



TO STUDY THE CONSERVATIVE TREATMENT VERSUS OPERATIVE MANAGEMENT IN UNCOMPLICATED ACUTE APPENDICITIS

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ABSTRACT

Introduction: One of the most common emergencies taking place in the abdominal region which requires surgery is acute appendicitis is an unusual inflammation in the vermiform appendix 1. The lifetime prevalence of acute appendicitis is noticed to be 7%. They generally range from the uncomplicated type to the type with diffuse peritonitis. In recent years, the concept of therapeutic appendectomy has been challenged because there is some advancement of new types of antibiotic therapies. Several studies also revealed that with this non-operative strategy, the key for managing acute appendicitis is whether to carry out the operation or not. **Objectives:** Aim of study is to study the conservative treatment versus operative management in uncomplicated acute appendicitis, and objectives of the study are to study effectiveness of conservative treatment; and to study occurrence of complications following treatment of both the modalities. **Material and methods:** It is a prospective observational study conducted, with time period of 18 months. In this study 42 patients are included who diagnosed uncomplicated acute appendicitis. Out of 42 patients 21 are put in conservative treatment (GROUP A) and 21 patients are put in surgical treatment (GROUP B). Patient selection is done on odd and even basis. In group B patients informed and written consent taken separately **Result:** The comparison of the mean alvarado score along with the intervention group came up with the result that it was not noticed to be significant since the p-value was 0.824 which is > 0.05 . While the comparison between the intervention group to that of the counts of mean value of TLC was also found to be not significant as the p-value count to be 0.068 that is > 0.05 , mean count of TLC after the treatment to that with the intervention group show that the P value is 0.023 which is definitely significant since the value is < 0.05 . Post treatment conditions like fever and vomiting was being done with the intervention group which show the result that it was not significant for both as the p-value was > 0.05 . the mean visual analog score along with the intervention group notice that from the day of admission till day 7, the day 4 and day 7 was significant statistically since the P value for both the days were 0.061 and 0.025 restrictively that is < 0.05 . **Conclusion:** The results show that the age group of 31 to 40 years is mostly affected and the incidence of the acute appendicitis has a tendency of declining past 40 years. Majority of the cases during the first attack of the uncomplicated acute appendicitis it gets treated very successfully through the conservative method of treatment. The failure of treatment during the time of primary admission besides the recurrence level of short term post the conservative treatment is identifiable as well as very minimum. It can be assumed that this research paper is definitely going to assist the future surveys regarding the same topic.

KEYWORDS :

INTRODUCTION

One of the most common emergencies taking place in the abdominal region which requires surgery is acute appendicitis is an unusual inflammation in the vermiform appendix¹. The lifetime prevalence of acute appendicitis is noticed to be 7%. The highest incidence can be identified during the second decade of a person's life. It is also one of the commonest underlying causes in the patients who are being admitted to the emergency department of a hospital after experiencing acute abdominal pain¹.

A wide spectrum of the presentations which are being carried clinically is encompassed under acute appendicitis; they generally range from the uncomplicated type to the type with diffuse peritonitis. It turns out to be difficult because the diffuse peritonitis acts as one of the undisputed indications that require urgent surgery, and the discussion also focuses on the management of appendicular abscess present in the uncomplicated appendicitis. The situation also moves all in order to diagnose for finding out the reason behind the obstruction besides finding out the site of the obstruction and managing it. It is difficult, that is why, and there is a need of comprehensive study based on the gender around the requirement for surgery along with the traditional approach for surgery. Various scoring systems have also been developed in order to help the clinicians while diagnosing. The most used scoring systems are the acute inflammatory response (AIR), Raja Isteri Pengiran Anak Saleha Appendicitis score (RIPASA) and the Alvarado score.²

