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A Prospective Study of Laparoscopic Appendicectomy in Patients with Acute Appendicitis with Perforation

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Abstract
Goals the preferred method of treating acute appendicitis with perforation is laparoscopic appendicectomy. The purpose of this prospective study is to determine how laparoscopic appendicitis with perforation relates to acute appendicitis. The following information was gathered for the study: Age, sex, and place of residence of the participant were among the sociodemographic details gathered. A history of the patient's symptoms was acquired. There have been reports of symptoms like discomfort, nausea, vomiting and fever. Vital signs such as respiration rate and pulse rate were recorded. Standard blood studies were conducted. Next, a separate record of the total leucocytic count was made. In the current study, 27 patients (38.5%) range in age from 12 to 20 years, 23 patients (32.8%) are in the 21-28 age range, 18 patients (25.7%) are in the 29-36 age range, and two patients (4%) are in the 37-44 age range. The majority of patients (72%) are in their second or third decade of life and are at a higher risk of developing an appendix perforation. Approximately 52.8% (37) of the population is male and 47.1% (33) is female. Surgeons with laparoscopic experience have utilised LA more often for adults and adolescents with perforated appendicitis. In patients with perforated appendicitis, laparoscopic appendectomy is beneficial for lowering post-operative morbidity and expediting the patient's recovery. A study demonstrated that the BEST treatment for perforated appendicitis is laparoscopic appendectomy.

INTRODUCTION

With appendices making up around 1% of all surgical procedures, they continue to be among the most prevalent procedures in general surgery[1].

Although mortality has decreased from 50% (before to 1925) to <1/1,000,000 thanks to modern diagnostic tools, surgical methods, fluids and antibiotic treatments, morbidity still reaches 5-8% as a result of wound infection brought on by a delay in diagnosis and treatment[2].

The first report of laparoscopic appendicectomy was made by Semm. Comparing minimal access techniques to open surgery, the former offers more accessibility and a better visualisation of the pathology and surrounding anatomy. Some writers proposed that laparoscopy would be a preferable management option for complex appendicitis.

Larger incisions, greater tissue incisions, concealed surrounding anatomy, excessive traction from the laparotomy, longer operating times, increased surgical stress on the patient and an increased risk of infection at the surgical site are all consequences of the open technique. However, the outcomes of various studies that looked at the relevance of laparoscopy in complex appendicitis are debatable.

LA is being used more often to treat perforated appendicitis due to experience gained with uncomplicated appendicitis. In our retrospective comparative analysis, wound infection rates (15.2%) were lower in our group of 99 patients with perforated appendicitis than in his OA group (30.7%) and 91 of the 99 patients received effective treatment with LA[3]. Patients with perforated appendicitis have demonstrated similar positive outcomes in terms of wound infection rates of LA as LOS, usage of antibiotics, return to oral feeding and OA[4-6]. Currently, the surgeon has a lot of latitude in selecting the surgical method. In a meta-analysis of 16 prospective randomised studies, Golbe[7] observed reduced wound infections, longer operating times and a greater incidence of intra-abdominal abscess (IAA) with LA compared with OA., Sauerland[8] similarly reported in his Cochrane review of 45 research. Comparing IAA rates with OA, Yau[9] and Pokhara[10] observed reduced rates of wound infection and greater rates of IAA.

A laparoscopic appendectomy is particularly advantageous for young women who are potentially fertile and experiencing pain in the right iliac fossa, including those with gynaecological disorders. Improved energy and light sources make it possible to select a laparoscopic procedure that will reduce morbidity, patient suffering, and length of hospital stay. The current study set out to assess the effectiveness of laparoscopic appendectomy in patients who had suffered an appendicular perforation.

MATERIALS AND METHODS

Between November 2020 and November 2022, diagnosed, admitted, investigated, treated and monitored 70 cases of appendicitis with perforation were included. Laparoscopic procedures are used to treat these individuals, and data gathered was examined.

Additionally, the following data were collected as part of the study: Age, sex and place of residence of the participant were among the sociodemographic details gathered. A history of the patient's symptoms was acquired. There have been reports of symptoms like discomfort, nausea, vomiting and fever. Vital signs such as respiration rate and pulse rate were recorded. Standard blood studies were conducted. Next, a separate record of the total leucocytic count was made. The abdomen was examined using ultrasound and contrast-enhanced computed tomography and the results were recorded. The patient had laparoscopic exploration, followed by either an open or laparoscopic appendectomy, with the results recorded. Documentation of intraoperative findings was done according to whether an abscess was present or not. The symptoms' beginning and length were recorded. It was reported that the signs were pain, guarding and rigidity. The appendix was found to be in the retrocaecal, preileal, postileal, pelvic and subcaecal positions. The tip, base and middle were identified as the perforation sites. The rate of conversion to open approach as a result of omental cocoon, inaccessible subhepatic appendix and severe adhesions was recorded. Prolonged ileus, wound infection and fistula formation were observed as postoperative sequelae. There was a record of the hospital stay's length. The report of the histological investigation was gathered and documented.

