



Research Paper

Effectiveness of conservative management of uncomplicated acute appendicitis: A single hospital based prospective study

Mumtaz KH. Alnaser ^a, Qays A. Hassan ^{b, *}, Laith N. Hindosh ^a

^a Department of Surgery, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq

^b Section of Radiology, Department of Surgery, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq

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ABSTRACT

Background: Acute appendicitis is one of the commonest causes of acute abdomen. There is a wide discussion and controversy on the surgical and nonsurgical treatment of acute uncomplicated appendicitis. The aim of this study was to evaluate the efficacy and outcomes of the conservative management of selected cases of acute appendicitis with an antibiotic first plan.

Patients and methods: This was a single hospital-based prospective study with a duration of 25 months. Patients with clinical and radiological features of acute appendicitis presenting within 72 h of the beginning of abdominal pain with Alvarado score ≥ 5 were included. The patients received a therapeutic dose of broad-spectrum antibiotics and symptomatic treatment. The follow-up period was 6 months.

Results: 90 patients were evaluated, 54 (60%) patients were female and 36 (40%) patients were male with mean age 34.4 years. Conservative treatment was successful in 68 (75.6%) patients and failed in 22 (24.4%) patients. No mortality recorded in this study. The main complications which occurred in those patients who failed to respond to conservative treatment were perforated appendicitis (3 patients), appendicular abscess (3 patients) and appendicular mass (4 patients).

Conclusion: Majority of cases of the first attack of uncomplicated acute appendicitis can be treated successfully by conservative treatment. However, conservative treatment demands precise communication, close monitoring and follow-up to recognize failure which needs to be treated immediately by surgery.

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1. Introduction

Acute appendicitis is one of the most common surgical emergencies seen in general surgery practice. Complications can be severe and include perforation and generalized peritonitis. Currently, appendectomy has been the primary treatment, even in cases of unconfirmed diagnosis, given the low incidence of major complications. However, in 15–30% of cases the appendix is found to be free of disease upon resection [1,2]. Appendectomy can result in many complications such as surgical wound infection, intestinal obstruction due to adhesions, pneumonia, and tubal infertility in females.

Non-operative treatment of an uncomplicated acute appendicitis has safety implications. But delaying surgery may increase the risk of perforated appendicitis, intra-abdominal abscesses, and localized or diffuse peritonitis.

Surgery may be associated with a longer hospital stay and higher costs compared with nonoperative management with antibiotics, but delayed treatment and a perforated appendix may worsen morbidity, duration of sick leave and costs. However, nonoperative management with antibiotics may be a cost-effective alternative to surgery in a large percentage of patients without increasing the risk and may reduce hospital stay and costs in both developed and third world countries [3].

There is considerable discussion regarding the application of conservative treatment compared with surgical treatment in selected cases of acute appendicitis, as few studies have addressed this issue to date [4,5].

The idea of application of conservative treatment on selected cases of acute appendicitis is not new. In 1908 Alfred Stengel wrote: “Treated in a purely medical or temporary manner, the great majority of patients with appendicitis recovery” [6].

Other reports state that immediate appendectomy can be avoided for at least 24 h without increasing morbidity if antibiotics are administered [7,8]. Other authors suggest that appendectomy may not be necessary for the majority of patients with acute

* Corresponding author. Baghdad University, Al-Kindy College of Medicine, Al-Nahdha Square, 10071, Baghdad, Iraq.

E-mail address: qtimeme@yahoo.com (Q.A. Hassan).

uncomplicated appendicitis, as the condition resolves spontaneously without the need for a surgical procedure in many patients and in others may be treatable with antibiotics alone [9]. This approach has many advantages, including high success and low recurrence rates, reduced morbidity and mortality, less pain, shorter hospitalization and sick leave, and reduced costs [10].

The aim of this study was to evaluate the effectiveness of conservative treatment in uncomplicated acute appendicitis using antibiotic as a first treatment plan and to assess the treatment failure.

2. Patients and methods

This study was carried out in our hospital from January 2015 to December 2016. A total of 90 patients were enrolled in this study based on the inclusion and exclusion criteria. Informed consent for all patients, as well as ethical approval for the study from the hospital scientific committee, were obtained. All patients above 16 years of age with a history of pain in right iliac fossa for less than 72 h and clinically diagnosed as the first attack of appendicitis with Alvarado score ≥ 5 (Table 1) were included in this study. Ultrasound of abdomen and pelvis was done for all patients to confirm the clinical diagnosis of acute appendicitis and to exclude the possibilities of other intraabdominal pathologies. The specificity and sensitivity of ultrasound in our institution to diagnose acute appendicitis was 86.6% and 86.5% according to recent study done by Al-Marzooq et al. [11].