During the year 1894, the therapeutic appendectomy was being first described by McBurney and till then it has been most common and frequently performed non elective types of operation although in recent years, the concept of therapeutic appendectomy has been challenged because there is some advancement of new types of antibiotic therapies. Several studies also revealed that with this non-operative strategy, the rate of morbidity is also observed to be lesser². The key for managing acute appendicitis is whether to carry out

the operation or not. Traditionally, the treatment option of acute appendicitis which was considered to be of the gold standard was carried out of the appendectomy, which can be done either through a laparoscopic approach or through an open approach³. Also during the recent years, the strategy of operation has been challenged along with some advancements in antibiotic therapy, has lesser rates of morbidity according to the observations⁴. It has seemed that the laparoscopic appendectomy has gained some more acceptance than the open appendectomy. Even though higher costs are required for the treatment and a longer time span is needed for the operation along with some increased level of intra abdominal formation of an abscess, that is why, the antibiotic approach is gaining more and more attention every day.⁴ The non-operative management along with the antibiotics acts as a therapeutic option in early uncomplicated appendicitis which results in the complete resolution for most of the patients.⁵ Various researchers have argued after advocating the non-surgical approach of recurrent appendicitis that looks like one of the infrequent events which range from 3% to 30%. It is usually mild during the presentation and the patients who oppose the need of appendectomy also have reported that they have not experienced any sort of significant complications.⁵

The non-operative management along with the introduction of antibiotics acts as a therapeutic option. This antibiotic treatment is being thought of as safest options for the uncomplicated acute appendicitis. While comparing the operative management with antibiotic therapy the latter one has turned out to be advantageous because it is able to avoid the postoperative complications like abscesses, incisional hernias, facial fistula or any other type of wound infections. That is why, this study tends to study the conservative treatment versus operative management in the cases of uncomplicated acute appendicitis.⁶

AIM AND OBJECTIVE

Aim of study is to study the conservative treatment versus operative management in uncomplicated acute appendicitis, and objectives of

the study are to study effectiveness of conservative treatment; and to study occurrence of complications following treatment of both the modalities.

INCLUSION CRITERIA

In present study; all cases presenting to surgery OPD and Emergency of TMMC & RC diagnosed to be a case of uncomplicated acute appendicitis.

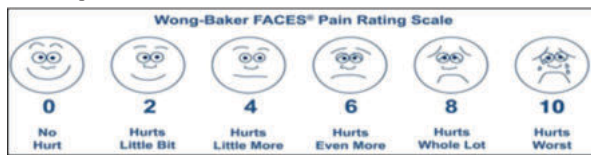
EXCLUSION CRITERIA

In this, patients with following signs like Patients with generalized peritonitis, Perforation, appendicular abscess, appendicular lump, Patients with uncontrolled diabetes mellitus, hypertension or other comorbidity, recurrent appendicitis, Patient with suspected intra-peritoneal malignancy and patients with Pregnancy and lactation were excluded.

MATERIAL AND METHOD

It is a prospective observational study conducted in department of general surgery at Teerthankar Mahaveer Medical College and Research Center Moradabad, Uttar Pradesh, with time period of 18 months. In this study 42 patients are included who diagnosed uncomplicated acute appendicitis. After giving detailed information and counselling to the patients; out of 42 patients 21 are put in conservative treatment (GROUP A) and 21 patients are put in surgical treatment (GROUP B). Patient selection is done on odd and even basis. In group B patients informed and written consent taken separately.

During admission of patients, biochemical and radiological investigations like complete blood count, prothrombin time/INR, viral markers, liver function test, kidney function test, RBS/HbA1C, USG-abdomen/ CT scan abdomen, chest X-Ray, ECG were done, pain intensity score(fig 1) and ALVARADO score (table 1)calculated just after hospital admission.



(fig. 1)

Table 1

ALVARADO (MANTRELS) SCORE

SYMPTOMS	
Migratory RIF pain	1
Anorexia	1
Nausea and vomiting	1
SIGNS	
Tenderness(RIF)	2
Rebound tenderness	1
Elevated temperature	1
LABORATORY	
Leucocytosis	2
Shift to left	1
Total	10

RESULT

This study has been conducted in the department of general surgery, TMMC&RC, Moradabad. This observation study consisted of 42 samples and the patients were randomly divided into two groups by using an odd and even method. The group A concept of patients who received the conservative treatment whereas a group B included of patients receiving operative management. All the cases that were included in the study were being presented in the OPD sector of surgery and emergency of TMMC & RC and got agonized to be a case of the uncomplicated acute appendicitis. The independent T test as well as ANOVA has been applied for comparing the mean values whereas for comparing the proportions the chi-square test was also used. The significance level was marked at 5% or <0.05.

