

STUDY OF DIFFERENT POSITIONS OF APPENDIX IN OPERATED CASES OF APPENDICITIS IN RURAL HOSPITAL AND ITS CLINICAL CORRELATION

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ABSTRACT

BACKGROUND

The relationship of the various positions of appendix to its clinical picture and course in the patient is a subject of controversy. The objective is to study the correlation between anatomical position of appendix and its varied clinical presentation and also to determine the frequency of different positions of appendix in operated cases of acute appendicitis.

MATERIALS AND METHODS

This study was conducted from Nov 2012 to April 2014 for a period of 16 months in MVJ Medical College and Research Hospital, Hoskote, Bangalore. There were 150 cases in the study, which were histopathologically positive for appendicitis.

RESULTS

There were total of 150 cases. The commonest position of the appendix is retrocaecal (67.3%) followed by pelvic (16%), preileal (7.3%), post-ileal (4.6%), paracaecal (2.6%), subcaecal (1.3%) and subhepatic (0.6%). Certain positions like fixed retrocaecal, pelvic and post-ileal presented more often atypically.

CONCLUSION

There is no increased predisposition for any of the position of the appendix to get inflamed. Complications were more common in cases fixed retrocaecal, post-ileal and pelvic appendix. The patients with the above positions presented more often atypically than typically and with subtle signs and symptoms leading to delayed diagnosis and increased complications.

KEYWORDS

Appendix, Retrocaecal, Tenderness, Right Iliac Fossa.

HOW TO CITE THIS ARTICLE: Sinha A, Cukkemane A, Saini V. Study of different positions of appendix in operated cases of appendicitis in rural hospital and its clinical correlation. J. Evid. Based Med. Healthc. 2017; 4(24), 1420-1424. DOI: 10.18410/jebmh/2017/276

BACKGROUND

Appendix is a common, sometimes confusing cause of acute abdomen at all ages. The diagnosis of appendicitis can be difficult, occasionally taxing the skills of the most experienced clinician. The variations in the positions of the appendix will lead to varied clinical presentation. The most common position of the appendix is variously described by many authors Wakeley et al as retrocaecal (65.3%).¹ Collins et al as pelvic (78.5%)² and Pickens G et al as post-ileal.³

Guidry SP et al have concluded that anatomic variations of the location of appendix are often responsible for delays in the diagnosis of appendicitis.⁴ Poole GV has stated that the paucity of symptoms and signs, inpatients with hidden appendix, is responsible for the delayed diagnosis of appendicitis before perforation.⁵ With the advent of

laparoscopic appendectomy there is a controversy as to which is the better approach, as most of the appendices can be removed with a small incision by the open approach.

Appendicitis in different positions may mimic various other diseases like in retrocaecal= colitis, Post-ileal= Ureteric colic, Pelvic= enteric ileal perforation, Pelvic inflammatory disease, Torsion of ovarian cyst, Ruptured tubal gestation, Subhepatic= Hepatitis, Biliary colic.

From the above information, it is evident that there are lots of controversies regarding the various positions of appendix and also clinical presentation of appendicitis in relation to different positions. Hence, there is a need for the study of the various positions of appendix and its clinical correlation.

Aims and Objectives of the Study

- To show the correlation between anatomical position of appendix and its varied clinical presentation.
- To determine the frequency of different positions of appendix in operated cases of acute appendicitis.

Financial or Other, Competing Interest: None.

Submission 28-02-2017, Peer Review 06-03-2017,

Acceptance 13-03-2017, Published 23-03-2017.

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DOI: 10.18410/jebmh/2017/276



