



A COMPARATIVE STUDY BETWEEN CONSERVATIVE AND OPERATIVE MANAGEMENT IN ACUTE APPENDICITIS

Surgery

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ABSTRACT

INTRODUCTION: Acute appendicitis is a common disease with highest incidence found in the second and third decade of life. Successful, non-operative treatment avoids discomfort, lost productivity and many possible operation-related complications.

METHODS: This prospective observational study was conducted in the department of surgery, Bankura Sammilani Medical college & Hospital from January-2017 to June-2018. Total 100 patients were selected divided into two groups, group-1 (N=50) and group-2 (N=50).

RESULT: 36 patients (72%) among Group-1 patients were successfully managed conservatively without appendectomy and recurrence in their 6 months follow up period.

CONCLUSION: Conservative management is a good alternative to gold standard appendectomy in acute un-complicated appendicitis as evident from the study.

KEYWORDS

Appendicitis, Conservative Management, Appendectomy.

INTRODUCTION:

Acute appendicitis is a common disease with highest incidence found in the second and third decade of life. In recent years, growing evidence indicates that patients with acute uncomplicated appendicitis can be treated safely with antibiotics-first approach. Appendectomy carries a risk of several postoperative complications, which increases in case of appendicitis with perforation. One Cochrane analysis, five meta-analysis and some reviews of non-operative treatment of acute appendicitis concluding that majority of patients with acute uncomplicated appendicitis can be treated safely with an antibiotics-first strategy. Antibiotics that are more effective have become available for the treatment of intra-abdominal infection. Successful, non-operative treatment avoids discomfort, lost productivity and many possible operation-related complications. It would not be a viable alternative to surgery unless; it is equally effective at curing acute appendicitis. In this regard, we aim to study the effectiveness of conservative treatment in uncomplicated acute appendicitis using antibiotics-first approach.

AIMS AND OBJECTIVES:

1. To determine and compare the outcome of conservative and operative management in acute appendicitis
2. To determine whether conservative management is a good alternative or inferior to appendectomy

MATERIALS AND METHODS:

This study was conducted in the department of surgery, Bankura Sammilani Medical college & hospital from January-2017 to June-2018. Those patients, who underwent conservative management and operative management for acute appendicitis from January 2017 to December 2017, has been analyzed and these patients are followed up for a period of 6 months. Hundred consenting patients during the above mentioned period in the Department of General Surgery with complaints of right iliac fossa pain for less than 48 hours and diagnosed to have acute appendicitis. Patients with no right iliac fossa pain, appendicular lump, appendicular perforation (diagnosed by clinical and radiological evaluation), diffuse peritonitis, known drug allergy, pregnancy, patients with co morbidities like diabetes, patients with PID, pelvic abscess and other causes of RIF pain, are excluded from this study. 50 patients underwent conservative management (Group-1) and 50 patients underwent appendectomy in their first admission (group-2). Group-1 patient was managed by NPO, IVF, injection

ceftriaxone 1 gm twice daily & injection metronidazole 500mg thrice daily, analgesic like diclofenac twice daily were continued for 5 days. If the surgeon suspected progressive infection, perforated appendicitis, ongoing peritonitis, abscess formation, then appendectomy was performed for that patient. Group-2 patients are managed by open appendectomy with Prophylactic antibiotic, Inj. Ceftriaxone 1 gm and Infusion Metronidazole 500mg, which were administered 30 minutes before the incision. No further antibiotics were given. Outcomes were assessed during their hospital stay in everyday for 5 days -further follow up conducted at 14 days, 1 month, 2 month, 4 month and 6 month period. During follow up, patients were assessed for pain, wound infection and surgery related complications. Patients of conservative group are also evaluated for recurrent appendicitis.

