

# Evaluation of Different Treatment Modalities of Acute Appendicitis

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## Abstract

**Background:** Acute appendicitis (AA) is the leading cause of surgical acute abdomen worldwide, with a prevalence of approximately 7% of the population. The present study was conducted to compare different treatment modalities of acute appendicitis. **Subjects & Methods:** 102 cases of acute appendicitis undergoing appendectomy were divided into 2 groups of 51 each. Group I patients were managed with laparoscopy appendectomy and Group II patients were managed with open appendectomy. Symptoms and parameter such as requirement of oral feed started postoperatively, average hospital stay, wound abscess and wound infection were recorded. **Results:** Group I had 31 males and 20 females and group II had 35 males and 16 females. Symptoms were fever in 22 in group I and 14 in group II, abdominal pain 48 in group I and 44 in group II and nausea/vomiting 31 in group I and 30 in group II. The mean hospital stay was 5.2 days in group I and 4.3 days in group II, wound abscess was seen in 2 in group I and 5 in group II and wound infection 3 in group I and 7 in group II and oral feed started postoperatively at mean of 5.4 days in group I and 3.2 days in group II. The difference was significant ( $P < 0.05$ ). **Conclusion:** There were less complications and better outcome in laparoscopic appendectomy as compared to open appendectomy.

**Keywords:** Acute appendicitis, Laparoscopic appendectomy, wound infection.

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## Introduction

Acute appendicitis (AA) is the leading cause of surgical acute abdomen worldwide, with a prevalence of approximately 7% of the population. It has a peak incidence between 10-14 years in females and 15-19 in males. Appendectomy is the treatment of choice. Besides allowing definitive diagnosis, it also significantly reduces the risk of complications such as perforation, sepsis and death.<sup>[1]</sup>

Appendicitis is the most common cause of the acute abdomen in the United States, with an estimated lifetime risk between 5 and 20%. In fact, appendectomy is the most common non-elective operation performed by general surgeons.<sup>[2]</sup> Although it has been over 115 years since Reginald Heber Fitz first demonstrated the natural history and pathophysiology of appendicitis and advocated early appendectomy in his landmark article, appendicitis continues to present challenges for the surgeon today.<sup>[3]</sup>

The most important causal factor of AA appears to be the development of luminal obstruction, whose etiology is associated with age – lymphoid hyperplasia is the most common factor found in patients younger than 20 years, while the obstruction by a fecalith is more common in the

elderly.<sup>[4]</sup> Advantages of laparoscopic approach include less operative time, less postoperative pain, reduced analgesia, less surgery associated complications, shorter hospital stay, faster recovery, reduced wound infection and minimal scarring.<sup>[5]</sup> The present study was conducted to compare different treatment modalities of acute appendicitis.

## Materials and Methods

The present study was conducted in 102 cases of acute appendicitis undergoing appendectomy in the department of general surgery. All patients were informed regarding the study and written consent was taken.

Patient case history was recorded and data such as name, age, gender etc. was recorded. Patients underwent physical examination, laboratory tests and ultrasound examination (USG). Patients were divided into 2 groups of 51 each. Group I patients were managed with laparoscopy appendectomy and Group II patients were managed with open appendectomy. Symptoms and parameter such as requirement of oral feed started postoperatively, average hospital stay, wound abscess and wound infection were recorded. Results were assessed statistically. P value less than 0.05 was considered significant.

## Results

**Table 1: Distribution of patients**

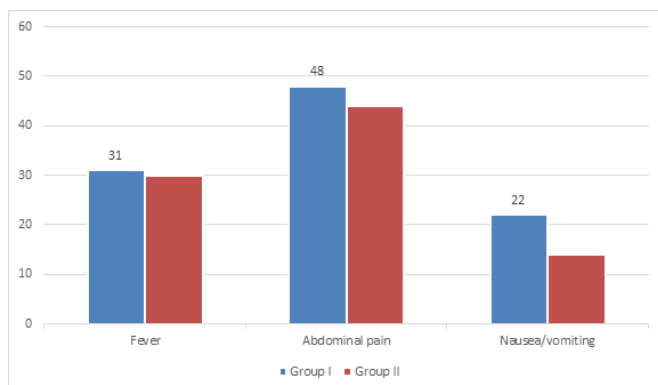
Groups	Group I (51)	Group II (51)
Procedure	Laparoscopy appendectomy	Open appendectomy
M:F	31:20	35:16

[Table 1] shows that group I had 31 males and 20 females and group II had 35 males and 16 females.