Exclusion criteria included recurrent appendicitis, patients presented with complicated appendicitis such as perforation, abscess, mass on clinical examination or radiological reports, those who are lost during follow-up and patients unwilling for conservative management, patients with a medical disease such as diabetes mellitus and hypertension, immunocompromised patients, pregnancy and allergy to antibiotics.

All patients meeting the inclusion criteria then admitted to the hospital and received intravenous antibiotics (cefotaxime 1 g twice daily and metronidazole infusion 500 mg/100 ml 3 times per day) for at least 24 h. During this time patients received intravenous fluids, no oral intake with 6 hourly charts for (temperature, blood pressure, pulse rate, respiratory rate and local abdominal sign). Patients whose signs and symptoms had improved discharged home at the next morning and informed to continue with oral antibiotics (ciprofloxacin 500 mg twice a day and metronidazole 500 mg three times a day) for a total of 10 days. In patients whose clinical condition had not improved and did not respond to conservative treatment or worsened were operated by appendectomy. Patients were told to contact immediately if pain recurs, vomiting and fever had occurred. Follow-up at the end of treatment for six months was done. Patients were told to inform us if they underwent an operation in somewhere else.

Successful conservative treatment was defined as being discharged from the hospital following the resolution of symptoms

Table 1
Alvarado score.

		Score
Symptoms	Migratory RIF pain	1
	Anorexia	1
	Nausea and vomiting	1
Signs	Tenderness (RIF)	2
	Rebound tenderness	1
	Elevated temperature	1
Laboratory	Leukocytosis	2
	Shift to left	1
Total		10

without the need for surgical intervention and no appendicitis during a follow-up of 6 months.

Failure of conservative treatment was divided into two sections. First, treatment failure which indicates a lack of clinical improvement, necessitating appendectomy while attempting conservative treatment in the admitted patient. Second, recurrence which indicates repeated symptoms or disease within the follow-up period of 6 months in an earlier successfully conservatively managed patient.

2.1. Statistical analysis

Statistical package for social science version 20 (SPSS 20) was used for both data entry and data analysis. Discrete variable presented as number (%). Chi-square test (or fisher exact test when appropriate) used to test the significance of association for the discrete variable. p-value of <0.05 were considered significant.

3. Results

In this study, 90 cases of uncomplicated acute appendicitis were included and managed conservatively. 54 (60%) patients were female and 36 (40%) patients were male. Mean age was 34.4 year and range between 16 and 60 years. Table 2 show the age distribution of the study. The maximum number of patients (40%) belonged to age group 20–29 years.

Sixty (66.7%) patients presented with signs and symptoms of acute appendicitis to the hospital with time interval ≤ 24 h, 18 (20%) patients presented with time interval 24–48 h and 18 (20%) patients presented with time interval 48–72 h as shown in Table 3.

In the 90 patients who were managed conservatively for uncomplicated acute appendicitis, conservative treatment was successful in 68 (75.6%) patients with no treatment failure or recurrence in the follow-up period of 6 months. However, in the remaining 22 (24.4%) patients, conservative treatment was failed. Treatment failure during initial admission was seen in 10 patients (11.1%) whereas recurrence was seen in 12 patients (13.3%) cases who were successfully managed during primary admission (Table 4).

Table 2
Age distribution of the study.

Age (years)	No. of patients (%)	Mean age
≤ 19	6 (6.6)	17
20–29	36 (40)	26
30–39	24 (27)	34
40–49	18 (20)	42
50–60	6 (6.6)	53
Total	90 (100)	34.4

Table 3
Number of the patients according to the duration of presenting symptoms.

Hours of attack of appendicitis	No. of the patients (%)
≤ 24 h	60 (66.7)
24–48 h	18 (20)
48–72 h	12 (13.3)
Total	90 (100)

Table 4
Outcomes of conservative treatment.

Outcome	No. of the patients (%)
Successful	68 (75.6)
Treatment failure	10 (11.1)
Recurrence	12 (13.3)

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