Table 2

Alvarado score	Conservative group	Operative group	Total number(percentages)
7	2	6	8(19.5%)
8	13	9	22(52.38%)

9	4	4	8(19.05%)
10	2	2	4(9.52%)
mean±SD	8.29±0.78	8.10±0.94	

The distribution of the cases was also being represented according to the alvarado score in 4 categories, and divided in the conservative as well as operative group, maximum number of the cases belong from the group 8(score) and it accounted for 13 and 9 respectively and the overall percentage was 52.38 %. The mean Alvarado score of the conservative group was being identified to be 8.29 whereas for the operative group it was 8.10. Abongwa et al., consisted of 60 patients who were treated conservatively and the distribution of alvarado score in their study noticed that it was 7.32 and Varadhan .et al., the patients were being treated operatively and it was 45 in number showing that the Alvarado score was 6.90.^{12,13}

There were several components of the alvarado score like nausea, migratory pain, tenderness, anorexia, rebound tenderness, E, L and S. The results have shown that the alvarado score study subject was present in the components of tenderness for both the groups and it was 21 in value for both. Similarly the research paper of Omari et al., came up with the result that tenderness is the main component of the alvarado score and in their research paper the maximum of the subjects that is 59.2% were experiencing tenderness.¹⁴

Table 3

Complication of group A	Frequency	Percent
NO	39	92.9
Phlegmon	3	7.1
Total	42	100

Representation of the frequency distribution as per the complications in the group A shows that most of the subjects did not possess any complications which were 92.9 % and it was only 7.1 % for phlegmon. Whereas for the complications and the distribution of frequency in group B show that it was again NO for maximum of the cases which was 88.1 % and only 11.9% was in SSI. Wilms et al., Even observed in this study that after carrying out the conservative method of treatment 91.5% of the patients did not show any complications which was a maximum number of their study subjects. Svensson et al., had identified in their study that a noticeable amount of the patients that is 12.9% was possessing the complication of phlegmon but however still it was the minimum and rest of the patients did not show any type of complications.^{15,17}

The comparison of the proportion between the intervention group and complication of the group A comes out with the results that the differences are not very significant since it has a p value of 0.072 which is > 0.05. On the other hand, the comparison of the differences between the intervention group to that of the complication of group B shows that the differentiation is definitely significant statistically as the P value is 0.017 which is < 0.05. Fitzmaurice et al., followed that the patients who had been treated with the operative method shows that there is a significant comparison between the complications of them along with the intervention group as the P value was 0.009 which is < 0.05.¹⁶

According to the research paper of Malik & Bari, the patients who were managed conservatively in their study got discharged within the 3 days of the treatment and it was the same for all except two patients since there was a need for surgery post 12 and 24 hours respectively. These patients required surgery since they were suffering from peritonitis because of the perforated appendicitis.

Within one year 4 patients were also readmitted which was due to recurrent and open the sectors and again surgery was performed after confirming appendicitis. Researchers noticed that the accuracy of diagnosis among the operated group was around 90%. Also two patients were noticed to have perforated appendicitis during the time of operation.⁷

The comparison of the mean visual analog score along with the intervention group notice that from the day of admission till day 7, the day 4 and day 7 was significant statistically since the P value for both the days were 0.061 and 0.025 restrictively that is < 0.05. Park et al., had noticed some similar results as the admission of the 5 day and 7 day was very significant in a statistical way as the p-values were <0.05. 18 Wojciechowicz et al., had identified 5 publications which included a total number of 342 patients in their overview study. In the reports the

rate of success for the conservative treatment in appendicitis has been 90.8 % as the highest was 95% and the lowest was 88% but they had a risk of Relapse within one year of treatment, however around 15.9% of the patients poses the risk of having relapse. Simillis et al., pointed out that for the cases of complicated appendicitis the mean value of success rate sometimes decrease to 89% where the minimum value is 67 % and the maximum value is 100% and the mean value for the risk of relapse also decreases to 9.8%.^{8,19}

The comparison of the mean alvarado score along with the intervention group came up with the result that it was not noticed to be significant since the p-value was 0.824 which is > 0.05. While the comparison between the intervention group to that of the counts of mean value of TLC was also found to be not significant as the p-value count to be 0.068 that is >0.05.

