ATYPICAL PRESENTATION OF APPENDICITIS: DIAGNOSIS AND MANAGEMENT

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ABSTRACT

Objective — *To identify the patients with atypical features of acute appendicitis and to describe their management so as to avoid unnecessary delay in surgery.*

Study design — *Descriptive study.*

Place & Duration of study — *Surgical Unit V, Civil Hospital and two private hospitals at Karachi, from July 2005 to June 2007.*

Patients and Methods — *All patients who presented with right sided lower abdominal pain in whom provisional diagnosis of acute appendicitis made, were admitted for observation and further workup. The presenting symptoms, physical findings and total white count were entered on a proforma. Ultrasound, CT scan and laparoscopy were performed in atypical cases where available.*

Results — *A total of 318 patients were managed of whom 217 presented with classical features of appendicitis and 101patients had atypical presentation. Diagnostic accuracy of ultrasound was 85 %, CT scan 91% and laparoscopy 100%. One hundred & eighty patients had appendectomy in classical group and 80 patients in atypical group. Laparoscopic appendectomy was done in 26 patients. Nine patients required laparotomy.*

Conclusion — *Ultrasound, CT scan and laparoscopy play an important role in diagnosis and management of atypical cases of appendicitis.*

Key words — *Acute appendicitis, Atypical appendicitis, Laparoscopy.*

INTRODUCTION:

Acute appendicitis is one of the most common surgical emergencies encountered by general surgeons. When appendicitis manifests in its classic form, it is easily diagnosed and treated. Unfortunately, these classic symptoms occur in just over half of patients with acute appendicitis therefore, an accurate and timely diagnosis of atypical appendicitis remains clinically challenging and is one of the most commonly missed problems in the emergency department. Furthermore, the consequence of missing appendicitis, leading to perforation, significantly increases morbidity and prolongs hospitalization.[1]

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Atypical presentation of appendicitis may occur because of the position of the appendix, the age of the patient, or coexisting conditions such as pregnancy. In such cases the diagnosis may be particularly challenging. The position of the appendix as related to the caecum may also influence the clinical presentation and the differential diagnosis. When the inflamed appendix is in retroacecal and retroileal position it is shielded from the anterior abdominal wall by the overlying caecum and ileum. The pain, therefore, seems less severe. The classic shift of pain from the epigastrium to the right lower quadrant may not occur. Urinary frequency may result from direct irritation of the ureter. Muscular rigidity is absent and abdominal tenderness is minimal in these cases. With inflamed appendix in pelvic position, pain is often localized to the lower abdomen. The absence of abdominal signs can be deceiving, but tenderness is usually elicited on rectal examination.

Diagnosis of appendicitis in the elderly is often delayed. Even with advanced inflammation, pain may be minimal and fever is absent. Appendicitis in pregnancy is also difficult to diagnose. Patients usually seek obstetric advice for their symptoms. Area of maximal abdominal tenderness may be adjacent to the umbilicus or in the right subcostal area because of upward displacement of caecum.

In this era of ultrasonography, computed tomography and laparoscopy it appears logical to apply these diagnostic tools to assist the often puzzled clinician. Is it justified to incur more costs or expose patients to radiation just to diagnose acute appendicitis and are these tools really better than the hands of an experienced surgeon?[2] This remains debatable. The purpose of this study was to find out role of various diagnostic aids in cases of atypical appendicitis.

METHODOLOGY:

This was a prospective observational study conducted in surgical unit V Civil Hospital and two private hospitals in Karachi, from July 2005 to June 2007. All patients with right lower abdominal pain, admitted through outpatients / emergency, were included in the study. A specially designed performa was filled in for each patient. Assessment of patient was made by detailed history and physical examination. Baseline investigations were sent and patients prepared for exploration. Patients with atypical presentation were further evaluated, by ultrasound, CT scan and laparoscopy, according to availability of these facilities. Final diagnosis was made on operative findings and histopathological report. Patients managed conservatively were followed for six months.

RESULTS:

Out of 318 patients who were admitted with complaints of lower abdominal pain, 217 presented with classical symptoms and signs while 101 had atypical presentation. Nausea / vomiting, lower abdominal pain and tenderness were prominent features in atypical group (table I). Two hundred & seventeen patients under went appendectomy in classical presentation group, of whom thirty seven patients had final diagnosis different from acute appendicitis (table II).