RESULTS:

Out of the 100 patients with acute uncomplicated appendicitis 50(50.0%) patients were treated conservatively and 50(50.0%) patients underwent surgery. The mean age of the patients was 27.90 ± 7.73 years. Most of the patients (86%) were within age group ≤ 35 years. Corrected Chi-square test showed that there was no significant association between age and gender of the patients ($p=0.12$). Though the mean age of the female patients was higher than that of the male patients, t test showed no significant difference of mean age of male and females patients ($t_{98}=1.0.26; p=0.33$). Thus females were at risk of having acute uncomplicated appendicitis at younger age than males (Table-1). Corrected Chi-square test showed no significant association between age and patients of the two groups ($p=0.37$). T-test showed that there was no significant difference between the mean age of the two groups ($t_{98}=0.028; p=0.48$). Thus the patients of the two groups were age matched (Table-2). Corrected Chi-square test revealed no significant association between gender and patients of the two groups ($p=0.41$). Thus the patients of the two groups were matched for gender (Table-3). T-test showed that the mean Alvarado score at presentation of the patients treated conservatively was significantly lower than that of the patients who underwent surgery ($t_{98}=4.11; p=0.026$) (Table-4). T-test also revealed that the mean duration of hospital stay of the patients, treated conservatively was significantly higher than Group-2 patients ($t_{98}=4.11; p=0.026$) (Table-5). Among conservative group nine patient required surgery during admission and five patient required surgery during follow up period. All the patients of the two groups were discharged alive

(100.0%) which was significantly higher ($Z=14.14$; $p<0.0001$) and no patients of the two groups died during treatment.

DISCUSSION:

This study showed that, the mean age of presentation was 27.90 ± 7.73 years with range of 18 - 45 years. Majority of patients belonged to the age group of 25-30 yrs in this study. But other study revealed that acute appendicitis has higher incidence in third decade of life [1][2][3].

Our study showed that proportion of male (61.0%) was significantly higher than that of females (39.0%). Thus the males were at higher risk of having acute uncomplicated appendicitis than females. Equal distribution of gender in patients with acute appendicitis has been seen in some other study [4].

In this present study, we found that proportion of the patients with modified Alvarado score <6 was significantly higher than those patients treated conservatively ($p<0.0001$). Most of the patients in group 2 presented with modified Alvarado score 6 or more. Majority of patients had a modified Alvarado score of 7 or more which had been observed by other study [4].

We have observed that nine patients required appendectomy during their first admission and during follow up period, 5 patients required appendectomy among conservative group (1). So, 36 patients (72%) among Group 1 in our study were successfully managed conservatively without appendectomy and recurrence in their 6 months follow up period. Other study also supported this fact [5][6].

Five patients (12.2%) among 41 patients of conservative group showed recurrence within the follow-up period in this study. Similar phenomena is also seen in other study [5][7].

This study revealed, median length of hospital stay was longer in the conservative group (1) patients. Other study also supported the fact [8]. According to Cochrane systematic review 28 in 2011, five RCT were assessed, where 73.4% (95%CI 62.7 to 81.9) of patients who were treated with antibiotics and 97.4% (95%CI 94.4 to 98.8) patients who directly got an appendectomy were cured within two weeks without major complications.

CONCLUSION:

Conservative management is a good alternative to gold standard appendectomy in acute un-complicated appendicitis as evident from this study. With medical approach, negative appendectomy rates may be decreased, thereby avoiding possible surgery and anaesthesia related complications. The only disadvantage of medical management is longer hospital stay and require strict monitoring of the patients.

Table-1: Distribution of age according to sex of the patient

Age Group (in years)	Gender		TOTAL
	Male	Female	
<20	16	7	23
21 – 25	10	9	19
26 - 30	20	6	26
31 - 35	7	11	18
36 - 40	1	2	3
41 - 45	7	4	11
TOTAL	61	39	100
Mean $\pm$ SD	27.37 $\pm$ 7.78	28.71 $\pm$ 7.69	
Median	27	28	
Range	18 - 45	18 - 43	