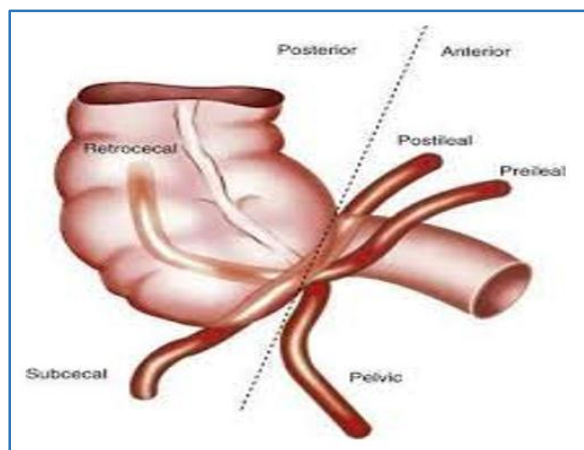


Figure 1. Different Positions of Appendix

MATERIALS AND METHODS

- Materials for this study was obtained from patients with a diagnosis of acute appendicitis and operated during the period from November 2014 to April 2016 in the Department of General Surgery, MVJMC and RH, Hoskote, Bangalore.
- All cases were subjected to clinical assessment using signs, symptoms and laboratory criteria and also the position of the appendix, which were recorded in the proforma.
- All patient were subjected to ultrasound examination by a qualified radiologist to exclude any other associated pathology and also to confirm the diagnosis in doubtful cases.
- After admission detailed history was taken regarding presenting complaints, their duration severity, sequence of onset of symptoms, mode of onset, progression, change in the pattern at the time of presentation and any atypical symptoms.
- A careful and detailed abdominal examination of each patient made including local temperature, guarding/rigidity site of maximum tenderness any swelling or mass formation, rebound tenderness, Rovsing's sign, Psoas sign, Obturator sign, Baldwin's sign and also per rectal examination is made to look for pelvic tenderness or mass formation.

Inclusion Criteria

Patients diagnosed as acute appendicitis and operated in the Department of General Surgery, MVJMC and RH, Hoskote, Bangalore.

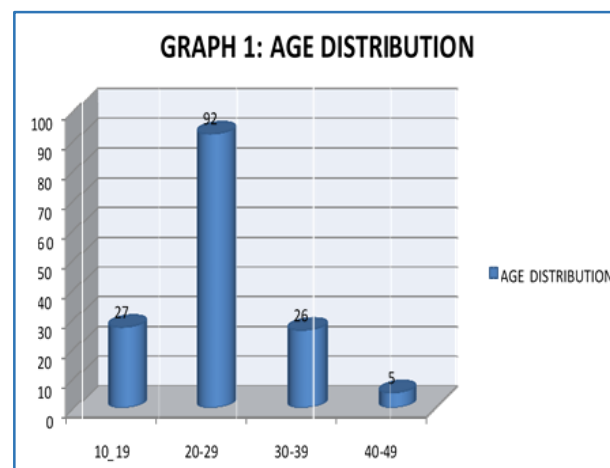
Exclusion Criteria

Cases operated for acute appendicitis, which turn out to be negative on histopathology.

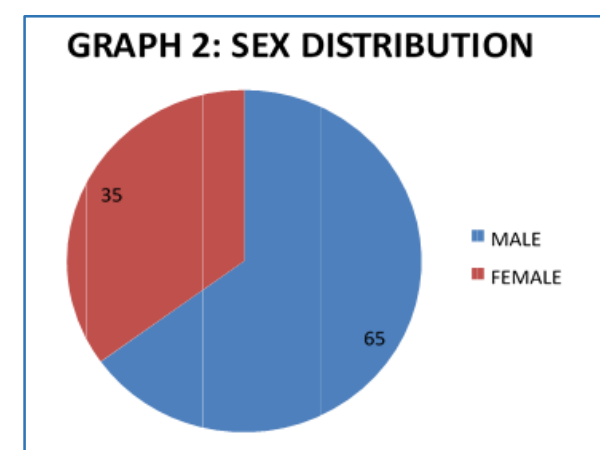
OBSERVATION AND RESULTS

The total numbers of cases studied are 150, which were histopathologically positive; hence, these represent the inflamed appendix. All the cases presented as acute appendicitis, which were either operated on emergency basis or electively depending upon the severity of inflammation.

