



A CLINICAL STUDY OF ACUTE APPENDICITIS WITH PREFERENCE TO PRESENTATION, TREATMENT AND FOLLOW-UP

Dr. K Visweswara Rao	Associate Professor Department of General Surgery Alluri Sitarama Raju Academy of Medical Sciences Eluru - 534005 West Godavari District, Andhra Pradesh, India
Dr. M. Sairam Prasad*	Associate Professor Department of General Surgery Alluri Sitarama Raju Academy of Medical Sciences Eluru - 534005 West Godavari District, Andhra Pradesh, India *Corresponding Author
Dr. G. Naveen Bharath	Postgraduate Department of General Surgery Alluri Sitarama Raju Academy of Medical Sciences Eluru - 534005 West Godavari District, Andhra Pradesh, India

ABSTRACT Acute appendicitis is the most common acute Surgical condition of the Abdomen. Approximately 7% of the population will have appendicitis in their life time. This paper aims to provide an over view of dealing with the overall spectrum of appendicitis encountered in ASRAMS, Eluru over a period of August 2011- August 2013 studies dealing with the overall spectrum of acute appendicitis were analyzed and for the clinical presentation, treatment and follow up.

AIM :

1. To analyze clinico pathological condition of acute appendicitis
2. To use ultra sound as a diagnostic tool and to provide definitive line of management in acute appendicitis and follow up

MATERIALS AND METHODS : During Two years study period we studied 100 Cases of acute appendicitis admitted in Alluri Sitarama Raju Academy of Medical Sciences, Eluru, A.P.

RESULTS : In this series of 100 cases, all the patients who presented with acute symptoms and diagnosed to have acute appendicitis were included in the study. In our series the male to female ratio was 1.7 : 1 the maximum incidence was found in the age group of 20 to 30 years. Post-operative morbidity is less in laparoscopic appendicectomy in comparison to open appendicectomy. Most common organism isolated from the appendix is E.coli

CONCLUSION :

Early diagnosis of acute appendicitis is mandatory for better outcome. Thus definitive line of management is appendicectomy

KEYWORDS : Appendicitis, Alvarado Score, Ultrasonography

INTRODUCTION :

The appendix a cul-de-sac is crudely referred as "worm of the bowel" in ancient medical books and also called as abdominal tonsil".

Acute appendicitis is the most common acute surgical condition of the abdomen. Approximately 7 percent of the population will have appendicitis in their life time, with the peak incidence occurring between 10 and 30 years. Despite technological advances, the diagnosis of appendicitis is still based primarily on the patient's history, physical examination, prompt diagnosis and surgical referral may reduce the risk of perforation and prevent complications. The mortality rate in non-perforated appendicitis is less than 1 percent, but it may be as high as 5 percent or more in young and elderly patients in whom the diagnosis may often be delayed thus making perforation more likely. Preoperative diagnosis of acute appendicitis is sometimes challenging in young women, children and aged despite all round improvements in medical field and ultrasonography. Diagnostic scores are useful easy methods, which help to reach in decision-making. Delay in diagnosis will lead to complication, which increases morbidity where as overzealous diagnosis may lead to negative appendicectomy rate.

This study involves to correlate clinically diagnosed acute appendicitis with ultrasound diagnosis, histopathology specimen and with an aim to decrease negative appendicectomy and regular follow up in patients admitted in Alluri Sitarama Raju Academy of Medical Sciences, Eluru, Andhra Pradesh during the period of August 2011 to August 2013.

AIMS AND OBJECTIVES :

The clinical study of acute appendicitis was conducted in ASRAM Medical College, Eluru comprising of 100 Cases of acute appendicitis cases collected from ASRAM Hospital was attached to Department General Surgery over a period of Two Years extending from August 2011 to August 2013 our aim and objectives of study is :

- To analyse Clinico-Pathological condition of Acute Appendicitis.
- To use Ultrasound as a diagnostic tool.
- To provide definitive line of management in Acute Appendicitis and follow up.

- To decrease the Negative Appendicectomy rate.

MATERIALS AND METHODS :

SOURCE OF DATA:

For the study, the patients admitted with Acute Appendicitis in Emergency and surgical wards, in all the units of Alluri Sitarama Raju Academy of Medical sciences, Eluru are included without bias on a serial basis.

This is a study comprising of 100 patients of suspected acute appendicitis over a period of two years (i.e. from August 2011 to August 2013). The patients on admission with suspected acute appendicitis were evaluated on the basis of Clinical findings, Alvarado Scoring System, Total counts, Ultrasound findings, Histopathology and were treated with an aim to decrease negative appendicectomy rate. Regular follow up was done.

Inclusion Criteria:

All patients who are coming to surgical OPD and emergency department at Alluri Sitarama Raju Academy of Medical Sciences, Eluru with Complaints of Acute pain in the right iliac fossa.

