

Delayed Presentation and its Effects on the Prognosis of Acute Appendicitis

T WAQAR I RIAZ

Department of Surgery, Nishtar Medical College, Multan

Correspondence to Dr. Tariq Waqar E mail: drtariqwaqar@yahoo.com

Objective: To identify the causes of delay in the presentation of the cases of acute appendicitis and its effects on the prognosis. **Study design:** It was descriptive type of study. **Place & duration of study:** The study was conducted in Department of Surgery, Nishtar Hospital Multan in one year from February 2004 to January 2005. **Patients & methods:** The 50 patients of all ages and both sexes were taken from surgical wards of the hospital. They were presented with signs & symptoms of disease for more than 48 hours, but otherwise healthy i.e. not having any other serious illness. The patients were diagnosed as cases of acute appendicitis after history, examination, investigations and operation. **Results:** There were 4(8%) patients who did not take any treatment. Patients who took the treatment but wrongly diagnosed were 36(72%). Out of these 36 patients, 12(24%) patients were treated by the quacks, in 7(14%) the diagnosis was gastroenteritis, 11(22%) patients took antibiotics and analgesics from the start of the symptoms and in the remaining 6(12%) the presentation of the patients was not typical. 10 patients (20%) were diagnosed as acute appendicitis but they refused for appendicectomy. Out of these 50 cases 24(48%) were complicated. Overall perforation rate was 30%. Patient presenting with gangrenous appendicitis were about 6%. Appendicular mass formation was found in 4% cases. Patients presenting with generalized peritonitis were 6%. Appendicular abscess formation was in 2% cases. The duration of hospitalization was 3 days in uncomplicated cases, while in complicated cases it was 6.5 days. **Conclusion:** The high rate of complications of appendicitis with its subsequent sequelae of increased morbidity and resource expenditure is the result of patient's delay in seeking medical attention.

Key Words: Appendicitis, gastroenteritis, generalized peritonitis, appendicular mass

Acute Appendicitis is a common clinical problem with a lifetime occurrence of 7%. Accurate and prompt diagnosis is essential to minimize morbidity¹. Abdominal pain anorexia and vomiting¹ are the predominant symptoms. The most important physical examination finding is right lower quadrant tenderness and rebound tenderness². A complete blood count and urinalysis are sometimes helpful in determining the diagnosis and supporting the presence or absence appendicitis while ultrasonography and computed tomographic scans can be helpful in equivocal cases. Although the clinical diagnosis may be straightforward in patients, who present with classic signs and symptoms, atypical presentations may result in diagnostic confusion and delay in treatment. In children and elderly, both the diagnosis and treatment of acute Appendicitis require particular attention. The high rate of complicated appendicitis with its subsequent sequelae of increased morbidity is primarily the direct result of patient's delay in seeking medical attention³. Delay in treatment of Appendicitis, increases the risk of perforation⁴, gangrene, mass formation, intestinal obstruction, abscess formation, postoperative complication like wound infection⁴, adhesions formation, and longer hospitalization⁵. Morbidity associated with perforation necessitates the prompt management of acute appendicitis and increases anxiety concerning prolonged preoperative observation⁶.

Patients and methods:

In this study 50 patients of all ages and both sexes were taken from the surgical wards of Nishtar hospital Multan. They presented with the signs and symptoms of the disease

for more than 48 hours. The patients were diagnosed as cases of acute appendicitis after history, examination, investigations and operation. These patients were otherwise healthy i.e. not having any other serious illness or metabolic diseases e.g. diabetes, uremia, malnutrition etc.

All the data of the patients i.e. history, clinical findings, investigations, operative findings and postoperative complications were recorded on the predesigned proforma. The patients were admitted in the emergency ward and paediatric surgery ward, where they were examined by the registrar and senior registrar of the respective wards. The investigations were done in the central laboratory and the radiology department of Nishtar Hospital Multan. Either senior registrar or the consultants of the respective wards made the decision of the operation. Patients were operated by the senior registrar or under his direct supervision. After operation postoperative care was done in the surgical wards, where they were daily visited by the consultants of the respective wards. The appropriate antibiotics were given. The daily progress of the patients was recorded.

