

**ORIGINAL RESEARCH****A Study on Clinico Sonological Evaluation of Right Iliac Fossa Mass****Srikanth Jukuru<sup>1</sup>**<sup>1</sup>Assistant Professor, Department of General Surgery, Govt Medical College/General Hospital, Nalgonda, Telangana, India**ABSTRACT**

In this study group of 30 patients, eight were diagnosed with appendicular tumour, nine with appendicular abscess, five with ileocaecal Koch's, four with Carcinoma Caecum, and one with Crohn's disease. Appendicular Pathology accounts for 59% of cases appearing as a tumour in the right iliac fossa, followed by ileocaecal Koch's, Carcinoma Caecum, and Crohn's disease. This study found that appendicular mass is the most prevalent mass in the right iliac area and is best treated conservatively, resulting in a favourable response with no morbidity. All cases of ileo-caecal TB that were surgically treated showed a satisfactory response. Cases with Crohn's disease treated surgically and then followed on a medicinal regimen showed a positive response. In the event of a mass abdomen, ultrasound was found to have 89 percent sensitivity in recognizing the right iliac fossa mass, with accuracy; correct diagnosis was made in 89.3 percent and found to be superior to clinical evaluation 82 percent. Ultrasound is proven to be 89 percent sensitive in the final diagnosis. It has been demonstrated to be useful in distinguishing appendicular mass from appendicular abscess. This is a critical preoperative examination when the management strategy shifts from conservative to surgical. In our study, 20 patients underwent computerised tomography for further examination of a right iliac fossa mass in which ultrasonography was inconclusive. When compared to final diagnosis, CT was 94 percent sensitive in detecting the underlying pathology in elderly patients who cannot tolerate procedures such as colonoscopy, patients who are reluctant for radiation exposure (barium studies), and those who cannot afford CT scanning. In rural areas where CT scans are not available, ultrasound has a definitive role in the diagnosis of the right iliac fossa mass, in its pre-operative evaluation, and management.

**Keywords:** Appendicular Mass, Carcinomacaecum, Crohnsdisease, Iliacfossa, CT scan.

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**INTRODUCTION**

The abdomen has retained an element of curiosity over the years, providing an intriguing diagnostic challenge. The "Temple of Surprises," the "Tomb of Mysteries," the "Magic Box of Pandora"—all of these names accurately represent the riddle it has held for surgeons since antiquity. Surprisingly, despite advances in the field of diagnostics, surprises never cease. One of the most satisfying diagnostic procedures available to the surgeon is a careful examination of the abdomen. "A correct diagnosis is the foundation of a successful operation," as Sir Hamilton Bailey rightly stated. A bulge in the abdomen has long piqued the interest of medics. The majority of the cases in surgery include individuals who present with a mass per abdominal. In terms of incidence of mass per abdomen, the right iliac fossa takes first position among the several quadrants of the abdomen. