ACUTE APPENDICITIS, IS IT POSSIBLE TO CURE WITHOUT SURGERY?

Salim M Albassam
MB,ChB, DS, CABS, Assist. Prof. of Surgery, Department of Surgery, College of Medicine, Basrah, IRAQ.

Abstract
The aim of this trial is to evaluate the protocol of treating selected cases of adult acute appendicitis by non-surgical measures.
Appendicitis is the most common cause of acute abdomen, for many years the adapted treatment of this disease is by immediate surgery to avoid the serious morbidity and mortality, now a small study suggest that using non-surgical treatment using antibiotic may give same result in curing patients and avoidance of surgery may eliminate the possible morbidity and even mortality in selected patients.
This is a prospective non-randomized study of 84 adult patients with acute appendicitis, clinically diagnosed, from both genders were treated in Basra General Hospital from 2005-2009, by intravenous anti biotic, nothing by mouth and clinical monitoring.
From the 35 female patients, only six cases did not show clinical improvement, surgery revealed perforated appendicitis in two, pathology other than appendicitis in four (salpingitis, ectopic gestation, ruptured graafian follicle, twisted ovarian cyst respectively).
From the 49 male patients, five cases did not show clinical response, operations showed gangrenous and perforated appendicitis in two, other pathology in three (pelvic lymphadenitis, gastroenteritis and urinary tract infection).
In conclusion, the non operative regime for treatment of early acute appendicitis is successful, it can be used to treat certain types of patients including high risk patients and when surgical facilities are not available.

Introduction
Appendicitis means inflammation of the vermiform appendix\(^1\). It is the most common acute surgical pathology of the abdomen and is due to infection secondary to obstruction, the obstruction might be due to hyperplasia of the lymphoid follicles, fecal material (feca lith), a forging body or tumors. The progression of the infection leads to gangrenous appendicitis due reduction in the blood flow, together with the increase in the blood pressure a perforation in the wall of the appendix may result\(^2\).
The proximal obstruction of the appendix lumen rapidly produces a closed loop obstruction, anatomically speaking the appendix has a potential lumen not a real one, the capacity of this lumen is only 0.1 ml and secretion of as little as 0.5 ml of fluid distal to the obstruction increases the intra luminal pressure to 60cm water\(^3\), with inevitable perforation, but this sequence is not always happened and same episodes of acute appendicitis subsided spontaneously. Actually many patients who are found at operation to have acute appendicitis give a history of previous similar but less sever attack of lower abdominal pain, histological examination of the appendix specimens removed from the patients often reveled thickening and scaring of the appendix, suggesting old and healed acute inflammation\(^4\).
The clinical presentations of the disease may varies from non specific abdominal pain to the classic features of right iliac fossa pain, tenderness and rebound...
tenderness, the diagnosis of the disease is essentially clinical, when the features are atypical laboratory and imaging tools may be useful in establishing the diagnosis\(^5,6\). For many years immediate surgery has been considered the only treatment for appendicitis, now a small study suggests that antibiotics alone may be better\(^7\). Several types of antibiotics and combination of them can be used in the treatment of acute appendicitis\(^8\). This study aimed to evaluate the protocol of treating cases of acute appendicitis by non surgical methods.

**Patients and methods**

This study is a prospective nonrandomized study done in Basrah General Hospital from 2005-2009. The study included 84 adult patients of either gender (35 females, 49 males) who presented with clinical features suggestive of acute appendicitis with age between 17-45 year. The diagnosis of cases of acute appendicitis included in this study relied on clinical bases and the (Alvarado clinical score) was applied for the diagnosis of the disease.

**Table I: The Alvarado score\(^9\) - \(^11\)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Clinical features</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>Migratory right iliac fossa pain</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Anorexia</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nausea/vomiting</td>
<td>1</td>
</tr>
<tr>
<td>Signs</td>
<td>Tender right iliac fossa</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Rebound tenderness</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Elevated temperature &gt;37.3(^0)C.</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory findings</td>
<td>Leukocytosis &gt;10.0x10(^9)/L</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Neutrophils &gt;75% or left shift</td>
<td>1</td>
</tr>
<tr>
<td>Total score</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

The Alvarado scoring system designed for diagnosis of acute appendicitis and reducing the rate of negative appendectomy\(^12\). The scoring system is highly sensitive for the diagnosis of acute appendicitis specially in males\(^13,14\).