Results:

Causes of delay: Patients who had history of more than 48 hours were presented to us. Either they did not take any treatment or took the treatment of wrong diagnosis. There were different causes of delay in different patients, which are as under:

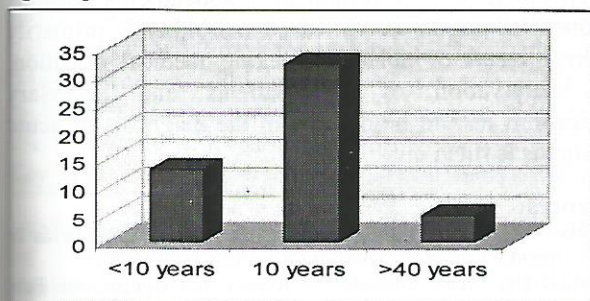
Patients who did not take any treatment were 4(8%).

Patients who took the treatment but were wrongly

diagnosed were 36(72%). Out of these 36 patients, 12(24%) patients were treated by the quacks, in 7(14%) the diagnosis was gastroenteritis, 11(22%) patients took antibiotics and analgesics from the start of the symptoms and in the remaining 6(12%) the presentation of the patients was not typical. 10(20%) patients were diagnosed as the case of acute appendicitis and were advised for appendicectomy but they refused.

Complications of appendicitis: Patients were divided into three groups (Table 1) i.e. Group A: age less than 10 years, Group B: 10 to 40 years, Group C: age more than 40 years. Out of 50 patients, 12(24%) patients were less than the age of 10 years, 33(66%) patients were 10 to 40 years of age and 5(10%) patient were more than 40 years of age. (Fig 1)

Fig.1 Age distribution



In group A 10(83%) patients were presented with the complications of acute appendicitis and 2(17%) patients were uncomplicated. 8(66%) presented with perforated appendix, 1(8%) patient presented with gangrenous appendicitis and 1(8%) presented with generalized peritonitis.

In group B 11(33.3%) patients presented with complicated appendicitis and 22(66.6%) presented with uncomplicated appendicitis. Out of these complicated cases 6(18%) presented with perforated appendix, 1(3%) presented with gangrenous appendicitis, 1(3%) presented with appendicular mass, 2(6%) presented with generalized peritonitis and 1(3%) patient presented with appendicular abscess.

In Group C, 3(60%) patients presented with complication of acute appendicitis and 2(40%) presented with uncomplicated appendicitis. Out of these complicated cases 1(20%) patient presented with perforated appendix, 1(20%) patient presented with gangrenous appendicitis and 1(20%) presented with appendicular mass.

Overall complicated cases were 24(48%), while uncomplicated cases were 26(52%). Out of these complicated cases 15(30%) patients presented with perforated appendix, 3(6%) with gangrenous appendicitis, 3(6%) with appendicular mass formation, 3(6%) with generalized peritonitis and 1(2%) with appendicular abscess. (Fig 2). There was postoperative wound infection in the 6(12%) patients. The wound infection occurred in 5 (21.2% of complicated cases) patients of complicated appendicitis and 1 (4.9% of the uncomplicated cases)

patient of uncomplicated appendicitis.

Duration of hospitalization: Mean hospitalization period for uncomplicated cases was about 3 days while in complicated cases the mean duration of hospitalization was about 6.5 days.