Ansaloni et al., came up with the observation that the differentiation between the TLC counts and the mean value along with the intervention group was also not significant for them as the P value was 0.089. On the other hand, Varadhan et al., had the observation that along with the mean score of alvarado came up to be significant since the P value is 0.01.^{10,11}

The comparison of the mean count of TLC after the treatment to that with the intervention group show that the P value is 0.023 which is definitely significant since the value is < 0.05. following this the comparison of the post treatment conditions like fever and vomiting was being done with the intervention group which show the result that it was not significant for both as the p-value was > 0.05. Similarly, Styruud et al., identified that the post treatment conditions in their study was also not significant related to that of the intervention group since the p-value was 0.079.²⁰

Lastly, the comparison between the mean duration of the days the patient stayed in hospital to that of the intervention group came up with a p value of 0.02 which was again found to be significant as it was <0.05.

A Medline search was carried out by the researchers Liu et al., where they took into account the studies that were being published between the year 1970 and 2009. All the studies was being selected by depending on the particular inclusion as well as exclusion criteria. From the 6 reports all over 1201 patients was being analyzed. The reports show that the patients who had been treated with them antibiotics only, from them 6.9 % were unable to respond and needed appendectomy. The acute appendicitis also got repeated within 14.2% of the cases.

At appendectomy around 7.3% of the patients were presented within normal appendix and the positive thing was that the complications were identified to be very less comparatively in the antibiotic treatment while being compared with appendectomy. Mainly they wanted to bring out the conclusion that in some cases there might be a failure of antibiotic treatment.⁹

However, there were some limitations in this study which was because of limitations of time and resource constraints. Due to such constraints a limited number of samples which was smaller in size was chosen and the standard method of appendectomy was being chosen as it is one of the most standardized prosody or which is familiar with maximum of the surgeon. But by using the limited amount of resources we have tried our best to cover all the required areas for completing this research.

CONCLUSION

The results show that the age group of 31 to 40 years is mostly affected and the incidence of the acute appendicitis has a tendency of declining past 40 years. Tenderness has been found to be the commonest symptom besides pain but the rate of complication has been very minimal. It has been identified that for majority of the cases during the first attack of the uncomplicated acute appendicitis it gets treated very successfully through the conservative method of treatment. But the main requirement of conservative treatment is repeated evaluation as well as constant monitoring for identifying the failure that needs to get treated properly. The failure of treatment during the time of primary admission besides the recurrence level of short term post the conservative treatment is identifiable as well as very minimum. However, the outcomes of the conservative treatment are not dependable over the modified Alvarado score. It can be assumed that

this research paper is definitely going to assist the future surveys regarding the same topic.

REFERENCES:

