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Original Research Article

A Hospital Based Retrospective Evaluation of Patients Underwent Laparoscopic Appendectomy at Emergency Theatre

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Abstract

Aim: The aim of the present study was to study 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 of Government Medical College, Bettiah Bihar for the period of one year was included for this study irrespective of age and sex. Total 50 patients were included in the study.

Results: 30 patients out of 60 patients who had undergone emergency laparoscopic appendectomy were between 20 years to 40 years of age. During this, it was found that most of cases (44 out of 50, i.e., 88%) were diagnosed as acute appendicitis, 1 (2%) case as appendicular lump, 2 (4%) cases as appendicular abscess, 3 (6%) cases as appendicular perforation peritonitis. Most of the patients 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. 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 safe and efficient procedure with shorter hospital stay and less post-operative complication.

Keywords: Appendectomy, Appendicitis, Conversion, Emergency, Laparoscopic, Mortality

Introduction

Appendicitis is an inflammation of the appendix, a finger-shaped pouch that projects from your colon on the lower right side of your abdomen. [1] Appendicitis is the most common surgical disease with appendectomy being the traditional treatment of choice. Obstruction of the lumen of appendix triggers a series of events that leads to Acute Appendicitis. Facility is the most common cause of obstruction, others being lymphoid hyperplasia, oedema, stricture, gallstones, adhesions etc. [2] Emergency Appendectomy was the choice of

treatment for AA initially and any sort of delay in operative intervention was believed to lead to complications like perforation, periappendiceal abscess etc. However, studies have shown that delayed appendectomy though less superior, does not lead to increased morbidity. [3]

The idea of minimal access surgery has made laparoscopy a far more attractive option than the open approach. However, many studies have shown conflicting results. Some have demonstrated that laparoscopic route has better clinical outcomes while other has shown marginal or no clinical benefits and higher costs. Thus, there is no single consensus regarding the superiority of laparoscopic route over open. [4] However, there is a growing trend towards minimal access surgery (laparoscopy) due to the reduced magnitude of surgical injury and enhanced rate of patient's return to homeostasis and recovery. Open appendectomy is considered safe and effective but associated with complications such as ileus, intestinal obstruction, wound sepsis etc. Laparoscopic appendectomy with high accuracy and low complication rate has emerged as the modus operandi for both diagnosis and treatment of Acute Appendicitis (AA). [5]

That said, as 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. [6] 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. [7,8]

The aim of the present study was to study 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 of Government Medical College, Bettiah Bihar for the period of one year was included for this study irrespective of age and sex. Total 50 patients were included in the study. 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 of Government Medical College , Bettiah Bihar 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, Government Medical College, Bettiah Bihar.

Results

Table 1: Age and gender group of the patients

Age groups	N%
<20 years	15 (30)
20-40 years	30 (60)
41-60 years	5 (10)
Gender	
Male	18 (36)
Female	32 (64)

30 patients out of 60 patients who had undergone emergency laparoscopic appendectomy were between 20 years to 40 years of age. Most of the patients were presented with complains of pain localized in lower abdomen associated commonly with vomiting. There were 36% male as compared to 64% females.

Table 2: Duration of hospital stay

Duration of hospital stay	%
1 day	2
2 days	25
3 days	40
4 days	24
5 days	9

The duration of hospital stay was shorter as 3 days for most of the patients (40%) under study.

Table 3: Diagnosis

Diagnosis	%
Acute appendicitis	44 (88)
Appendicular lump	1 (2)
Appendicular abscess	2 (4)
Appendicular perforation peritonitis	3 (6)

During this, it was found that most of cases (44 out of 50, i.e., 88%) were diagnosed as acute appendicitis, 1 (2%) case as appendicular lump, 2 (4%) cases as appendicular abscess, 3 (6%) cases as appendicular perforation peritonitis.

Table 4: Chief complaint

Chief complaint	%
Vomiting	30 (60)
Fever	14 (28)
Nausea	13 (26)
Anorexia	8 (16)
Abdominal distension	2 (4)
Loose stool	1 (2)

Most of participants presented with one or more associated complaints such as vomiting in 30 participants (60%), fever in 14 participants (28%), nausea in 13 participants (26%), anorexia in 8 participants (16%), abdominal distension in 2 participants (4%) and loose stool in 1 participant (2%).

Table 5: Conversion rate (from laparoscopic appendectomy to open appendectomy)

Conversion	Frequency	Percentage (%)
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

Laparoscopic procedures are most popular in present era because of its advantages like less scaring, short hospital stay and earlier return to activities. Despite of increased experience and technical

innovations there are many occasions that require conversion of laparoscopic procedures into open surgical procedures. Different operative procedures exist for appendectomy such as open appendectomy, laparoscopic appendectomy, Single Incision Laparoscopic Surgery (SILS)/ Single Port Laparoscopy (SPL) and via transvaginal route (Notes: Natural Orifice Transluminal Endoscopic Surgery).

Our data supports prior studies in the literature with respect to patient compliance, post-operative complications, conversion rate, mortality and hospital stay. A study for outcomes and cost analysis of laparoscopic versus open appendectomy conducted at division of general surgery of Government Medical College in Bettiah Bihar 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. [9]

30 patients out of 60 patients who had undergone emergency laparoscopic appendectomy were between 20 years to 40 years of age. During this, it was found that most of cases (44 out of 50, i.e., 88%) were diagnosed as acute appendicitis, 1 (2%) case as appendicular lump, 2 (4%) cases as appendicular abscess, 3 (6%) cases as appendicular perforation peritonitis. The duration of hospital stay was shorter as 3 days for most of the patients (40%) under study. The present findings of rate of conversion from laparoscopic appendectomy to open appendectomy were 10%. Likewise, the previous study by Gupta et al also showed the decrease trend from laparoscopic appendectomy to open appendectomy. [10] 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. [11] Most of participants presented with one or more associated complaints such as vomiting in 30 participants (60%), fever in 14 participants (28%), nausea in 13 participants (26%), anorexia in 8 participants (16%), abdominal distension in 2 participants (4%) and loose stool in 1 participant (2%).

In 2018, Patel et al. conducted a study on 88 patients (65 OA and 23 LA). Mean age was found to be 27.83 and 27.28 years respectively. 4 were interval and 19 were emergency appendectomies which were performed on patients with recurrent symptoms. Out of all the OA cases, 27 were acute appendicitis, 20 were recurrent appendicitis and remaining 18 were interval appendectomies. [12] In the present study, 88% had acute appendicitis. Goudar et al. conducted a study in Southern India amongst 240 patients. Post-op pain was stratified into mild, moderate and severe and was found to be less in LA. No case of stump appendicitis was encountered in the present study. No negative appendectomies were encountered in our study. [13]

The operative time for laparoscopic appendectomy was mostly between 31-60 minutes with mean operative time of 63.8±29 minutes standard deviation (range=20-120 minutes). Out of 54 participants, 46 participants (85.19%) had heart rate between 60-100 beats/minutes with mean heart rate of 84.72 beats/minutes±14.43 beats/min standard deviation (range=60-120 beats/minutes). [14]

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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