Fig.2: Rate of complications in delayed cases

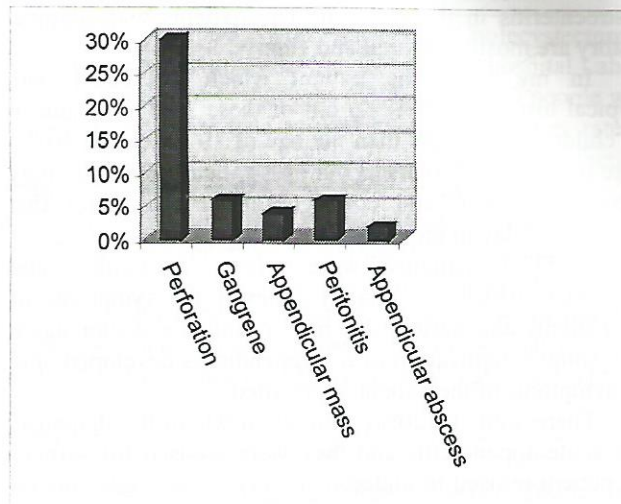


Table 1: Complications of acute appendicitis

	Group A <10 years (n=12)	Group B 10-40 years (n=33)	Group C >40 years (n=5)
Appendicular mass	8(66%)	6(18%)	1(20%)
Gangrenous	1(8%)	2(3%)	1(20%)
Peritonitis	1(8%)	2(6%)	-
Abscess	-	1(3%)	-

Discussion:

Acute appendicitis is a common surgical problem. It is among one of the leading causes requiring emergency surgery. There are two aspects of our study. One is what are the various reasons of delay in presentation of acute appendicitis and other is its complications due to delay in presentation. There were 4(8%) patients who did not take any treatment.

Patients who took the treatment but were wrongly diagnosed were 36(72%). Out of these 36 patients; 12(24%) patients were treated by the quacks, in 7(14%) the diagnosis was gastroenteritis, 11(22%) patients took antibiotics and analgesics from the start of the symptoms and in the remaining 6(12%) the presentation of the patients was not typical. 10(20%) patients were diagnosed as the case of acute appendicitis and were advised for appendicectomy but they refused.

The causes of delay are directly or indirectly due to ignorance and poor socioeconomic status of the patients because the literacy rate is low in the lower Punjab. Quackery is quite a common practice. Most of the patients are treated initially by the quacks. This problem is not as in

other part of world as here in Pakistan especially in lower Punjab. Therefore causes of delay in present study are not same to the international studies. Patients who were diagnosed as case of gastroenteritis were 7(12%), all patients were below 10 years, i.e. 58%, according to the study conducted by Capendijk⁵ in Netherland about half of the patients present late because the initial diagnosis is gastroenteritis in the children. The patients with atypical history are mostly children and elderly.

In my study the patient which, presented with atypical history are 6(12%) out of these 3(25%) [3 out of 12 children] were less than the age of 10 years and 3(6%) were more than 40 years [3 out of 5 patients, 60%], a study done by Zachert⁶ and colleague the major factor that causes the delay in the presentation of patient.

11(22%) patients were given antibiotics and analgesics, which temporarily relieved the symptoms of the patients and patient did not consult the doctor again until some complication of the appendicitis developed, and the symptoms of the patient aggravated.

There were 10(20%) patients in whom the diagnosis was acute appendicitis and they were advised for surgery but patient refused to undergo surgery. This is also due to illiteracy, poor socioeconomic status and some special circumstances in this area.

It is observed in this study that rate of complications is different in different age groups. In our study the overall complication rate in children is 83%. In a study conducted Capendijk and his colleagues the complication rate is about 71% in patients in whom the diagnostic period is within 48 hours and 82% in patients who presented after 48 hours after the start of symptoms⁵.

In this study the complication rate in adults was 33%. In a study of 237 patients 127(59.4%) had non complicated appendicitis and 69(32.2%) had complicated appendicitis^{3,7}. In older age group the complication rate was 60%. In literature it is mentioned that in older age group the complication rate is 70-90%⁸. This is a significant difference, which is due to the very small sample size in this age group. Overall perforation rate in the cases presenting late is 30% in my study. In the literature the perforation rate mentioned in children is 60-80%^{5,8,9} and in adults is 30-50%^{9,10,11}.

The patients presented with appendicular mass were 2(4%) in my study. According to study conducted by Jamal A¹², on the average 48-72 hours after the starts of symptoms, patients may develop a mass in right iliac fossa. Its incidence is 2-6%^{12,13,14}.

The patients presented with appendicular abscess were 1(2%). A study conducted by Gofrit ON, Abu DK the formation of intraabdominal abscess is about 5.2%^{15,16,17}.

