

Conservative Treatment of Uncomplicated Acute Appendicitis: A Possibility

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ABSTRACT

Purpose: To determine effectiveness of conservative treatment of uncomplicated acute appendicitis as an option compared to surgery.

Methods: 214 patients, presenting to emergency department of Services Hospital Lahore, between April 2008 and March 2009 with uncomplicated acute appendicitis, were included. 42 patients, refusing surgery and willing to enter trial were included in antibiotics group (Group A). 172 patients, willing for surgery, were operated (Group B). Both groups were compared regarding, mean age, hospital stay, treatment efficacy, recurrence and morbidity.

Results: In group A, 34 out of 42 patients responded to antibiotics therapy and discharged after 48 hours. 6 patients didn't respond to antibiotics and were operated. Out of 34 patients, who responded to antibiotics, 8 had recurrence of complaint within one year and were operated. Mean age was 27 years, mean hospital stay was 3 days, complications rate was 7.14%, and treatment efficacy was 67%. In group B, 172 patients were operated. Mean age was 29 years, diagnostic accuracy was 92%, mean hospital stay was 3 days, complications rate was 14% in one year, and treatment efficacy was 72%. There was no mortality in either group.

Conclusion: Conservative treatment of uncomplicated acute appendicitis is a safe option in patients refusing for surgery.

Keywords: Uncomplicated acute appendicitis, conservative treatment

INTRODUCTION

Acute appendicitis is one of the commonest causes of acute abdomen and appendectomy is one of the most commonly performed surgical procedures in surgical emergency department. Inflammation of vermiform appendix was first described by R. Fitz in 1886¹. In 1889 Mc Burney published his study on acute appendicitis and recommended early appendectomy as optimal management². Since then early appendectomy has been widely accepted as the best treatment for acute appendicitis, and the general assumption has been that in the absence of surgical intervention the disease often progresses from uncomplicated to perforated appendicitis.

Diagnosis of acute appendicitis is largely clinical and diagnostic uncertainty may lead to delay in treatment or negative exploration with unnecessary surgery related morbidity for instance wound infection, wound dehiscence, incisional hernia, postoperative small bowel obstruction and inguinal hernia. Only 20% cases of patients present with complicated appendicitis³, and antibiotics and supportive treatment has been tried with success in early uncomplicated acute appendicitis especially in unfavorable circumstances^{4,5}. Considering that other intra-abdominal inflammatory processes such as

colonic diverticulitis and salpingitis are primarily managed non-operatively, the time honored practice of compulsory appendectomy has been challenged recently with reports of less morbidity associated with antibiotic treatment than surgery in uncomplicated acute appendicitis^{6,7,8}. Over the last two decades many randomized control trials, systematic reviews and meta-analysis were summarized comparing the conservative treatment of acute appendicitis versus appendectomy. Results were compared regarding treatment efficacy, mean hospital stay, cost effectiveness, recurrence of symptoms, morbidity and mortality. Mostly the evidence was in favor of conservative treatment^{3,9,10,11}, a few remained inconclusive^{12,13}, while others concluded that antibiotics treatment may be used as bridge to surgery or primary initial treatment in selected patients^{14,15}. In our setup many patients, who are diagnosed as acute appendicitis and advised appendectomy, refuse surgery, and leave the hospital against medical advice and later on come to emergency with complications. We offered these patients to enter into trial of conservative treatment.

MATERIAL AND METHODS

Study was conducted in Services Hospital Lahore from August 2008 to July 2009. Patients 18 years and above presenting in emergency department, who were diagnosed as acute uncomplicated appendicitis

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were included in the study. Common presenting features were localized pain right iliac fossa (88%), while 12% had poorly localized pain in right abdomen and hypogastrium, history of migratory pain (64%), anorexia (65%), nausea/vomiting (54%), right lower quadrant abdominal guarding (56%), tenderness (100%), rebound tenderness (58%), pyrexia $\geq 37.5^{\circ}\text{C}$ (54%) leucocytosis $>10 \times 10^9/\text{L}$ (75%). Patients, who refused surgery initially and were willing to participate in trial, were included in antibiotics group (A). Patients willing for surgery were included in group (B). Patients with co morbidities, suspected complicated acute appendicitis, and pregnant females were not included. Patients, who were not willing for surgery in case of failure of conservative treatment, were also excluded.

Group A (conservative treatment) - 42 patients were included, 24 males and 18 females (male/female ratio=1.33:1). These patients were admitted in hospital, were kept NPO with I/V fluids. Intravenous antibiotics were given; cefotaxime 1 gm twice daily and metronidazole 500mg 8 hourly. If symptoms did not improve within 24 hours, appendicectomy was done. In patients who improved, oral feed was resumed gradually (liquids to semisolids to solids), over 24 hrs. I/V antibiotics continued for two days and patients were discharged home with oral ciprofloxacin 500 mg 12 hourly and metronidazole 400 mg 8 hourly for 8 days. Follow up was advised on day 10, 1 month, 6 months and one year. Patients presenting with recurrence of appendicitis had appendicectomy.