Scoring detail\(^15\):


The patients with score 7 and above were chosen for non surgical treatment. Score 1-4, score 5-6 and patients with late presentation were excluded.

Patients involved in the study were: 1. Patients refused surgery in spite of surgeon's explanation. 2. Patients kept overnight because of after midnight admission and show some clinical improvement in the morning. 3. Patients not accepting risk of anesthesia. 4. Some high risk patients like advanced obstructed air way diseases and females in first trimester pregnancy. However all patients was informed about the treatment protocol and the possible morbidities.

The non surgical regime consisted of hospitalization for 24-48 hours with intravenous antibiotic therapy, 12-24 hour period of nothing to drink, IV fluids administration (suction-drips) and physiological monitoring, patients were switched to oral antibiotics for 10 day coarse as soon as they became a febrile, the WBC normalized and tolerating a regular diet\(^16,17\).

**Results**

In the females group (35 patients), six cases didn’t show significant clinical improvement after 24 hours and the decision for surgery was made, in two cases the appendix was perforated, in the other four the operative finding were;
pathology other than appendicitis. in the males group (49 patients), five cases showed no clinical response, in two cases the operative findings were gangrenous, perforated appendicitis respectively, the other three cases showed pathology other than appendicitis.

Table II: Cases responding to the treatment protocol

<table>
<thead>
<tr>
<th>Groups</th>
<th>No. patients</th>
<th>Cases responded</th>
<th>%</th>
<th>Cases not responding</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>35</td>
<td>29</td>
<td>82.8571</td>
<td>6</td>
<td>17.1428</td>
</tr>
<tr>
<td>Males</td>
<td>49</td>
<td>44</td>
<td>89.7959</td>
<td>5</td>
<td>10.2040</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>73</td>
<td>86.3265</td>
<td>11</td>
<td>13.6734</td>
</tr>
</tbody>
</table>

Table III: Cases not responding to the treatment protocol

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Operative finding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. One gangrenous appendicitis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. One perforated appendicitis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Three cases showed other pathology:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Pelvic lymphadenitis, gastroenteritis and urinary tract infection).</td>
</tr>
<tr>
<td>Males</td>
<td>5</td>
<td>1. Two cases showed Perforated appendicitis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Four cases showed other pathology:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(salpingitis, ectopic gestation, raptured graafian follicle and twisted ovarian cyst).</td>
</tr>
<tr>
<td>Females</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

The number of patients whom showed no initial response to the medical treatment in the females group were relatively higher than that of the males group although the sample of the female patients is less (six out of 35), compares with the number of cases in the males group (5 out of 44), this might be due to the low sensitivity of the Alvarado scoring system in the diagnosis of appendicitis in the females.

Discussion

The response of many cases to the non-surgical remedies and the non response of the others is attributed to the possibility that the non perforated and perforated appendicitis may in fact be two different diseases that require a different treatment.

The bacterial flora of the appendix is similar to the flora of the colon, this bacterial population of the appendix will remain unchanged throughout life with the exception of the porphyromonas gingivalis which is seen only in adults, the bacteria cultured in cases of appendicitis are there for similar to those seen in other colonic infection like diverticulitis.

Appendicitis is a polymicrobial infection, The principal germs seen in normal, acute and perforated appendicitis are Escherichia coli and Bacteroides Fragilis.

Many different antimicrobial regime and combination of them have been used to treat acute appendicitis. A mono-therapy may be as effective as triple therapy.

In the majority of treatment protocols antibiotics are administered intravenously for 24-48 hours, treatment stops if patient shows no clinical response. otherwise patient discharged with oral anti biotic for approximately 7-10 days.

Coldrey reported a five years experience of 471 unselected patients with non operative treatment of acute appendicitis, the mortality and morbidity rates were
low\textsuperscript{30}. Styrud reported 86% improved without surgery in a well designed study, the diagnosis strictly linked to surgeon suspicion excluding women from the study\textsuperscript{31}. Hansson in two studies conclude 90.8% and 77% cure of cases of acute appendicitis using antibiotic only\textsuperscript{32,33}.

Conclusion: Although many controversies exist over the non operative treatment of acute appendicitis, the regime of nothing by mouth, intravenous anti biotic (mono or triple regimen), clinical monitoring for 24-48 hours and subsequent 10 days oral antibiotic (when they became a febrile and their WBC dropped) can be used to treat appendicitis in early stage, it can be used to treat certain types of patient including high risks and when surgical facilities are not available.

References