ORIGINAL ARTICLE

Role of conservative management in the treatment of acute noncomplicated appendicitis

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Abstract

Objective: To evaluate the role of non-operative management of acute non complicated appendicitis in terms of its cost effectiveness and associated morbidity and mortality.

Place and duration: This prospective observational study was carried out in the Surgical Department of Khyber Teaching Hospital Peshawar from March 2009 to December 2009.

Methodology: The study included 100 unselected patients with early acute non complicated appendicitis diagnosed on the basis of clinical history and examination supported by laboratory investigations. Out f 100 patients, 65 patients received intravenous antibiotics for two days followed by oral antibiotic treatment for 7 days, while 35 patients considered as controls, were randomized for surgery. Data was collected in the proformas designed for the study. Patients were observed and followed for the course of various morbidities.

Results: There were 65 males and 35 females with mean age of 20 years. Pain localized to right iliac fossa associated with nausea, vomiting and anorexia were the common symptoms while fever, tachycardia and rebound tenderness in right iliac fossa were the common signs. Patients were randomly divided into two groups. Group-1 (treated conservatively) improved after an uneventful stay of 2 to 4 days. Recurrence was noted in 6 patients who underwent surgery. Postoperative complications occur in only one patient. Three to 6 days was the range of hospital stay. In Group-2 (treated surgically), one patient had perforated appendix with appendicolith. Six patients developed postoperative complications. Hospital stay ranged from 4 to 9 days. No mortality was seen in both groups in our study.

Conclusion: Patients treated conservatively with antibiotics suffered mild pain with less analgesics. Although morbidity, mortality and expenses of surgery were avoided, the recurrence rate is not insignificant.

Keywords: Acute appendicitis, Conservative management, Recurrence

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Introduction:

Reginald Filz first described acute and chronic appendicitis in 1886[1]. Being the most common cause of acute abdomen worldwide, males of 10 to 20 age are commonly affected but it can occur at any age[2].

Although obstruction of lumen is essential for appendiceal gangrene and perforation, yet many other factors have been noted as causative factors for mucosal inflammation and lymphoid hyperplasia like infective agent, possibly virus. Seasonal variation in incidence is also observed[3].

Migrating pain aggravated by movement or cough, nausea, vomiting and anorexia are the classic symptoms while fever, tachycardia, localized tenderness, guarding and rebound tenderness in right iliac fossa are the examination findings.

Various gastrointestinal, urological, gynecological as well as other metabolic, neurological and malignant causes of abdominal pain may be included in differential diagnosis of acute appendicitis[2,4].

Clinical assessment and experience assisted by various scoring systems like Alvarado system are the main tools to diagnose acute appendicitis[5].

Urinalysis, complete blood count, C reactive protein supported by ultrasound, computerized tomography (CT) scan and diagnostic laparoscopy are useful investigations.

Once diagnosed, treatment options include medical treatment including antibiotics[6] or appendicectomy, favorably laparoscopic[7] but population based evaluation have indicated significant long term risks following exploration for appendicitis. Small bowel obstruction requiring operation has been shown to occur in 1.3 percent by 30 years and 30 days mortality to be 0.24% with increased standard mortality rate[8]. Also a negative appendicectomy is particularly hampered with problems[9].

The aim of our study was to evaluate the role of conservative management in the treatment of acute appendicitis in unselected patients and to demonstrate that antibiotic therapy is as safe and effective as appendicectomy in the treatment of acute non complicated appendicitis.

Methodology:

The study was conducted from March 2009 to December 2009 and a total of 100 patients with early acute non complicated appendicitis were recruited. Diagnosis was made on the basis of typical history, clinical examination supported by laboratory investigations and confirmed by operative findings. All patients presenting later than 24 hours as well as those with pain abdomen due to causes other than acute non complicated appendicitis were excluded from the study. Depending upon the mode of treatment, patients were divided into two groups.

Sixty five patients in Groupe-1 were selected for conservative treatment with nil per oral, intravenous fluids and antibiotics (intravenous third generation cephalosporin along with metronidazole for two days followed by oral antibiotics for another 7 days), while 35 patients in Group-2 underwent emergency appendicectomy via conventional method, as a control group. Patients were closely observed for any complication and the course of morbid conditions. Those treated conservatively were discharged within 12-24 hours and followed for 6 months. Study variables like treatment modality, symptoms relief, recurrence, post operative complications and post operative hospital stay were analyzed to determine their influence on the outcome.