The rate of postoperative wound infection in my study was 5 (21.2% of complicated cases) patients of complicated appendicitis and 1 (4.9% of the uncomplicated cases) patient of uncomplicated appendicitis. According to literature it is 12% following

complicated appendicitis¹⁰. This difference is obviously due to less sterilization facilities in our hospital as compared to the other hospitals. The average duration of hospital stay in uncomplicated cases was about 3 days and in complicated cases it was about 6.5 days. In literature the average hospitals stay in uncomplicated was 2-5 days and in complicated cases it was 6-11 days^{3,18}.

Conclusion:

Most of the time, the delay in the presentation of patients is directly or indirectly related to the illiteracy and low socioeconomic status of the patient. Patients often become complicated before consulting a surgeon. The use of antibiotics and analgesics before final diagnosis also causes delay in its treatment.

The high rate of complicated appendicitis with its subsequent sequelae of increased morbidity is primarily the direct result of delay in seeking medical attention. Close observation of the patients and necessary investigations should be done until the diagnosis of acute appendicitis is ruled out.

References:

1. Awan My, Hamid A. The clinical profile of acute appendicitis In Childhood. *J Coll Physicians Surg Pak* 1991; 1(1); 38-42.
2. Hardin Dm. Acute appendicitis: Review and Update. *Am Fam Physician* 1999; 60(7): 2027-34.
3. Pittman Waller VA, Meyers JG, Stewart RM, Dent DJ, Page CP, Gray GA. Appendicitis: Why so complicated? Analysis of 5755 consecutive appendectomies.
4. Sahu Ma, Malik Gq, Khan Mi, Taseer Ih. Appendicular peritonitis. *Pak J Med Res* 1994.
5. Capendijk Vc, Hazebroek Fw. The impact of diagnostic delay on the course of acute appendicitis. *Arch Dis Child* 2000; 83(1): 64-6.
6. Zachert Hr, Meyer Hj. Acute appendicitis in advanced age. *Fortschr Med.* 1998; 116(9): 36-9.
7. Bergeron E, Richer B, Gharib R, Giard A. Appendicitis is a place for clinical judgement. *Am J Surg* 1999; 177(6): 460.
8. William N. Perforation rate relates to delayed presentation in childhood acute appendicitis. *J R Coll Surg Edinb* 1998; 43(2): 101
9. Huang Cb, Yu Hr, Hung Gc, Huang Sc, Chuang Jh. Clinical features of and outcome of appendicitis in children younger than three years of age. *Chang Gung Med J* 2001; 24(1): 27.
10. Kirby CP. Active Observation of children with possible appendicitis does not increase morbidity. *Anz J Surg* 2001; 71(7): 412-3.
11. Hsu Yp, Chen Rj, Fang Jf. Acute appendicitis during pregnancy: a clinical assessment. *Chang Gung Med J* 2001; 24(4): 245-50.
12. Jamal A. Appendix Mass: Aggressive surgical management. *Specialist Pj Med Sei* 1995; 12(1): 51-54.
13. Way Lw. Appendix. In: Way Lw. *Current surgical diagnosis and treatment*, 10th Ed. Norwalk: Appleton And Lag, 1993: 610-14.
14. Khan S, Abbas F. Normal appendices in patients operated for suspected acute appendicitis. *J S P* 1996; 1(1): 9-12.
15. Gofrit On, Abu Dalu L. Perforated Appendicitis in the child: contemporary experience. *Isr Med Assoc J* 2001; 3(4): 262.
16. Charlis V, Mann Rcg, Russel, Norman S. *Vermiform appendix: bailey and love's short practice of surgery* 22nd Ed. London: Chapman & Hall; 1995. 828-41.
17. Williamson Rcn. Appendicitis and abdominal abscess. In: Krik Rm. *General surgical operations* 3rd Ed. New York: Churchill Livingstone 1994: 251-58.
18. Young I, Moss Kw. Acute appendicitis in children in a community hospital: a five years review. *Alaska Med* 1997; 39(2): 34-42.