**Table 2: Symptoms reported in both groups**

Symptoms	Group I	Group II	P-value
Fever	31	30	0.98
Abdominal pain	48	44	0.81
Nausea/vomiting	22	14	0.06

[Table 2, Figure 1] shows that symptoms were fever in 22 in group I and 14 in group II, abdominal pain 48 in group I and 44 in group II and nausea/vomiting 31 in group I and 30 in group II. The difference was non-significant ( $P > 0.05$ ).



**Figure 1: Symptoms reported in both groups**

**Table 3: Assessment of parameters**

Parameters	Group I	Group II	P-value
Hospital stay (Days)	5.2	4.3	0.12
Wound abscess	2	5	0.04
Wound infection	3	7	0.01
Oral feed started postoperatively	5.4	3.2	0.03

[Table 3] shows that mean hospital stay was 5.2 days in group I and 4.3 days in group II, wound abscess was seen in 2 in

group I and 5 in group II, wound infection 3 in group I and 7 in group II and oral feed started postoperatively at mean of 5.4 days in group I and 3.2 days in group II. The difference was significant ( $P < 0.05$ ).

## Discussion

Acute appendicitis is the most common emergent abdominal condition requiring surgical intervention. Appendicitis is inflammation of the appendix.<sup>[6]</sup> Symptoms commonly include right lower abdominal pain, nausea, vomiting, and decreased appetite. However, approximately 40% of people do not have these typical symptoms. Severe complications of a ruptured appendix include widespread, painful inflammation of the inner lining of the abdominal wall and sepsis.<sup>[7]</sup> Obstruction of lumen is the dominant factor in acute appendicitis and although faecoliths and lymphoid hyperplasia are the usual cause of obstruction, some unusual factors could be involved.<sup>[8]</sup> Unusual causes of obstructions are enterobiasis, ascariasis, tuberculosis, carcinoid tumor, primary or secondary adenocarcinoma, lymphoma, dysplastic changes, mucocele, gastrointestinal stromal tumor, eosinophilic granuloma etc. Even though, there are many case reports in English written medical literature, reports with meticulous analysis of all cases with appendicitis are small in number.<sup>[9]</sup> The present study was conducted to compare open versus laparoscopic appendectomy in acute appendicitis.

In present study, group I patients were subjected to laparoscopy appendectomy and group II patients subjected to open appendectomy. group I had 31 males and 20 females and group II had 35 males and 16 females. Pareek et al,<sup>[10]</sup> found that in all 72 patients, clinical features there were 42 males and 30 females. The number of patients with operation time 45-60 mins were 25, with 60-90 mins were 12, with 90-120 mins were 15, with  $< 0.05$ ). Complications were wound infections in 7, incisional hernia in 1, ileus in 3 and intra-abdominal abscess in 4 patients. The difference was significant ( $P < 0.05$ ).

We observed that symptoms were fever in 22 in group I and 14 in group II, abdominal pain 48 in group I and 44 in group II and nausea/vomiting 31 in group I and 30 in group II. In a study conducted by Sharma et al,<sup>[11]</sup> 84 cases of appendicitis were divided into 2 groups of 41 each. Group I underwent open appendectomy and group II underwent laparoscopic appendectomy. In both groups, length of hospital stay and any complications were recorded. Mean age in group I was 46.3 years and in group II was 47.2 years, operative time in group I was 48.2 years and in group II was 42.5 years, hospital stay was 3.2 days and in group I and 4.6 days in group II. Wound infection was seen in 1.2 patients in group I and 3.4 in group II.

We observed that mean hospital stay was 5.2 days in group I and 4.3 days in group II, wound abscess was seen in 2 days in group I and 5 days in group II and wound infection 3 days in group I and 7 days in group II and oral feed started postoperatively at mean of 5.4 days in group I and 3.2 days in group II. Bansal et al,<sup>[12]</sup> found that out of 89 specimens, 52 were of males and 47 of females. Specimens found to be of appendicitis in 14, unusual pathology in 28, carcinoid tumor in 30 and mucinous lesion in 17 cases. The difference was found to be significant ( $P < 0.05$ ). Age group 0-10 years had 6, 11-20 years had 17, 21-30 years had 24, 31-40 years had 21, 41-50 years had 13 and  $>50$  years had 7 specimens.

The shortcoming of the study is small sample size.

## Conclusion

Authors found that there were less complications and better outcome in laparoscopic appendectomy as compared to open appendectomy.

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