Exclusion Criteria:

All patients other than acute Appendicitis were excluded. A proforma was made for the study of these cases. The cases were subjected to a detailed clinical examination and essential investigations namely total white cell count and ultrasonography of abdomen.

Alvarado Score:

Symptoms :

Migratory RIF pain	: 1
Anorexia	: 1
Nausea/vomiting	: 1

Signs :

RIF tenderness : 2
 Rebound tenderness : 1
 Increase in temperature : 1

Lab findings :

Leucocytosis : 2
 Shift to the left : 1
 (Or positive ultrasound finding)

10

USG Criteria of Acute Appendicitis:

- Visualisation of appendix
- Diameter > 6mm
- Wall thickness > 3mm
- Complex mass (echo poor, asymmetric)
- Irregular asymmetry
- Loss of contour
- Free fluid
- Local adynamic ileus
- Graded tenderness over Mc Burney’s point.

Patients with score of 1- 4 are considered unlikely to have acute appendicitis, those with score of 5-6 possibly have, those with score of 7-8 probably have and those with score of 9-10 are considered to have definitive diagnosis.

Scoring System

1-4 - Appendicitis unlikely
 5-6 - Appendicitis possible
 7-8 - Appendicitis probable
 9-10 - Appendicitis definitive

Patients with score of > 7 are subjected to surgery. Operative and histopathological diagnoses of appendicitis are confirmed.

The cases subjected to emergency surgery are adequately prepared by parenteral fluids, electrolyte supplementation, administration of broad spectrum antibiotics intravenously (usually combination of Ceftriaxone 1gm 12th hourly + Metronidazole 500 mg 8th hourly).

Surgery was done under General and Spinal anesthesia. Open and laparoscopic appendicectomies were done. Post operatively patients were kept nil orally, till bowel sounds returned. Parenteral fluid, electrolytes, antibiotics and analgesics were continued. Cases were watched for any post operative complications and treated wherever needed and were followed for 6 months.

RESULTS

In this series of 100 cases, all the patients who presented with acute symptoms and diagnosed to have acute appendicitis were included in the study.

Table 1 : Age and Sex Incidence

Age Group (Years)	Sex	
	Male n = 63 (63%)	Female N = 37 (37%)
1-10	1 (1.5)	-
11-20	12 (19.0)	10 (27.0)
21-30	36 (57.1)	21 (56.7)
31-40	11 (17.4)	4 (10.8)
41-50	3 (4.7)	2 (5.4)

In our series the male to female ratio was 1.7 : 1

Clinical Symptoms:

1. Migratory RIF Pain:

In this study 59% of patients presented with pain around umbilicus, which later shifted to right iliac fossa.

1. Anorexia:

Anorexia, nearly always accompanies appendicitis. In this series 83% (83) of patients had anorexia.

2. Nausea or Vomiting:

The second commonest symptom was nausea in 76 patients and vomiting occurred initially with one or two bouts in 70 patients.

Physical Signs:

Majority of the patients presents within 24 hours after onset of pain with most of them presenting between 13-24 hours after the onset of pain.

Right Iliac Fossa Tenderness:

On clinical examination, tenderness in RIF or Mc Burney’s point with 100% was the most consistent feature.

Rebound Tenderness:

It was present in 41% (41) of the cases.

Increase in Temperature:

Low-grade fever was complained by 51% of the cases.

INVESTIGATIONS:

White blood cell count:

In our series, the total count of more than 10,000 was present in 56% of the patients.

Ultrasonography:

All cases were subjected to ultrasonography and high frequency probe was used in some cases. In 88% of the patients, it was seen as localized adynamic ileus.

Management:

Of the 100 cases, 90 have Alvarado score of > 7.

In the rest 10 cases, 4 were having score of 6, 3 were having score of 5, 3 were having score of 4. 10 patients with scores < 6 were treated conservatively.

54 patients were given Spinal Anesthesia and 36 were given General Anesthesia.

30 patients preferred Laparoscopic Appendicectomy ,

56 patients underwent Open Appendicectomy

4 patients underwent Laparotomy.

Incision:

The incision commonly employed was grid-iron incision and was extended whenever posed with difficulties. In one case, the appendix was normal and a Meckel’s diverticulum was present. Appendicectomy with excision of Meckel’s diverticulum was done. The position and condition of the appendix were noted

Position of Appendix:

Retocaecal.....54
 Pelvic.....24
 Subcaecal.....06
 Paracaecal.....04
 Preileal and post ileal.....02

The post operative complication in our series was, wound infection

with a percentage of 6.6% (6) patients, Paralytic Ileus in 7.7% (7), Post Operative Fever in 11.1% (10), Fistula – 0% (0)

Table 2: Histopathology Reports

Histopathology	No. of Patients n = 89	Percentage
Normal	6	6.74
Acute appendicitis	45	50.56
Acute suppurative appendicitis	30	33.7
Acute gangrenous appendicitis	5	5.61
Perforated Appendix	3	3.37

DISCUSSION

The discussion is based on the observations and analysis of the results in the study of 100 cases, with regard to incidence, age, sex, symptoms, signs, investigations operative findings, and histopathological examinations using Alvarado scoring system.