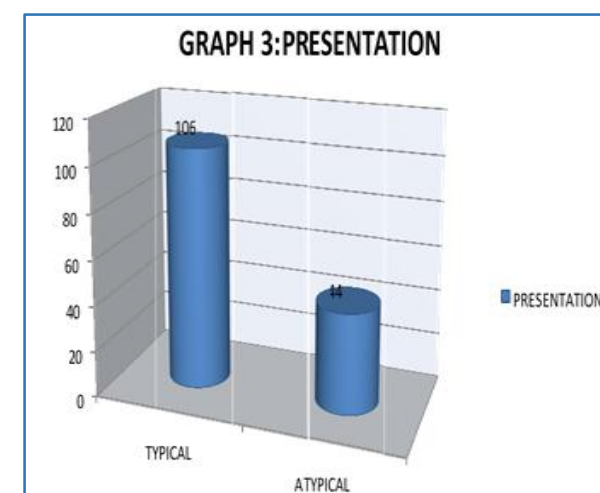
Age Distribution of Cases

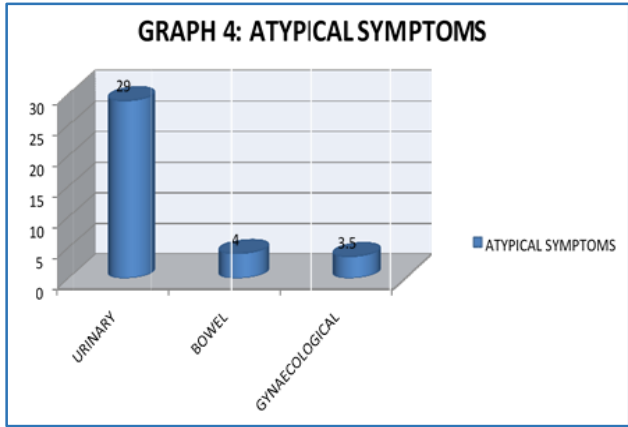


In our series, appendicitis was more common during 2nd decade (61%) followed by 3rd decade (18%). Appendicitis is slightly more common in males than females.

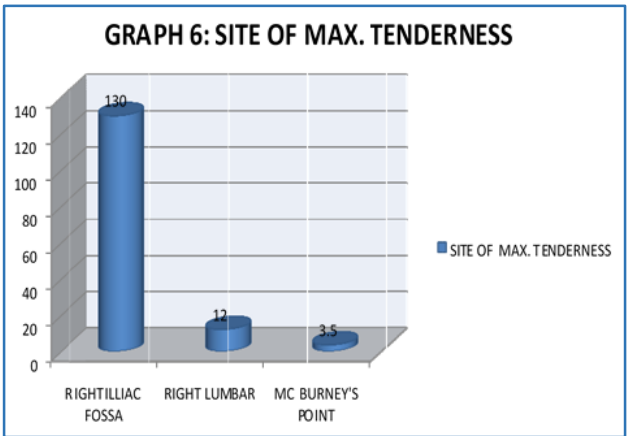
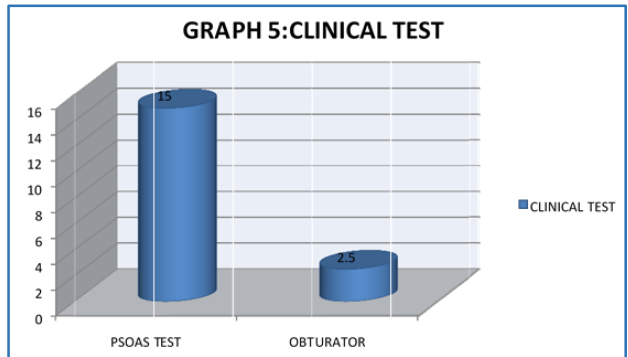


All the patients with acute appendicitis had pain and most of the patients had pain in right iliac fossa. Even though many of the patients presented with typical symptoms, 106 of the 150 cases (70.6%) the site of maximum pain is at right iliac fossa, only 9 cases had maximal pain at a site other than right iliac fossa.

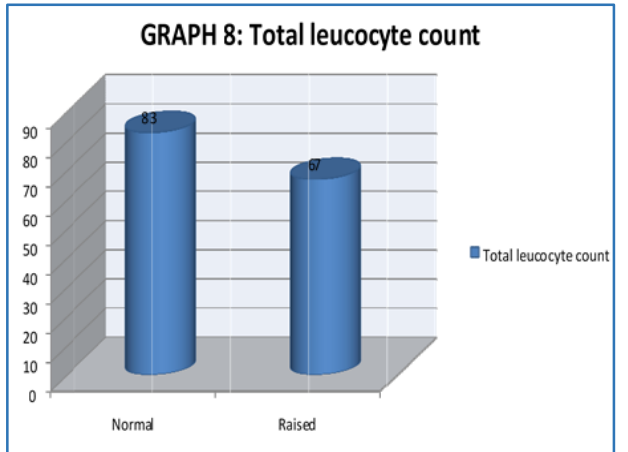
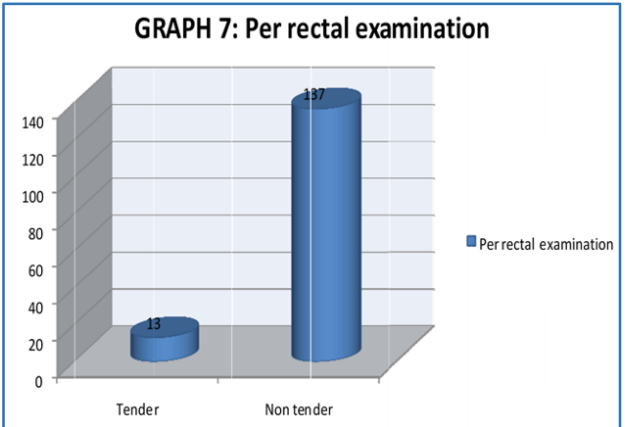




