



ORIGINAL

PROF-611

# RETROCAECAECAL APPENDIX

## DR. MUHAMMAD AHMAD, MBBS

Registrar Surgical Unit III  
Bahawal Victoria Hospital  
Bahawalpur.

## DR. KHALID MAHMOOD GILL, MBBS

Postgraduate Resident Surgical Unit III  
Bahawal Victoria Hospital  
Bahawalpur.

## DR. IMTIAZ AHMAD, MBBS, FCPS

Senior Registrar Surgical Unit III  
Bahawal Victoria Hospital  
Bahawalpur.

### ABSTRACT

**O****BJECTIVE:** To study whether the different positions of appendix can affect its susceptibility to acute inflammation. **DESIGN:** Prospective study. **SETTING:** Surgical Unit III, Bahawal Victoria Hospital, Bahawalpur. **PERIOD:** 01.02.2000 to 30.10.2000. **SUBJECTS & METHODS:** 281 cases of acute appendicitis admitted and operated were studied. Position and condition of appendix were noted including inflamed/highly inflamed and normal. The incidence of hematuria/pyuria was also noted. **RESULTS:** The retrocaecal position was the commonest (79%) followed by pelvic position (14%). Out of 223 cases of retrocaecal appendix, only (7%) were normal whereas (21%) normal appendices were found in other than retrocaecal position. Advanced appendicitis was more common in retrocaecal position (22%, p-value <0.001) as compared to other positions (10%). There was a considerable overlap between the findings of advanced appendicitis & hematuria/pyuria especially in retrocaecal position (13%). **CONCLUSION:** The different positions of appendix present as the variety of signs & symptoms in acute appendicitis. Retrocaecal appendix, in addition to making the diagnosis of acute appendicitis more difficult, is also more prone to infection, perforation and gangrene.

**KEY WORDS:** Vermiform appendix, positions, relation to inflammation.

### INTRODUCTION

Appendectomy is one of the most commonly performed emergency procedure. The risk of developing acute appendicitis is maximal in childhood and declines with increasing age<sup>1</sup>. There is no increased risk in either sex and condition; though it seldom occur in patients below the age of 2 years and over 65 year<sup>2</sup>. One person in six or seven develops appendicitis at some time<sup>3</sup>. Any delay in the diagnosis and treatment can lead to increased rate of complications like perforation and

gangrene with significant morbidity and mortality<sup>3</sup>.

The appendix is attached at the point of convergence of three taenia coli of caecum on its posterolateral wall<sup>3</sup>. Like the hands of a clock, the appendix may be long or short and may occupy any position radially from its base<sup>3</sup>. In 15-20% of individuals, position of appendix is variable, depending upon the length and mobility of appendix and caecum. In pregnancy, enlarging uterus progressively displaces appendix upto the right hypochondrium<sup>1</sup>.

The classical study carried out by Wakely 10,000 cases showed that the commonest position was retrocaecal & retrocolic (65%) followed by pelvic position (31%)<sup>5</sup>.

It is possible that different anatomical positions of appendix might affect its susceptibility to inflammation.

This study was carried out in order to study the relationship between the anatomical position of appendix and the presence of acute inflammation.

## MATERIALS & METHODS

281 cases of acute appendicitis admitted and operated in Surgical Unit III of Bahawal Victoria Hospital, Bahawalpur from 01.02.2000 to 30.10.2000 were studied prospectively. Personal and clinical details were recorded. Patients were diagnosed according to history

and clinical examination. Various features were noted in every case. Position and condition of appendix on gross examination were noted separately (including inflamed/highly inflamed, advanced appendicitis and normal). In doubtful cases, histopathological examination of the appendix was also done. The findings of hematuria/pyuria were noted correspondingly along with the various presentations. Comparison of condition of appendices in various positions was done.

## RESULTS

Out of 281 cases, there were 165 male and 116 female patients (1.42:1.00), aged 6 years to 69 years (mean age 22.6 years). The incidence of various positions and its relation to hematuria/pyuria are shown in Table -I.

**Table-I. Comparison of various positions of appendix.**

Position of Appendix	Total Cases	Inflamed/Highly Inflamed	Advanced Appendicitis	Normal	Haematuria/Pyuria
Retrocaecal	223	159(71%)	49 (22%)	15(7%)	31 (14%)
Pelvic	40	28(70%)	4 (10%)	8(20%)	4(10%)
Paracaecal	9	6(67%)	1(11%)	2 (22%)	1 (11%)
Subcaecal	6	4(68%)	1(16%)	1(16%)	-
Post-ileal	2	1(50%)	-	1(50%)	-
Pre-ileal	1	1(50%)	-	-	-
Total	281	199(71%)	55 (19%)	27 (10%)	-

Retrocaecal position (79%) was the commonest followed by pelvic (14%). Out of 223 cases of retrocaecal appendix, 7% were normal while 21% of cases had normal appendix in other positions.

Advanced appendicitis (gangrenous/perforated) was more common in retrocaecal position (22%, p-value <0.001) as compared to other positions (10%). The incidence of hematuria/pyuria was greater in retrocaecal appendicitis (14%) than in appendicitis in other positions (p-value < 0.05).

There was a considerable overlap between the

findings of advanced appendicitis and hematuria/pyuria; in the retrocaecal group 29 patients (13%) showed both the features.

