

Conservative Management Vs Surgery as Primary Treatment of Uncomplicated Acute Appendicitis

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Introduction: Appendectomy is associated with several postoperative complications like surgical site infection, adhesive small bowel obstruction, wound dehiscence, etc. Complication rate is 10- 19% for acute appendicitis without perforation and can reach upto 30% for perforated acute appendicitis. The low threshold for surgical intervention has increased the incidence of negative appendectomy with unnecessary complications.

Aim and Objective: To evaluate the clinical outcome of conservative management in patients of acute appendicitis and compare it with standard open appendectomy.

Material and Methods: Open label Randomized control trial. Patients presenting to the surgery outpatient department and emergency department at SMS Medical College Jaipur, with the diagnosis of acute uncomplicated appendicitis from Feb 2021 to Dec 2021, were included in the study.

Result: A total of 104 patients were recruited in the study. The mean age of the patients in this study was 25.9 years. The mean age of patients in conservative group and operative group was 28.86 years and 22.93 years respectively. The mean visual analog pain score at admission was 7.33 for conservative and 8.4 for operative groups respectively ($p=0.0032$). The mean visual analog score at first follow-up (1 week after discharge) was significantly lower in conservative group (1.87) as compared to 2.93 in operative groups (P -value of 0.02). Early complications rate was 7.6 % in conservative group as compared to 26.9%, which was recorded in operative group. Although no long-term complications were seen in either of the group but return to normal life was earlier in conservative group, 12.57 days versus 13.19 days (p value 0.002)

Conclusion: Conservative treatment may be taken into consideration as an alternative choice in the treatment of patients with acute uncomplicated appendicitis.

Key words: Appendectomy, Acute Appendicitis, Management.

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I. Introduction

Acute Appendicitis is a common disease with a lifetime risk of 7-8%, with highest incidence seen in second and third decade of life¹. The belief that in the absence of surgical intervention the disease progresses from early inflammation to gangrene, perforation has made appendectomy a mainstay of treatment for acute appendicitis. Appendectomy carries a risk of several postoperative complications like surgical site infection, adhesive small bowel obstruction, wound dehiscence, wound hernia and other complications ranging around 10-19% for uncomplicated acute appendicitis without perforation and reaching up to 30% for perforated acute appendicitis. Many studies have concluded that most of patients accompanying acute easy appendicitis can be doctored safely accompanying antibiotics first strategy. Recently, with the increasing use of imaging modality, like computerized tomography non-operative therapy for the treatment of acute appendicitis has acquired increasing interest. Conservative management, is becoming increasingly important in the treatment of acute appendicitis. About 75- 85% of patients with uncomplicated acute appendicitis can be treated with effective conservative management. Investigations into novel and efficient antibiotics have also provided new opportunities for non-surgical treatment of appendicitis².

Furthermore, retrospective studies in adults with perforated appendicitis who were treated conservatively indicated that late recurrences exhibited a mild clinical course. There is a considerable literature on non-operative treatment of acute appendicitis. Low morbidity, no surgery or anesthesia related complications, decreased duration of hospital stay, early return to normal routine active life have challenged the time-tested practice of surgery in acute appendicitis. Randomized controlled trials (RCTs) have been conducted; however, the benefits of appendectomy versus antibiotic treatment for appendicitis remain in debate. This

study aims at evaluating the feasibility of conservative management in comparison to appendicectomy in patients of acute appendicitis.

II. Material And Methods

We conducted a hospital Based Randomized interventional study. The present study was conducted in the Department of General Surgery at SMS Medical College Jaipur over a period from 13 Feb 2021 to Dec 2021. All patients presenting to the surgery outpatient department and emergency at SMS Medical College Jaipur, with the diagnosis of acute uncomplicated appendicitis.

INCLUSION CRITERIA: All new cases between 13 and 60 years of age presenting with symptoms and signs of acute appendicitis to surgery outpatient department and emergency.