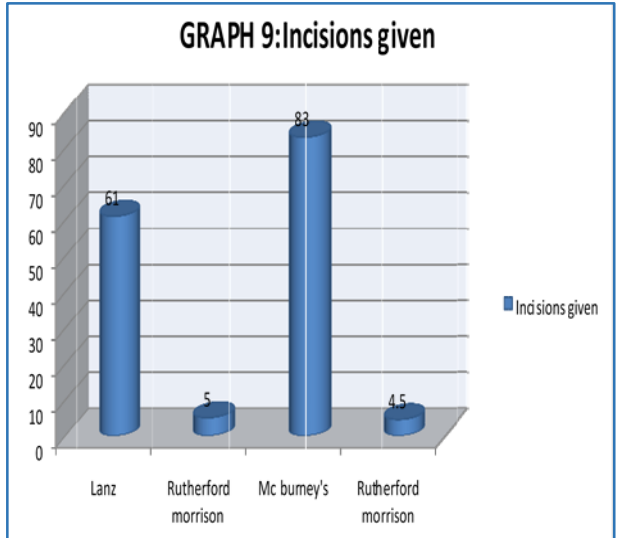
There is increased risk of complications in those with atypical presentation than those with typical presentation.



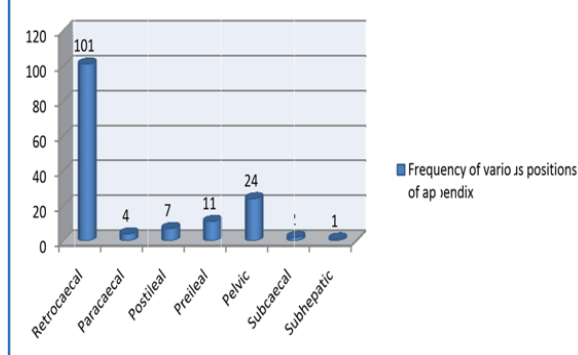
Tenderness in the right iliac fossa is a constant feature. In all the cases of appendicitis, the site of maximum tenderness was in right iliac fossa in 130 of 150 cases, even though few had tenderness at other site leading to difficulty in the diagnosis, only 20 cases had maximum tenderness at a site other than right iliac fossa.



Leucocytosis or neutrophilia was present in 67 of 150 cases. Rectal examination detects pelvic peritonitis or pelvic abscess in case of pelvic appendicitis. Rectal tenderness was present in 10 cases of pelvic appendicitis.



GRAPH 10: Frequency of various positions of appendix



There was preponderance of young patients in our survey, 119 cases (80%) were in the 10 - 29 years' age group. The position of the appendix was variable with the most common position being retrocaecal (67.3%).

The length of the appendix is also quite variable, the smallest in our series being 3 cm and the longest being 18 cm and the average of 8.70 cm. In our study females had a slightly longer appendix with an average of 9.10 cm and the males had smaller appendix with an average length of 8.55 cm.

The position of the appendix influences the clinical presentation of the appendicitis with the retrocaecal position (13 cases), post-ileal position (5 cases), pre-ileal position (5 cases) and the pelvic position (20 cases) in all the other positions (1 case) presenting with atypical symptoms.

These patients presented with flank pain and tenderness and also symptoms of the upper urinary tract infection in 29 cases of which 13 cases had retrocaecal, 15 cases had pelvic and 1 with subcaecal position of appendix (19.3%), bowel disturbance in 4 cases of which 2 cases had pelvic and 2 had post-ileal position or gynaecological symptoms in 2 cases of which 1 with retrocaecal and 1 with pelvic position of appendix (1.3%).

DISCUSSION

Our study found appendicitis to be more common in the second decade followed by the third decade 61% and 18% respectively. The average mean age of presentation is 25.1 years. Lewis et al (1975) in their study also found that the 2nd and 3rd decades to be the most common age groups for acute appendicitis.