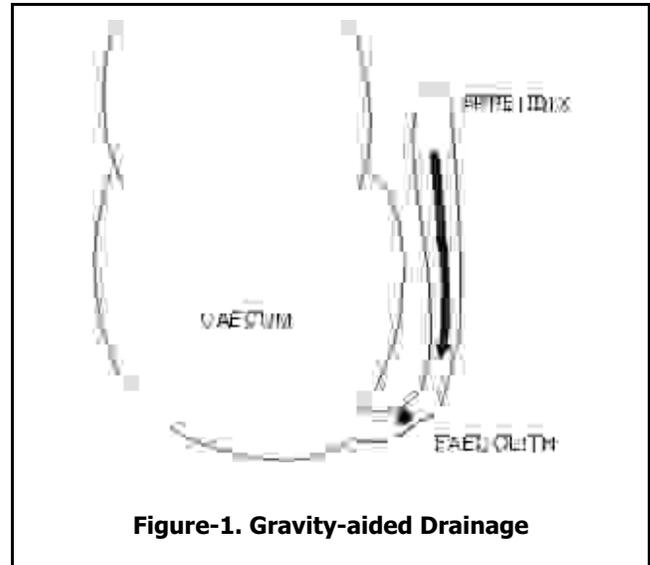
## DISCUSSION

Acute appendicitis is a common surgical emergency<sup>1</sup>. Atypical signs and symptoms are common. The diagnosis is generally based on history & clinical examination supported by hematological and USG examination. The different positions of appendix might be the reason for the

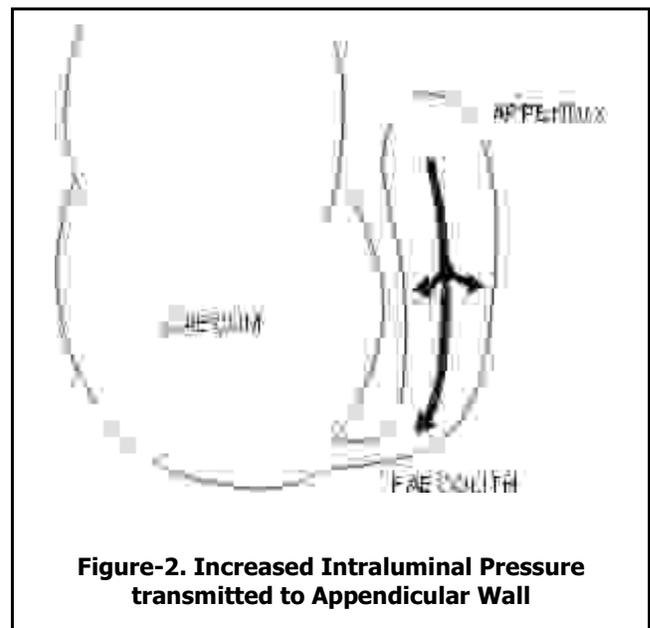
variety of signs and symptoms in acute appendicitis<sup>4</sup>. Although the incidence of acute appendicitis is particularly common in the highly advanced European, American and Australian countries while it is rare in Asiatics, Africans and Polynesians<sup>6</sup>. There is no such data available indicating that a particular position of appendix is common in a particular race or geographical area. Although a study carries out in UK by Varshney indicated that pelvic position was the commonest<sup>7</sup>. Advanced appendicitis was however more common in retrocaecal appendix<sup>7</sup>.

According to traditional teaching which is based on autopsy, the retrocaecal appendix is the most common<sup>5</sup>. This finding is also confirmed in surgical practices, as also seen in the present study. Several reports suggest that retrocaecal appendix is the commonest with an incidence between 45 & 65%<sup>8</sup>. No doubt, some early cases of retrocaecal appendicitis may present with hematuria/pyuria because of the inflammation/irritation of ureter lying nearby<sup>1</sup>. And some early cases of retrocaecal appendicitis may be treated by antibiotics after misdiagnosis as UTI.

This hypothesis is considered with the present observation of greater incidence of hematuria/pyuria in cases of advanced appendicitis (gangrenous/perforated) in retrocaecal position. In the pathogenesis of acute appendicitis, obstruction is an important factor<sup>9</sup> which is caused by the presence of faecoliths in more than 70% of patients<sup>2</sup>. The gravity-aided drainage of appendicular lumen may increase the episodes of luminal obstruction (Fig 1) and hence the increased intraluminal pressure is transmitted to appendicular wall which causes ischaemia and gangrene (and perforation) Fig. 2. This explains the increased incidence of advanced appendicitis in the present study.



**Figure-1. Gravity-aided Drainage**



**Figure-2. Increased Intraluminal Pressure transmitted to Appendicular Wall**

## CONCLUSION

It is concluded that retrocaecal is the commonest position of appendix, which makes the diagnosis of appendicitis more difficult, it is also more prone to infection, perforation and gangrene.

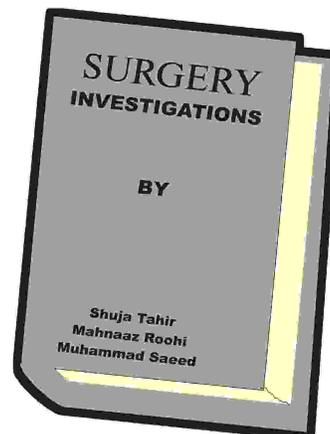
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