- Steiner, Z., Buklan, G., Stackievicz, R., Gutermacher, M., Litmanovitz, I., Golani, G., Arnon, S. Conservative treatment in uncomplicated acute appendicitis: reassessment of practice safety. *European journal of pediatrics*. 2017;176(4):521-527.
- Resende, F., Almeida, A. B., Maia, J. C., & Melo, R. B. Challenges in uncomplicated acute appendicitis. *Journal of Acute Disease*, 2016;5(2):109-113.
- Ming PC, Yan TYY, Tat LH. Risk factors of postoperative infections in adults with complicated appendicitis. *Surgical Laparoscopy Endoscopy and Percutaneous Techniques*. 2009;19(3):244-8.
- Hansson J, Korner U, Khorram-Manesh A, Solberg A, Lundholm K. Randomized clinical trial of antibiotic therapy versus appendectomy as primary treatment of acute appendicitis in unselected patients. *British J Surgery*. 2009;96(5):473-81.
- Resende, F., Almeida, A. B., Maia, J. C., & Melo, R. B. Challenges in uncomplicated acute appendicitis. *Journal of Acute Disease*, 2016;5(2):109-113.
- Vaishnav, U., & Chauhan, H. Evaluation of conservative management of acute Appendicitis in tertiary care hospital. *IJAIM*, 2016;3(2):41-4.
- Malik, A. A., & Bari, S. U. Retracted article: conservative management of acute appendicitis. *Journal of gastrointestinal surgery*. 2009;13(5):966-970.
- Wojciechowicz, K. H., Hoffkamp, H. J., & Van Hulst, R. A. Conservative treatment of acute appendicitis: an overview. *International maritime health*. 2010;62(4):265-272.
- Liu, K., & Fogg, L. Use of antibiotics alone for treatment of uncomplicated acute appendicitis: a systematic review and meta-analysis. *Surgery*. 2011;150(4):673-683.
- Ansaloni, L., Catena, F., Coccolini, F., Ercolani, G., Gazzotti, F., Pasqualini, E., & Pinna, A. D. Surgery versus conservative antibiotic treatment in acute appendicitis: a systematic review and meta-analysis of randomized controlled trials. *Digestive surgery*. 2011;28(3):210-221.
- Varadhan, K. K., Neal, K. R., & Lobo, D. N. Safety and efficacy of antibiotics compared with appendectomy for treatment of uncomplicated acute appendicitis: meta-analysis of randomised controlled trials. *Bmj*. 2012;344.
- Varadhan, K. K., Humes, D. J., Neal, K. R., & Lobo, D. N. Antibiotic therapy versus appendectomy for acute appendicitis: a meta-analysis. *World journal of surgery*. 2010;34(2):199-209
- Minnecci, P. C., Sulkowski, J. P., Nacion, K. M., Mahida, J. B., Cooper, J. N., Moss, R. L., & Deans, K. J. Feasibility of a nonoperative management strategy for uncomplicated acute appendicitis in children. *Journal of the American College of Surgeons*. 2014;219(2):272-279.
- Omari, A. H., Khammash, M. R., Qasaimeh, G. R., Shammari, A. K., Yaseen, M. K. B., & Hammori, S. K. Acute appendicitis in the elderly: risk factors for perforation. *World Journal of Emergency Surgery*. 2014;9(1):1-6.
- Wilms, I. M., De Hoog, D. E., de Visser, D. C., & Janzing, H. M. Appendectomy versus antibiotic treatment for acute appendicitis. *Cochrane database of systematic reviews*. 2011;(11).
- Fitzmaurice, G. J., McWilliams, B., Hurreiz, H., & Epanomeritakis, E. Antibiotics versus appendectomy in the management of acute appendicitis: a review of the current evidence. *Canadian journal of Surgery*. 2011;54(5):307.
- Svensson, J. F., Patkova, B., Almström, M., Naji, H., Hall, N. J., Eaton, S., ... & Wester, T. Nonoperative treatment with antibiotics versus surgery for acute nonperforated appendicitis in children: a pilot randomized controlled trial. *Annals of surgery*. 2015;261(1):67-71
- Park, H. C., Kim, M. J., & Lee, B. H. Randomized clinical trial of antibiotic therapy for uncomplicated appendicitis. *Journal of British Surgery*. 2017;104(13):1785-1790.
- Simillis, C., Symeonides, P., Shorthouse, A. J., & Tekkis, P. P. A meta-analysis comparing conservative treatment versus acute appendectomy for complicated appendicitis (abscess or phlegmon). *Surgery*. 2010;147(6):818-829
- Styruud, J., Eriksson, S., Nilsson, I., Ahlberg, G., Haapaniemi, S., Neovius, G., & Granström, L. Appendectomy versus antibiotic treatment in acute appendicitis: a prospective multicenter randomized controlled trial. *World journal of surgery*. 2006;30(6):1033-1037.