Sample Size: 70 cases were included in the present study.

Inclusion Criteria: 18-60 years old both sexes Individuals displaying acute appendicitis symptoms and indicators individuals with USG/CT radiological confirmation of an appendicular perforation. Patient giving permission to receive therapy.

Exclusion Criteria: Over 60 years of age patients with generalised symptoms of peritonitis and acute appendicitis. patients who have developed a mass due to severe appendicitis. women who are expecting Patients withholding their permission.

RESULTS AND DISCUSSIONS

In present study 27(38.5%) patients are between age of 12 years to 20 years and 23(32.8%) patients were about21 years to 28 years and 18(25.7%) of

Table 1: Diagnosis Of Appendicular Perforation By Usg.

Ultrasound Abdomen	Detected	Not Detected	Total
Number Of Patients	45	25	70
Percentage	64.2%	35.7%	100%

Table 2: Diagnosis Of Appendicular Perforation By Cect.

Cect Abdomen	Detected	Not Detected
Number Of Patients	19	2
Percentage	90.4%	9.5%

Table 3: Time Of Presentation

Time of Presentation After Onset Of Symptoms	Number Of Patients	Percentage
<24 Hours	21	30%
>24 Hours	49	70%

Table 4: Intra Abdominal Abscess

Study	Intra Abdominal Abscess
Tuggle Et Al	7.71%
Masoomi Et Al	2.61%
Oyetunji Et Al	5.7%
Present Study	3.0%

patients are of 29-36 years and two (4%) are between 37-44 years of age. Majority (72%) of patient's age group lies in 2nd and 3rd decade of life and are more prone for appendicular perforation. Sex distribution is about 52.8% (37) males and 47.1%(33) females.

In this study intra operative findings of presence of appendicular mass and abscess are taken where the patients with appendicular mass is 7 (15%) and abscess are 14 (27.1%) and rest of the patients 31 (61%) of them are without mass or abscess formation.

In present study there is only 3% of the patient having fistula formation after recovering from an intra-abdominal abscess IAA.where in tuggle *et al* 7.71% and masoomi et al 2.61% and oyetunji *et al* 5.7% of IAA is present.

When compared to C.P. Garg *et al.*'s study, which involved 49 patients who underwent laparoscopic procedures for appendicular perforations and had an average age group of 23, the current study shows laparoscopically treated patients between the ages of 12 and 60 with a mean age group of 23.48. The mean age group in another study, i.e., is 28.56 years.

In the current study, heart rate was taken into account to determine the likelihood of an increase in heart rate following a perforation of the vermiform appendix, wherein there may be localised or generalised peritonitis, which causes an increase in heart rate. There was an increase in the heart rates of appendicular perforation patients in this study because, out of 50 instances, 80% of the patients had a heart rate between 90 and 120 beats per minute, and 8% had a heart rate higher than 120 beats per minute. Abdominal pain, vomiting and fever are typically the first signs that appear when appendicitis is present. Due to localised or widespread peritonitis, fever is possible in cases of appendicular perforation. In one study, all of the patients (100%) had fever., in the current study, 62% of the participants had fever., the reason for the difference in fever rates could be early presentation. The ability of the USG to detect appendicular perforation is debatable. Sattar *et al*. reported 100% detection of appendicular perforation by USG, while in our investigation, USG diagnosed appendix perforation in 70% of the patients, with Contrast Enhanced CT being used on the remaining patients.1 Out of 15 patients (30%), 14 were diagnosed with appendicular perforation., the probability of diagnosing appendicular perforation is 93.33% and the remaining 6.66% is detected intraoperatively[11]. CECT abdomen is the gold standard for diagnosing appendicular perforation. Patients who are not diagnosed by USG are subjected to CECT.

The duration of stay is taken into account while assessing the morbidity and prognosis of the patient because these are dependent on factors related to intraoperative observations such as mass formation and abscess, as well as post-operative ileus and wound infection. The majority of patients (42%), followed by 18% on day 4 and patients with difficulties such as drain installation and abscess by days 5 (6%), 8 (10%), and so on. 10% on days 9 and 10. On day 12, 2% of the individual with fistula development was released[12].

CONCLUSION

The majority of research has shown that LA had lower morbidity and a quicker rate of recovery. A reduced death rate, a shorter hospital length of stay, and a lower risk of overall complications are all linked to LA. Although there is little conversion process from LA to OA, accessing the appendix with LA in a ruptured appendix is simple. Based on our analysis of the data, the laparoscopic operation for perforated appendicitis has produced a favourable result. In cases of complex appendicitis, such as early mass, perforated, gangrenous and with thick adhesions, laparoscopic appendectomy has a greater success rate. There were no outcome factors such as peritonitis, fistula development, or intra-abdominal abscesses, with the exception of a little wound infection at the port location where the perforated appendix was removed.

Our research unequivocally shown the benefits of laparoscopic appendectomy in lowering post-operative morbidity and expediting the patient's recovery in cases of perforated appendicitis. A study shown that the BEST treatment for perforated appendicitis is laparoscopic appendectomy.

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