

ORIGINAL RESEARCH

A study on clinical profile patients with acute appendicitis admitted at a tertiary care hospital

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ABSTRACT

The lifetime rate of appendectomy is 12 % for men and 25 % for women, with approximately 7 % of all people undergoing appendectomy during their lifetime. It is most frequent in second to fourth decades of life, mean age 31.3 years and median age of 22 years. There is slight male:female preponderance (1.2 to 1.3:1). No definite hypothesis exists with regard to the etiology. Decreased dietary fiber and increased consumption of refined carbohydrates may be of importance. A total of 100 cases of suspected acute appendicitis who were admitted, investigated and treated were taken for the study. After detailed examination and investigations Appendicitis inflammatory Response Score was applied to each case. Every year an average of 300 patients of acute appendicitis get admitted and operated on. By stratified random sampling every 3rd patient was selected for the study. In this study, anorexia was the most common symptom, presenting in 99 individuals. Vomiting was present in 74 patients, pain in the right lower quadrant present in 96 patients. Guarding was present in 40 patients and leucocytosis present in 61 individuals.

Key words: Acute appendicitis, appendectomy, acute abdominal pain

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INTRODUCTION

Appendicitis is inflammation of appendix. It is the commonest cause of acute abdominal pain. Obstruction of the lumen being the root cause. The lifetime rate of appendectomy is 12% for men and 25% for women, with approximately 7% of all people undergoing appendectomy during their lifetime.

It is most frequent in second to fourth decades of life, mean age 31.3 years and median age of 22 years. There is slight male:female preponderance (1.2 to 1.3:1).

No definite hypothesis exists with regard to the etiology. Decreased dietary fiber and increased consumption of refined carbohydrates may be of importance^{1,2}.

Intestinal parasites, Pinworm in particular can proliferate in the appendix and occlude the lumen.

Luminal obstruction is the dominant cause in acute appendicitis. Fecoliths being most common cause. Others being, hypertrophy of lymphoid tissue, tumours, vegetable seeds, intestinal parasites.

There is a predictable sequelae of events leading to appendiceal rupture. The proximal obstruction of the appendiceal lumen produces a closed-loop obstruction with continuing secretion by the appendiceal mucosa producing distention. With the luminal capacity of the normal appendix being only 0.1 ml, secretion of as little as 0.5 ml of fluid distal to an obstruction raises the intraluminal pressure to 60 cm of water³.

Distention of the appendix stimulates nerve endings of visceral afferent stretch fibers, producing vague, dull, diffuse pain in the midabdomen or lower epigastrium. Peristalsis is also stimulated by the distention, so that cramping may be superimposed on the visceral pain early in the course of appendicitis. Distention continues. Distention of increasing magnitude usually causes reflex nausea and vomiting and the visceral pain becomes more severe and diffuse. As pressure in the organ increases, venous pressure is exceeded. Capillaries and venules are occluded, but arteriolar inflow continues, with resultant engorgement and vascular congestion. The inflammatory process then

involves the serosa of the appendix and in turn parietal peritoneum in the region, producing the characteristic shift in pain to the right lower quadrant⁴. As mucosa in GIT, including appendix is compromised of vascular supply, bacterial invasion occurs. The area with the poorest blood supply suffer the most. Ellipsoidal infarcts develop in the anti-mesenteric borders.

Perforation generally occurs just beyond the point of obstruction rather than at the tip because of the effect of diameter on intraluminal tension⁵.

This sequence is not inevitable, though some episodes of acute appendicitis subside spontaneously. Many patients who are found at operation to have acute appendicitis give a history of past, but less severe, attacks of right lower quadrant pain. Pathologic examination of the appendices removed from these patients often reveals thickening and scarring, suggesting old, healed, acute inflammation⁶.

METHODOLOGY

The study was conducted on the patients presenting with clinical features suggestive of acute appendicitis admitted in surgical wards.

INCLUSION CRITERIA

- Patients with provisional clinical diagnosis of acute appendicitis.

EXCLUSION CRITERIA

- Patients presenting with non-right iliac fossa pain and those who had been admitted by other

specialities for other complaints but subsequently developed right iliac fossa pain.

SAMPLE SIZE

A total of 100cases of suspected acute appendicitis who were admitted, investigated and treated were taken for the study. After detailed examination and investigations Appendicitis inflammatory Response Score was applied to each case.

Every year an average of 300 patients of acute appendicitis get admitted and operated on. By stratified random sampling every 3rd patient was selected for the study.

FOLLOWING DECISIONS WERE TAKEN

Cases with score of 1-4 were observed for development of acute appendicitis.

Cases with score of 5-8 were observed for next 24 hours, re-evaluated. If their clinical condition was highly suspicious of acute appendicitis as decided by treating surgeon they were subjected for appendicectomy.

If at any point, surgeon felt that on examination, clinical features were convincing enough to warrant surgery, then irrespective of the scores appendectomy were performed.

All patients who were considered for appendectomy underwent ultrasonography of abdomen to rule out other conditions mimicking acute appendicitis.