Age incidence

In the present study the common age group found was 20-30 year (66%)

SEX INCIDENCE:

It has been established beyond doubt by several authors, that male sex predominated over female in the incidence of acute appendicitis.

Symptoms and Signs.

PAIN:

Pain was a complaint in all the cases in this study. The initial location of pain in most of the cases, (59%) presented with pain around umbilicus followed by (41%) in the right lower quadrant and 93% of the patients lately presented with pain in the right iliac fossa, which adds a diagnostic point of acute appendicitis.

ANOREXIA:

Anorexia was present in 83% of patients in the present series. Anorexia nearly always accompanies appendicitis. Nausea was present in 76% of Cases and vomiting in 70% of cases in present series.

Right Iliac fossa tenderness:

Right iliac fossa tenderness was present in all the cases at the time of presentation, a major contribution for diagnosis of Acute Appendicitis. In the present series, in 41% of the cases, there was presence of rebound tenderness, and this is noted when there is local peritoneal involvement and it depends upon the time of presentation.

Fever:

Fever was present in 51 cases (51%) in present series. In majority of the cases fever was of low grade and continues. The incidence of fever in the literature and the present series is compared in the following tables.

Leucocyte count:

W.B.C. count more than 10,000 cells/ cumm was found in 54% of cases and in only 3% of cases it was raised above 20,000 Cells/ cumm.

Ultrasonography:

In the present series, visualization of appendix was only seen in 83% of the patients. The reasons is due to non availability of high frequency probe. In a study by Puylaert BCM. et al, 88.5% of the patients on ultrasound were reported with visualization of the appendix, in another study by Gallindo Galligo et al, 82% of the patients were reported with Visualization of appendix. In the present series, graded tenderness over the McBurney's point by transducer was 88%, which was a good diagnostic feature of acute appendicitis. According to Puylaert BCM et al, graded tenderness over the McBurney's by transducer was 89%. In the present series, 88% of patients are reported as local dynamic ileus in ultrasound. The raise of percentage may be due to other pathologies, which may also show ileus other than appendicitis. In the present series, 12% of the patients were reported with normal study on ultrasound and it has a role in excluding the diagnosis of acute appendicitis.

USG specificity and sensitivity in diagnosis of acute appendicitis:

In the present study, USG findings showed 88% sensitivity and 88% specificity in diagnosing acute appendicitis.

Alvarado Score:

In this series, 92% were Males and 86.4% were females with score ≥ 7 .

HISTOPATHOLOGY:

In the present series, 93.25% (83) of the patients are histopathologically confirmed and 6.74% (6) patients were reported to have normal appendix. To prove accuracy of scoring, ultrasound sensitivity and specificity, histopathological confirmation is needed.

NEGATIVE APPENDICECTOMY RATE:

The present study, shows a negative appendicectomy rate of 12.5% in females and 3.44% in males. In females, negative appendicectomy rate was high. This is probably due to pelvic inflammatory diseases, and ruptured follicular cysts. These conditions were not properly diagnosed on ultrasound and they mimic as acute appendicitis.

CONCLUSION :

The Alvarado scoring system combined with ultrasound, can therefore be used as a cheap and inexpensive way of confirming acute appendicitis, thus reducing negative appendicectomy rate.

History and clinical examination was more diagnostic. Ultrasonography increases the diagnostic accuracy in patients with suspected acute appendicitis to 90-95%.

Open appendicectomy can be performed more quickly and it costs less, but in laparoscopic appendicectomy there is decreased pain, low narcotic requirement, diagnosis of other conditions can be made out, reduced length of hospital stay, fewer wound infections and patients can return to work more quickly.

Negative appendicectomy is to be avoided when possible, due to the risk of surgical complications and cost associated with unnecessary surgery. When a normal appendix is discovered at appendicectomy, it is important to search for other possible causes of the patient symptoms.

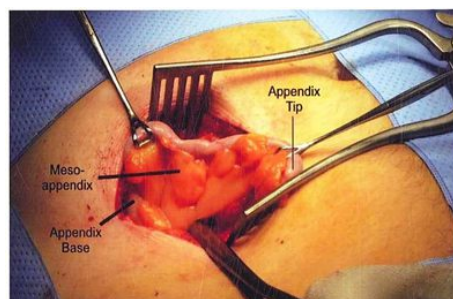


Fig 1 : Open Appendicectomy , Delivery of Appendix



Fig 2 : Laparoscopic Appendicectomy, Loop Application

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