Basrah Journal Of Surgery

Bas J Surg, December, 20, 2014

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 (fecalith), 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]

Variables	Clinical features	Score
Symptoms	Migratory right iliac fossa pain	1
	Anorexia	1
	Nausea/vomiting	1
Signs	Tender right iliac fossa	2
	Rebound tenderness	1
	Elevated temperature >37.3^{0}c.	1
Laboratory findings	Leukocytosis>10.0x10^9/L	2
	Neutrophils>75% or left shift	1
Total score		10

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]:

Score 1-4: Outpatient observation. Score 5-6: Inpatient observation. Score 7: Decision solely on surgical experience. Score 8: Immediate surgery.

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

Groups	No. patients	Cases responded	%	Cases not responding	%
Females	35	29	82.8571	6	17.1428
Males	49	44	89.7959	5	10.2040
Total	84	73	86.3265	11	13.6734

TableIII: Cases not responding to the treatment protocol

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

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[14].

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[18-20].

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[21].

Appendicitis is a polymicrobial infection, The principal germs seen in normal, acute and perforated appendicitis are Escherichia coli and Bacteroides Fragilis[21-24].

Many different antimicrobial regime and combination of them have been used to treat acute appendicitis[8,25,26]. A mono-therapy may be as effective as triple therapy[27.28].

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[8,25,29].

Coldrey reported a five years experience of 471 unselected patients with non operative treatment of acute appendicitis, the mortality and morbidity rates were

low[30]. Styrud reported 86% improved without surgery in a well designed study, the diagnosis strictly linked to surgeon suspicion excluding women from the study[31]. Hansson in two studies conclude 90.8% and 77% cure of cases of acute appendicitis using antibiotic only[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