EXCLUSION CRITERIA:

1. Clinical suspicion of complicated appendicitis.
2. Age younger than 13 years or older than 60 years.
3. Pregnancy and lactation.
4. Patients of generalized peritonitis.
5. Perforation, appendicular abscess, appendicular lump.
6. Unable to obtain consent.

III. Results

The study was conducted in the Department of General Surgery, SMS Medical College Jaipur. One hundred four patients were diagnosed with acute appendicitis and were randomized into two groups. Fifty two underwent conservative management (Group A) and Fifty two underwent appendicectomy (Group B).

The mean age of the patients was 24.91 yrs. The mean age of patients in Group-A and Group-B were 28.11 yrs and 21.78 yrs respectively. Majority of the patients were in the age group of 18 to 30 yrs (83.33%). Out of 104 cases included in this study, 21(20.19%) patients were females and 83(79.80%) patients were males (M: F=4:1).

Alvarado Score	Conservative Group	Operative Group	Total	P-Value
	n(%)	n(%)	n(%)	
5	14(13.46%)	0(0.00%)	14(13.46%)	0.001
6	21(20.19%)	14(13.46%)	35(33.65%)	
7	14(13.46%)	20(19.23%)	34(32.69%)	
8	3(2.88%)	18(17.30%)	21(16.67%)	
Mean±SD	6.115±0.877	6.730±1.011	104	

Table-1: Alvarado score in both group

In above table, Alvarado score were found 5 in 14(13.46%), 6 in 35(33.65%),7 in 34(32.69%) ,8 in 21(16.67%) patients respectively. The mean Alvarado score of study patients was 6.42 and in conservative and operative group were 6.11 and 6.73 respectively. The sensitivity of Alvarado score at a cut-off value of >7 was 79.3% and the specificity was 100%. In the present study classic migratory pain, anorexia, nausea found in 56(53.81%),91(87.5%),101(96.67%) patients respectively, nausea was the most common symptoms other than pain.

In our study, out of the 104 cases of acute appendicitis, 73 cases (70.19%) had leukocytosis (> 10⁴ cells/μl). The mean (SD) total leucocyte count in the study was 10.54(3.38) x10³ cells/l and in conservative and operative groups was 11.5(3.5) x 10³ and 9.72 (2.9) x 10³ cells/l respectively. It was elevated in 86 (83.33%) of 104 patients diagnosed with appendicitis. The highest total leucocyte count in conservative and operative groups was 16.4 x 10³ and 16.20 X 10³ cells/l respectively. The lowest total leucocyte count in conservative and operative groups was 4.2x10³ and 5.2x10³ cells/l respectively. There was significant difference (p=0.035) between the two groups. The sensitivity of ultrasonography in this study was 100% and the positive predictive value was 96.67 %. Two patients in operative group had fecoliths and none of the patients in conservative group showed the presence of any fecolith in the appendiceal lumen.

Visual Analog Score	Conservative Group	Operative Group	P-Value
	Mean±SD	Mean±SD	
At Admission	7.34±0.94	8.46±0.85	0.003
Follow Up 1	1.84±1.17	1.96±0.53	0.02

Follow Up 2	0.42±0.82	0.53±0.89	0.65
Follow Up 3	0.0±0.0	0.153±0.53	0.001
Follow Up 4	0.0±0.0	0.0±0.0	0
Follow Up 5	0.0±0.0	0.0±0.0	0

Table-2: Depicting Visual Analog Scale (mean) in the both groups

The mean visual analog score at admission was 7.34 for conservative and 8.46 for operative groups respectively (p=0.003). On the day of first follow-up (1 week post discharge) the mean visual analog score was 1.84 in conservative and 1.96 in operative groups respectively with a P-value of 0.026 indicating statistically significant intensity of pain, which was more in operative group as compared with conservative group. Although the pain score was similar at second follow-up (2-week post discharge) the mean visual analog score was 0.42 and 0.53 for conservative and operative groups respectively with a p value of 0.654. At third follow-up (3-week post discharge) the mean visual analog score was 0.0 and 0.153 for conservative and operative groups respectively with a p value of 0.001.

