND METHODS

A Hospital based retrospective study of patients who had undergone laparoscopic appendectomy at emergency theatre in the last on month was included for this study irrespective of age and sex. 50 patients had undergone laparoscopic surgery in the last one month. The files of the patients were collected from the medical record section of hospital and studied.

Sample size was not based on any standard sample calculation technique as all the patients who had undergone laparoscopic appendectomy at emergency theatre were recruited for this study. Categorical variables were presented as frequency. Chi-square test was performed to compare between the categorical variables using SPSS. Ethical approval was approved by department research unit, department of surgery.

RESULTS

Table 1: Demographic and clinical details

Gender	**N%**
Male	30 (60)
Female	20 (40)
Age groups in years	
<20 years	14 (28)
21-40 years	28 (56)
41-60 years	8 (16)
Chief complaints	
Abdomen pain with vomiting	40 (80)
Fever	25 (50)
Loss of appetite	23 (46)
Constipation	20 (40)
Flatulence	15 (30)

There were 60% males and majority of the patients belonged to 21-40 years (56%). Most of the patients (80%) were presented with complains of pain localized in lower abdomen associated commonly with vomiting.

Table 2: Hospital stays and complications

Hospital stays	N%
1 day	1 (2)
2 days	13 (26)
3 days	20 (40)
4 days	9 (18)
5 days	7 (14)
Complications	
SSI	6 (12)
Wound infections	5 (10)
Wound dehiscence	2 (4)

The duration of hospital stay was shorter as 3 days for most of the patients (40%) under study. Only 24% patients had post-operative complications, most common being pain at surgical site, followed by wound infections.

Table 3: Conversion rate (from laparoscopic appendectomy to open appendectomy)

Conversion	N%
Yes	5 (10)
No	45 (90)

Conversion rate from laparoscopic appendectomy to open appendectomy was only 10% with cause being uncontrolled bleeding, perforation of base of appendix and appendicular lump, without any known mortality and case of redo during period of this study.

DISCUSSION

Every day medical surgery is growing up with newer methods and techniques. The recent sophisticated discovery has taken over traditional ones. Laparoscopic surgery has evolved to be the greatest boon of this era. Considering patient compliance, minimally invasive surgery is wished to be practiced in any possible surgery. Appendix is worm shaped vestigial structure attached to caecum of large intestine. Despite of having any important role in human body, it is very notorious site for many medical conditions most common being appendicitis which may sometimes surge for medical emergency. Appendicitis is an inflammation of the appendix, a finger-shaped pouch that projects from your colon on the lower right side of your abdomen.[15] Simply, appendectomy is surgical removal of appendix. Two types of procedure are practiced, open and laparoscopic appendectomy. The laparoscopic approach to appendectomy has gained wide acceptance over the last 15 years as a means of improved diagnostic accuracy and wound complication rate over open surgery.[16]

There were 60% males and majority of the patients belonged to 21-40 years (56%). Most of the patients (80%) were presented with complains of pain localized in lower abdomen associated commonly with vomiting. The duration of hospital stay was shorter as 3 days for most of the patients (40%) under study. Only 24% patients had post-operative complications, most common being pain at surgical site, followed by wound infections. A study for outcomes and cost analysis of laparoscopic versus open appendectomy conducted at division of general surgery of civil hospital of Ragusa, Italy revealed that the overall incidence of minor and major complications was significantly lower after laparoscopic appendectomy (2.9%) than after open appendectomy (13.2%), rate of intra-abdominal abscess being similar. Also, length of hospital stay was significantly shorter in laparoscopic group than open group.[17] Another study on laparoscopic versus open appendectomy, a prospective randomized double-blind study has shown that there was no any mortality and some early complications in the laparoscopic group required a reoperation. Physical health and general scores on the short-form 36 (SF36) quality of life assessment forms were significantly better in the laparoscopic group.[18] Conversion rate from laparoscopic appendectomy to open appendectomy was only 10% with cause being uncontrolled bleeding, perforation of base of appendix and appendicular lump, without any known mortality and case of redo during period of this study. The previous study by Gupta *et al*. also showed the decrease trend from laparoscopic appendectomy to open appendectomy.[19]

CONCLUSION

Laparoscopic appendectomy is associated with fewer post-operative complications, shorter hospital stays, less operative time. Laparoscopic appendectomy is safe and feasible without risk of mortality.

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