The total no. of male patients were 98 and the total no. of female patients were 52. Men outnumbered women in our study. Men are believed to suffer from appendicitis more often, because probably the male is being subjected to more stress and strain as highlighted by Boyd (1961). Addis et al and Korner et al have reported a slight male preponderance (with male-to-female ratio of 1.2 to 1.3:1).

Fever is uncommonly encountered among patients in our study, being present in 46% of our patients; the fever was usually mild degree except in cases of abscess. Berry et al in 1984 have in their analysis found that temperature elevation is rarely more than 10 C (1.80 F).

The position of the appendix and its relation to the clinical presentation and course of acute appendicitis has been a subject of controversy with various authors giving various results and conclusions.

Varshney et al⁶ have come to the conclusion that the retrocaecal position is less prone to infection. He hypothesised that the retrocaecal position of the appendix is advantageous, because gravity-aided drainage of the appendicular lumen may reduce the episodes of luminal obstruction which reduce the incidence of appendicitis. Shen GK et al⁷ and Williamson WA et al⁸ have established that the retrocaecal position does not alter the clinical course of appendicitis.

CONCLUSION

Appendicitis is commonest during the 2nd decade (61%), followed by the 3rd decade (18%).

Appendicitis is slightly more common in males than females.

Pain occurred in all patients. Typical pain (70% of cases) is more common than atypical pain (29% of cases) in acute appendicitis. Site of pain varies with position of the appendix. In pelvic appendix, patients had suprapubic pain in retrocaecal appendix, patient had pain in the right lumbar region or right flank, in subhepatic position the patients had pain in the right hypochondriac region. Atypical pain was more common in cases of post-ileal appendix and in cases of pelvic appendicitis.

Patients with post-ileal and pelvic appendix had some sort of bowel disturbance (constipation or diarrhoea).

Patients with retrocaecal appendix had symptoms of upper urinary tract infection due to irritation of the adjacent ureter and pelvic appendix had symptoms of lower urinary tract infection due to irritation of the adjacent bladder.

Anorexia (76% of cases) is most commonly seen in appendicitis, nausea (46% of cases) and vomiting (28% of cases) are seen less commonly.

Incidence and severity of vomiting is more in patients with complicated appendicitis as compared to simple acute appendicitis. Vomiting usually does not relieve pain.

Tenderness was present in all cases of acute appendicitis. Site of tenderness may vary and depends on the position of the appendix. In retrocaecal position, tenderness may be present in the right flank or in the right lumbar region, more so if the appendix is fixed either by the adhesions or because of its extra-peritoneal location (in these cases tenderness will be more in this region rather than right iliac fossa). In case of pelvic position, tenderness may be present in the suprapubic region or the patient may have rectal tenderness. In subhepatic position, patient may have tenderness in the right hypochondriac region.

Tenderness in the right lower quadrant and rebound tenderness were the most common signs (76% and 52% respectively).

Tenderness at the McBurney's point is present in only 8 patients, in all the other cases tenderness was either medial or lateral to the McBurney's point.

Psoas sign and Baldwin test though not consistently positive in all the cases of retrocaecal appendicitis, they are positive in most cases of fixed retrocaecal appendix.

Obturator test though not positive in all the cases of pelvic appendicitis, is positive in most of the complicated appendicitis.

Rectal examination detects pelvic peritonitis or pelvic abscess in case of pelvic appendicitis. Rectal tenderness was present in 10 cases of pelvic appendicitis.

Patients with mobile appendix presented with typical signs and symptoms, whereas those with fixed appendix either by inflammatory process or by its extra-peritoneal location mostly presented with atypical signs and symptoms.

The signs and symptoms are subtle or atypical in case of retrocaecal, post-ileal, pelvic appendicitis leading to increased risk of complications in cases of appendicitis in these positions.

Moderate leucocytosis with polymorphonuclear predominance usually accompanies acute appendicitis. A higher WBC count suggests complications. Leucocytosis was present in 45% of the cases.

The most common position at surgery was retrocaecal followed by pelvic, post-ileal, para-caecal and sub-caecal. There is no predisposition for any of the position of appendix to develop appendicitis. The length of the appendix is slightly more in females than males.

The patients with appendicular abscess who were operated had delayed recovery; in other patients there was

no difference in the post-operative recovery of the patients whether they were complicated or uncomplicated.

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