Results:

The age ranged between 15 and 30 years (mean: 20 years). Sixty-five (65%) patients were males while 35 (35%) patients were females (M:F=2:1). Common symptoms were pain abdomen localized to right iliac fossa (100% patients), nausea and vomiting (91% patients) and anorexia (79% patients) while fever (81% patients), pulse rate >90/minute (71% patients) and rebound tenderness in right iliac fossa (67%) were common signs. White blood cells count more than 11,000/mm3 was found in 87 (87%) patients.

Group-1 patients (65%) treated conservatively developed no complications and were discharged after a hospital stay ranging from 2 to 4 days. Four (6%) patients developed recurrence within 4 months and 2 (3%) patients within 6 months. They underwent appendecictomy via conventional method. Postoperative complications were wound infection in only one (16%) patient. Their hospital stay ranged from 3 to 6 days.

In Group-2 patients (35%) treated with appendicectomy via conventional method, one (2.8%) patient had perforated/gangrenous appendix with appendicolith. Postoperative complications were wound infection in 3 (8.5%) patients, pelvic collection in one (2.8%) and later small bowel obstruction (adhesive) in 2 (5.7%) patients. Their hospital stay ranged from 4 to 9 days.

No other pathology like carcinoid of the appendix was observed in any patient of two groups.

Table 1: *Clinical features*

Clinical features	Number of patients	Percentage
Symptoms:		
Pain right iliac fossa	100	100
Nausea/vomiting	91	91
Anorexia	79	79
Signs:		
Fever	81	81
Tachycardia	71	71
Rebound tenderness	67	67
Leucocytosis	87	87

Table 2: *Postoperative complications*

Complications	Group-1 (recurrent cases) Number of patients (%)	Group-2 Number of patients (%)
Wound infection	1 (16%)	3 (8.5%)
Pelvic collection	0 (0%)	1 (2.8%)
Adhesive small bowel obstruction	0 (0%)	2 (5.7%)

Discussion:

Males were in preponderance to females with a mean age of 20 years in our study coinciding to the findings of Styrud J et al[10]. In our study 65 patients with acute non complicated appendicitis presenting within 24 hours were treated medically via antibiotics. They improved earlier and their stay in the hospital was uneventful. Various studies have evaluated the role of medical management of acute non complicated appendicitis[11,12]. Spontaneous resolution of early acute appendicitis can occur and medical treatment including antibiotics may be an alternative to surgery[7].

We use 3rd generation cephalosporin and metronidazole in all our patients treated conservatively. In the last decade, many effective combination antibiotic regimens have been developed and the availability of monotherapy for effective treatment of intra-abdomen infection has made triple regimen antibiotic treatment obsolete[13].

In our study six (9%) patients came with recurrence of their previous signs and symptoms. They were posted for surgery. The reported rates of recurrent appendicitis have ranged from 6 to 14% in several small series[14,15]. Another randomized trial that compared appendicectomy with antibiotic therapy in 18 to 50 years old men found that 88% improved without surgery and 14% had recurrent appendicitis within one year[10].

We observed that only one (16%) out of 6 patients with recurrent appendicitis developed postoperative wound infection. The reported incidence of complications from appendicectomy performed after conservative management range from 2% to as high as 23%[16,17].

In Group-2, perforated appendix with faecolith was found in one (2.8%) patient. Despite improved diagnostic accuracy and shortened interval between presentation and therapy in the form of appendicectomy, the perforation rate in acute appendicitis has remained the same since 1980s at approximately 20 to 30%[18,19].

Six (17.1%) patients treated surgically developed postoperative complications in our study. The overall postoperative complication rates are around 10 to 19% for acute appendicitis without perforation and reach 12 to 30% for perforated appendicitis[20,21].

Population based evaluations have indicated significant long term risks following surgical exploration for appendicitis[22]. Therefore recently there has been increasing interest in antibiotic therapy as primary treatment[23]. The results of our study support the aforementioned protocol.

Conclusion:

Patients with short history of abdominal pain, localized tenderness and hemodynamic stability could be treated nonoperatively as it is cost effective and eliminates the mortality and morbidity associated with routine appendicectomy.

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