1. Douglas M Anderson, Dorland Illustrated Medical Dictionary. W.B.Saunders company, 29th edition,2000, p116.
2. Colour Atlas of Human Anatomy, Digestive system.CBS Publisher and distributors, first edition. 2000, p 360.
3.David H berger. The appendix,Shwartz's Principle of Surgery, Ninth edition. The McGnaw-Hill Companies Inc. 2010.;(2045-6).
4. Marudanayagam R, William GT, Rees BI. Review of the result of 2660 appendectomy pathological specimens. J Gastroenetrol 2006 41: 745(Pub Med 16988762).
5.Van Randen A,Bipat S, Zwinderman AH, Ubbink DT, Stoker J, Boermeester MA. Acute appendicitis: meta analysis of diagnostic performance of CT and graded compression U/S related to prevalence of disease. Radiology 2008; 249:97-106. Epub2008 Aug 5.
6.Santacroce L. Appendectomy[Internet]. 2010 [Cited 2011]. Available from: http://emedicine. medscape.com/article/195778-0verview.
7.Nicholas Bakalar. Treating appendicitis without surgery. http//well.blogs.nytimes.com/2014/04/25/.
8.Styrud J, Eriksson S, Nilsson I, Ahlberg G, Haapaniemi S, neovius G, Rex L, Badume I, Granstrom L. Appendectomy versus antibiotic treatment in the acute appendicitis. A prospective multicenter randomized controlled trial. World J Surgery. 2006; 30: 1033-7.
9. Ana J, Sayed Asam S, Muhammad S, Muhammad Z, Umbreen R, Yasir H. Alvarado scoring system in prediction of acute appendicitis. Journal of the College of the Physicians and Surgeon Pakistan 2011,vol21(12): 753-55.
10. Sanei B, Mahmoodieh M, Hpssienpour . Evaluation of validity of Alvarado scoring system for diagnosis of acute appendicitis. Pak J Med Sci 2009; 25: 298-301.
11.Sung Ouk Jang, Byung Soek Kim, Duk Jin Moon. Application of Alvarado score in patients with suspected appendicitis. Korean J Gastroenterol 2008; 52: 27-31.
12.Alvarado A. A practical score for the early diagnosis of acutec appendicitis. Ann Emerg Med 1986; 15: 557-64.
13. Khan I, Abdur Rehman. Application of Alvarado scoring system in diagnosis of acute appendicitis. J Ayub Med Coll Abbottabad 2005; 17: 41-4.
14.Malik KA, Khan A, Waheed I. Evaluation of the Alvarado score in the diagnosis of acute appendicitis. J Coll Physicians Surg Pak 2000; 10: 392-4.
15. S Olakolu, C Lioyd. G Day, P Wellington. Diagnosis of acute appendicitis at Mandeville regional Hospital: Clinical judgment versus Alvarado score. The Internet Journal of Surgery. 2010 Vol 27 no 1.
16.Jennifer Garcia. Appendicitis: Surgery safely avoided in same children. J Am Coll Surg Published on line April 12, 2014.
17. Sandy Craig. Appendicitis treatment and management. http//emedicine.medscap.com/article/773895,up dated Mar 17, 2014.
18. Mason RJ. Surgery for appendicitis: Is it necessary?. Surg Infect (Larchmt). 2008; 9:481-8.(Article Pub Med).
19.Anderson RE. The natural history and traditional management of appendicitis revisited: Spontaneous resolution and predominance of pre hospital perforation imply that a correct diagnosis is more important than an early diagnosis. World J Surg 2007; 31: 86-92.(article Pub Med).
20. Levingston EH, Wood Ward WA,Sarosi GA. Disconnect between incidence of non perforated and perforated appendicitis. Implication for patho-physiology and management. Ann Surg 2007 245: 886.
21.Rautio M, Saxon H, Siitonen A.Bacteriology of histopathologically defined appendicitis in children. Pediatr Infect Dis J.2000 19: 1078 (Pub Med: 11099090).
22.Alio MD, Benion RS, Kathire K. Ticarcillin/Clavulanate versus Impipnem/cliastanin for the treatment of infection associated with gangrenous and perforated appendicitis. Am Surg 1999 65-99. (Pub Med9926739).
23. Soffer D,Zait S, Klausner J. Peeetonial calture and antibiotics treatment in patients with perforated appendicitis. Eur J Surg 2001: 167-214.(Pub Med 113164081).
24.Kokoska ER, Silen ML, Tracy TF. The impact of intra operative culture on treatment outcome in children with perforated appendicitis. J Pediatr Surg 1999 34:799.(Pub Med10359176).
25. Erikson S, Granstrom L. Randomized controlled trial of appendectomy versus antibiotics therapy for acute appendicitis. Br J Surg 1995;82;166-9.
26.Cocolini F, Catena F, Ansaloni L, Ercoloni G, Di Saverio S, Gazzotti F, Lazzareschi D, Pinna AD. A prospective and multicenter, randomized clinical study to compare the efficacy and safety of Ertapenem 3days versus ampicillin- Sulbactan 3days in the treatment of localized community acquired intra abdominal infection.(T.E.A. study: Three days Ertapenem versus 3days Ampicillin- Sulbactam).BMC Gastroenterol 2011; 11:42.
27.sakora GH, Mastoraki A, Lappas C, Sampanis D, Danias N, Smyrniotis V.Conservative treatment of acute appendicitis: heresy or an effective and acceptable alternative to surgery?. Eur J Gastroenterol hepatol. 2011; 23:121-7.
28. Powel LL,Wilson SE. The role of beta-lactam anti microbials as single agent in treatment of intra abdominal infection. Surg Infect (Larchmt). 2000; 1;57-63.
29. Ansaloni L, Catena F, Coccolini F, Ercolani G, Gazzoti f, Pasqualini E, Pinna AD. Surgery versus conservative antibiotic treatment in acute appendicitis; a systemic review and meta-analysis of randomized controlled trials. Dig Surg 2011; 28:210-21.
30. Coldrey E. Five years of conservative treatment of acute appendicitis. J Int Coll Surg. 1959; 32: 255-61.
31.Styrud J, Eriksson S, Nilsson I, Ahelberg G, Happaniemi S, Neovius G, Rex L, Badume I, Granstom L. Appendectomy versus antibiotic treatment in acute appendicitis, a prospective multicenter randomized controlled trial. World J Surg. 2006; 30: 1033-7.
32. Hansson J, Korner U, Khorram-Manesh A, solberg A, Lundholm K.
Randomized clinical trial of antibiotic therapy versus appendectomy as primary treatment of acute appendicitis in unselected patients. Br J Surg. 2009; 96: 473-81.
33. Hansson J, Korner U, Ludwigs K, Johnsson C, Lundholm K.Antibiotic as first lien therapy for acute appendicitis: Evidence for a change in clinical practice. World J Surg. 2012; 36(9): 2028-36.