Group B (Surgical treatment)-172 patients were included, 94 males and 78 females (male/female ratio=1:1.2%). Open appendicectomy was done. Preoperative prophylactic antibiotics were given, cefotaxime 1gm and metronidazole 500mg intravenous, and two doses given post operatively.

RESULTS

In group A, 34 patients (81%) responded to antibiotics and were discharged after 2 days. 8 patients (19%), who didn't respond to antibiotics, were operated and appendix was found inflamed in 7 of them, including one gangrenous appendix. 6 patients out of 34, who responded to antibiotics, had recurrence of symptoms within one year. 2 patients had recurrence within 10 days and 4 between 3 and 12 months after discharge from the hospital. Surgery was done and appendix was found inflamed in all, including one gangrenous and one perforated appendix. Rate of complications was 7.14% in this group, and these occurred in patients who were operated. Two patients had post operative wound infection, and one had post operative adhesive bowel

obstruction, treated conservatively. Treatment efficacy criteria were no failure of antibiotics treatment, no recurrence of symptoms in one year, and no post therapeutic complications. Treatment was effective in 67%, as per these criteria.

In group B, 172 patients operated, 158 patients (92%) had inflamed appendix. Perforated appendix was found in 5 patients (2.9%) and gangrenous appendix in another 6 (3.5%). Rate of complications was 13.95%. 16 patients had wound infection, 2 had residual intra abdominal abscess, 4 suffered from chest infection, and 2 admitted later on with adhesive small bowel obstruction. All complications treated conservatively, no reoperation needed. Treatment efficacy criteria were patients successfully treated with appendicectomy, appendix found inflamed, no post operative complication in one year. Treatment was effective in 72%, as per criteria. There was no mortality in either group.

Table 1: Summary of outcomes

Outcome measure	Group A	Group B
No. of Patients	42	172
Mean age in years	28	29
Treatment efficacy	67%	72%
Mean length of stay	3 days	3 days
Recurrences	6 (14%)	0
Complications	3 (7.14%)	24 (13.95%)

Table 2: Post operative complications

	Group A	Group B
No. of patients	42(operated=14)	172(all operated)
Wound infection	2 (4.76%)	16 (9.30%)
Residual abscess	0	2(1.16%)
Chest infection	0	4 (2.33%)
Adhesive bowel obstruction	1 (2.38%)	2(1.16%)

DISCUSSION

Surgery, open or laparoscopic, is the traditional treatment of acute appendicitis. Antibiotic treatment is considered as adjuvant to surgery in patients with suspected appendicitis. Antibiotics therapy as primary treatment of uncomplicated acute appendicitis, versus appendicectomy, is being studied. In our study 81% patients responded to antibiotics therapy and safely discharged from hospital after 48 hours. The success rate of conservative treatment 86-95% has been reported in review of literature^{5,10,16,17}.

We observed 14% recurrence of appendicitis in conservatively treated patients, in one year. Recurrence rate of 5-37% has been reported in literature^{5,8,16,17}.

Rate of complications was 7.14% and 13.95% respectively in group A and B. In group A, no patient had any complication during conservative therapy,

and all complication occurred after appendicectomy. In literature review, complications up to 8% has been found in antibiotics group^{18,19} and 14-17% in surgery group^{7,10}. Hansoon J et al⁹, found minor complications similar in both groups, while major complications, threefold higher in patients who had appendicectomy. Turhan AN et al⁶ found similar morbidity rates in both groups.

There was no mortality in our study. In literature review, we didn't find any mortality in randomized controlled trials, comparing antibiotics treatment with appendicectomy, but overall mortality after appendicectomy was found 0.8/1,000 appendicectomies in non perforated appendicitis, and 5.1 in perforated appendicitis²⁰.

In our study, diagnostic accuracy in surgery group was 92%, while in literature it ranges from 85-97%^{8,10,11,16}. In literature the cost was significantly less in patients managed conservatively with antibiotics alone⁶, and these patients experienced less pain requiring less analgesia^{8,11}. However the cost was not calculated in our study.

Treatment efficacy in group A, was 67%, and in group B was 72%. Krishna KV et al³, in meta analysis of four randomized control trials of 900 patients, found no difference in treatment efficacy and length of stay in hospital. We also observed no difference in length of stay in both groups.

We used third generation cephalosporins and metronidazole in all our patients, treated conservatively. This is same as used in most randomized control trials. Vons C et al²¹ found similar results with amoxicilline plus clavulanic acid.

CONCLUSION

Antibiotics treatment of uncomplicated acute appendicitis is a safe option in patients refusing surgery. Prospective randomized trials are needed to conclusively define the roles of antibiotic treatment versus appendicectomy in the management of uncomplicated acute appendicitis.

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