Out of 101 patients with atypical presentation ultrasound, CT scan and laparascopy were carried out depending on the availability. Ultrasound confirmed diagnosis in 60 out of 82 patients and suggested alternative diagnosis in 12 cases. At operation 51 out of 60 had acute appendicitis with a diagnostic accuracy of 85%. CT scan was done in 14 patients. It confirmed diagnosis in 12 cases and provided an alternative diagnosis in 2 patients. At operation 11 out of 12 had appendicitis with a diagnostic accuracy of 91%. Laparoscopy was performed in 13 patients. In 10 patients with acute appendicitis, appendix was removed, 2 patients had mesenteric lymphadenitis and one patient had ruptured ovarian cyst (table III). Diagnostic accuracy of laparoscopy was 100%. Among the patients with atypical presentation 80 patients underwent appendectomy 70

Table I: Clinical Features in Patients With Atypical Presentation (n = 101)

Clinical features	No. of patients	Percentage
Nausea/vomiting	80	79.2
Lower abdominal pain	95	94
Guarding and tenderness	00	00
Rebound tenderness	00	00
Tenderness lower Abdomen	85	85
Fever	45	44.5

Table II: Final Diagnosis of Classical Presentation Group (n=217)

Clinical diagnosis	Males	Females
Appendicitis	108	72
Urinary tract infection	02	10
Gynaecological disorder	00	10
Ureteric calculus	03	00
Mesenteric adenitis	05	03
Parasitic Infestation	02	02

Table III: Diagnosis After Operation In Atypical Presentation (n =101)

Disease	No. of patients
Appendicitis	80
Ruptured ovarian cyst	05
Ruptured ectopic pregnancy	01
Primary peritonitis	02
Mesenteric adenitis	03
Urinary tract infection	03
Perforated Duodenal Ulcer	01
Non-specific abdominal pain	06

open and 10 had laparoscopic appendectomy. Nine patients had laparotomy for ruptured ovarian cyst, ruptured ectopic pregnancy, primary peritonitis and perforated duodenal ulcer.

DISCUSSION:

Physical examination and medical history remain the cornerstones of good clinical practice in patients presenting with acute abdominal pain localized in the right lower abdominal quadrant. White blood cell (WBC) count, erythrocyte sedimentation rate and sometimes serum C-reactive protein (CRP) may be helpful. Urinary sediment examination and a pregnancy test should be undertaken to exclude urinary tract infection, urolithiasis, and pregnancy where applicable. However, a recent report on the diagnostic value of medical history, clinical presentation and indices of inflammation, including CRP in a group of 496 patients with suspected appendicitis showed that none of the individual variables had sufficiently high discriminating power to be used as a diagnostic test.[3]

Computer aided decision making, scoring systems can be applied without special equipment and do not require new skills.[4] However, despite the reported excellent results, these systems are not routinely used.[5,6] Some studies reported even a negative effect of the introduction of such scoring systems. The value of preoperative ultrasonography has been shown in numerous studies. Puylaert et al showed a specificity of 100 per cent and a much lower sensitivity of 75 per cent for this technique.[7] In patients with perforated appendicitis sensitivity was notably low (28.5%). More recently, Allemann showed a specificity of 99% and sensitivity of 91% in patients with suspected appendicitis if the ultrasonography was undertaken by the attending surgeon.[8] However, Wise et al showed that ultrasonography has a high inter and intra-observer variability (kappa = 0.15-0.20 and 0.39-0.42, respectively).[9] In our study ultrasound accuracy was 85%. Prospective studies have shown excellent results, with an average sensitivity of 86% and a specificity of 94% under the conditions of well-controlled clinical trials, namely in the hands of experienced examiners.[10]

There is growing evidence that CT scan is superior to ultrasonography in diagnosing acute appendicitis.[9,11,13] Although CT has the disadvantage of exposing the patient to radiation, its consistent sensitivity and specificity of over 90% in many studies, and the low inter and intra-observer variability, have made it the optimal non-invasive diagnostic procedure in a patient with suspected appendicitis.[9,12,14,15] A recent trial by Rao et al demonstrated that routine appendiceal CT, undertaken in patients who present with suspected appendicitis, results in improved patient care and reduced use of hospital resources.[16] Limited number of CT scans performed in this study showed an accuracy of 91%. In well-conducted clinical trials, CT scans have excellent sensitivity and specificity, in the range of 87-100% and 91-97%, respectively.[12,16,17]

Early laparoscopy in patients with acute non-specific abdominal pain is associated with higher diagnostic accuracy and better quality of life than after close observation followed by surgical intervention, if signs of peritonism develop.[18] It has been shown that leaving an appendix that appears normal during laparoscopic inspection is safe.[19-21] Criteria for the diagnosis of appendicitis during laparoscopic inspection are the presence of unequivocal inflammatory changes, such as pus, fibrin, or vascular injection of the serosa. Rigidity and lack of mobility at manipulation are more uncertain signs of inflammation. Our study showed an accuracy of 100%.

CONCLUSIONS:

Slightly more than half of the patients presented with classic signs and symptoms of acute appendicitis. In atypical presentation judicial use of ultrasound, CT scan and diagnostic laparoscopy is warranted to decrease morbidity associated with acute appendicitis.

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