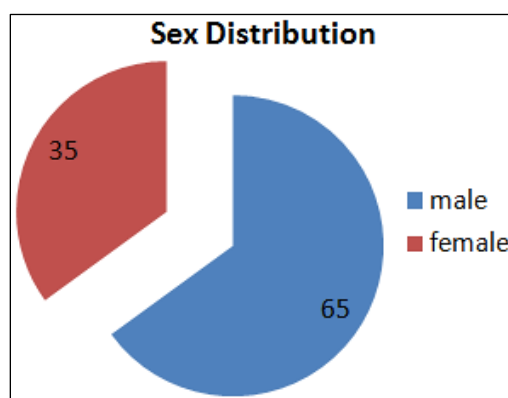
Scoring systems were compared with final Histopathology analysis report. Sensitivity, specificity, positive predictive value and negative predictive value were determined.

RESULTS

Table 1: Age &Sex Characteristics

Age	Female	Male	Total
<18 yrs	3	8	11
≥18 yrs	32	57	89
Total			100

In this study male patients (65) were more than female patients (35).



Red-Female.Blue-Male

Fig 1: Pie-graph representation of sex distribution in the present study

Table 2: Mean Age

Sex	Mean Age \pm SD	Range
Female	27.2 \pm 10.29	9 - 56 yrs
Male	29.8 \pm 14.09	11 - 72 yrs
Both	28.9 \pm 12.89	9 - 72 yrs

Mean age in females being 27.2 \pm 10.29 and in males 29.8 \pm 14.09, with range in both sexes being 9 to 72 yrs.

Table 3: USG Findings

AA	80
Normal or Probe Tenderness	20

Ultrasound could diagnose appendicitis in 80 patients.

Table 4: Frequency of S/S

SL. No.	S/S	No's
1.	Anorexia	99
2.	Vomiting	74
3.	Pain RLQ	96
4.	Migrating Pain	17
5.	R-Tenderness	75
6.	Guarding	40
7.	Leucocytosis	61

In this study, anorexia was the most common symptom, presenting in 99 individuals. Vomiting was present in 74 patients, pain in the right lower quadrant present in 96 patients. Guarding was present in 40 patients and leucocytosis present in 61 individuals.

DISCUSSION

The flora in normal appendix is similar to colon, with various facultative aerobes and anaerobic bacteria. Among patients with perforated appendicitis, peritoneal fluid cultures are more likely to be positive. The polymicrobial nature of perforated appendicitis is well established.

AEROBIC: E.coli-77%, Streptococcus viridians 43%.

ANEROBIC: Bacteroides fragilis 80%.

Pain is the primary symptom. Pain is initially centered around lower epigastrium or umbilical area, moderately severe and steady, sometimes superimposed by crampy abdominal pain. After period of 4-6 hours, pain is localized to right lower quadrant. In some patients pain begins in right lower quadrant and remains there⁷.

Variations in the anatomic location of the appendix account for varying principal loci of pain.

For example, a long appendix with the inflamed tip in the left lower quadrant causes pain in that area. A retrocecal appendix may cause flank or back pain; a pelvic appendix, may present as suprapubic pain⁸.

Anorexia nearly always accompanies appendicitis. Vomiting occurs in nearly 75% of patients, but is neither prominent nor prolonged. It is caused by both neural stimulation and ileus.

In >95% of patients with acute appendicitis, anorexia is the first symptom, followed by abdominal pain,

which is in turn followed by vomiting (if vomiting occurs). If vomiting precedes the onset of pain, the diagnosis of appendicitis should be questioned.

Physical findings are determined principally by anatomic position of the inflamed appendix is, whether the organ has already ruptured when the patient is first examined.

In uncomplicated appendicitis temperature elevation is rarely >1°C and the pulse rate is normal or slightly elevated. Greater changes indicate that a complication has occurred and/or another diagnosis should be considered⁹.

Classical physical signs are present when the inflamed appendix lies in the anterior position. Tenderness is maximal at or near the McBurney point. Direct rebound tenderness is present. In addition, referred or indirect rebound tenderness is present. This referred tenderness is felt maximally in the right lower quadrant, indicating localized peritoneal irritation.

Cutaneous hyperesthesia in the area supplied by the spinal nerves on the right at T10, T11 and T12 frequently accompanies acute appendicitis.

Muscular resistance to palpation of the abdominal wall parallels the severity of the inflammatory process. Early in the disease, resistance, if present, consists mainly of voluntary guarding. As peritoneal irritation progresses, muscle spasm increases and becomes largely involuntary, that is, true reflex rigidity due to contraction of muscles directly beneath the inflamed parietal peritoneum¹⁰.

CONCLUSION

- In a study of 100 patients of suspected cases of acute appendicitis, males comprised 65% and females 35%.
- Mean age in females being 27.2 \pm 10.29 and in males 29.8 \pm 14.09 years.

- Anorexia was the most common symptom followed by pain abdomen and vomiting.
- Histopathology which was the gold standard used in this study reported 89 cases as acute appendicitis and 11 cases as chronic appendicitis.

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