Table-2: Age distribution of the patients of the two groups

Age Group (in years)	Conservative (n=50)	Surgical (n=50)	Total
<20	14	9	23
21 - 25	10	9	19
26 - 30	12	14	26
31 - 35	10	8	18
36 - 40	0	3	3
41 - 45	4	7	11
TOTAL	50	50	100
Mean $\pm$ s.d.	26.78 $\pm$ 7.19	29.02 $\pm$ 8.17	
Median	26	28	
Range	18 - 44	18 - 45	

Table-3: Gender of the patients of the two groups

Gender	Conservative (n=50)	Surgical (n=50)	Total
Male	28	33	61
Row %	45.9	54.1	100.0
Col %	56.0	66.0	61.0
Female	22	17	39
Row %	56.4	43.6	100.0
Col %	44.0	34.0	39.0
TOTAL	50	50	100
Row %	50.0	50.0	100.0
Col %	100.0	100.0	100.0

Table-4: Alvarado score of the patients of the two groups

Alvarado score	Conservative (n=50)	Surgical (n=50)	Total
<6	15	0	15
Row %	100.0	0.0	100.0
Col %	30.0	0.0	15.0
≥ 6	35	50	85
Row %	41.2	58.8	100.0
Col %	70.0	100.0	85.0
TOTAL	50	50	100
Row %	50.0	50.0	100.0
Col %	100.0	100.0	100.0
Mean $\pm$ SD	6.00 $\pm$ 0.78	7.40 $\pm$ 0.88	
Median	6	8	
Range	5 - 7	6 - 9	

Table-5: Duration of Hospital stay of the patients of the two groups

Duration of Hospital stay (in days)	Conservative (n=50)	Surgical (n=50)	Total
3 - 4	16	40	56
Row %	28.6	71.4	100.0
Col %	32.0	80.0	56.0
5 - 6	34	10	44
Row %	77.3	22.7	100.0
Col %	68.0	20.0	44.0
TOTAL	50	50	100
Row %	50.0	50.0	100.0
Col %	100.0	100.0	100.0
Mean $\pm$ SD	5.00 $\pm$ 0.81	3.68 $\pm$ 0.79	
Median	5	3	
Range	4 - 6	3 - 5	

REFERENCES

- Ramachandra J, Sudhir M, Sathyanarayana B. Evaluation of modified alvarado score in preoperative diagnosis of acute appendicitis. J evolution of medical and dental sciences. 2013;2(46):9019-29.
- Lohar HP, Calcuttawala AMA, Nirhale DS, Athavale VS, Malhotra M, Priyadarshi N. Epidemiological aspects of appendicitis in a rural setup. Med J DY Patil Univ. 2014;7:753-7.
- Vaishnav U, Chauhan H. Evaluation of conservative management of acute Appendicitis in tertiary care hospital. IAIM. 2016;3(2):41-4.
- M.Kalan, D. Talbot, W.J Cunliffe, A.J. Rich. Evaluation of the modified Alvarado score in the diagnosis of acute appendicitis: a prospective study. Ann R Coll Surg Engl, 1994 Nov 76(6):418-419
- B. S. Gedam, Ajit Gujela, Prasad Y. Bansod, Murtaza Akhtar, Study of conservative treatment in uncomplicated acute appendicitis, International Surgery Journal, April 2017, vol 4
- Park H-C, Kim MJ, Lee BH. The outcome of antibiotic therapy for uncomplicated appendicitis with diameters ≤ 10 mm. Int J Surgery. 2014;12(9):897-900.
- Vons C, Barry C, Maitre S, Pautrat K, Leconte M, Costaglioli B, et al. Amoxicillin plus clavulanic acid versus appendicectomy for treatment of acute uncomplicated appendicitis: an open-label, non-inferiority, randomised controlled trial. Lancet (London, England). 2011;377(9777):1573-9.
- Ahmet Nuray TURHAN, Selin KAPAN, Ersen KUTUKCU.; comparison of operative and non operative management of acute appendicitis.; Turkish journal of trauma and emergency surgery-september 2009
- Cochrane systematic review, 2011- www.cochraneonlineibrary/co.in