In our study the mean duration of hospital stay was found to be prolonged as patients in operative group with 3.09 days as against the patients in conservative group with 2.59 days. This result was not statistically significant with a p value of 0.089 (>0.05). It was observed that the mean time taken for return to normal life post intervention in patients in conservative group was comparatively less (12.57 days) compared to patients in operative group (13.19 days). This result turned out to be statistically significant with p= 0.002(<0.05) being the p value.

4 out of 52 patients in conservative group developed a lump during the hospital stay giving a complication rate of 7.6%. 10 out of the 52 patients in operative group developed surgical site infection during the hospital stay. Paralytic ileus was seen in 4 out of 52 patients in operative group. Hence a complication rate of 26.9% was recorded in operative group which was significantly higher. No long-term complications were recorded in either of the treatment groups.

IV. Discussion

We attempt to evaluate the role of conservative management of uncomplicated acute appendicitis with antibiotics alone and is compared with appendectomy as a procedure, thereby trying to establish whether conservative management could be the primary modality of treatment for uncomplicated acute appendicitis.

In present study, mean Alvarado score was 6.11 and 6.73 for conservative and operative groups respectively. The sensitivity of Alvarado score at a cut-off value of >7 was 79.3%, the specificity was 100% and the positive predictive value was 100%. The typical migratory pain in acute appendicitis is seen in 50% of patients as advocated in the study by Murphy.³ Malik et al⁴ and Turhan et al⁵ used modified Alvarado score in their studies respectively. A lower sensitivity of Alvarado score was noted in this study as derived in previous known studies.⁶⁻⁹

In our study the mean visual analog score at admission was 7.34 for conservative and 8.46 for operative groups respectively. There was a difference in the level of pain experienced in patients of both the groups, it was significant with p value of 0.003. Eriksson et al¹⁰ found that there was significant decrease in the analgesic requirement in patients managed with antibiotics and significantly less pain was recorded after 12 hours of conservative treatment (p<0.01). Hansson et al¹¹ reported significantly shorter duration of abdominal pain in patients with antibiotic treatment after leaving hospital (p<0.05). Malik et al¹⁰ too recorded significantly lower pain scores during hospital stay (p<0.001) and follow-up period (p<0.01) in patients who received antibiotics alone as the treatment. Salminen et al¹² reported a median VAS score for pain of 5 and 6 at admission for patients in antibiotic and surgical groups respectively. At discharge and immediate follow-up, they noted significantly lower pain scores (p<0.001) in patients treated with antibiotics when compared to those who underwent surgery. Similar results were recorded in our study with significant low VAS in conservative group as compared to operative group at 1 and 3 week follow-up.

In our study four patients in conservative group developed appendicular lump during the hospital stay and ten patients who underwent surgery developed surgical site infection. four patient who underwent surgery developed post operative paralytic ileus. None of the operated patients had complicated appendicitis during surgery. Accordingly, the complication rate was 7.6% in conservative group and 26.9% in operative group. In the study by Styrud et al¹³ seven (5%) of patients in antibiotic group developed perforation and four among them developed complications post-surgery. Similarly, in the study by Hansson et al¹¹, the complication rate in conservative group was 2.5% in comparison to 10% in operative group which was statistically significant (p<0.05).

V. Conclusion

With the results obtained and considering the findings available in literature that antibiotic therapy could be considered as an alternative option in the treatment of patients with acute uncomplicated appendicitis. If the patient is willing to accept initial failure or a subsequent recurrence, and forgoing appendectomy, antibiotic treatment can be recommended. However, to be established as the gold standard of treatment further well organized randomized controlled trials should be performed.

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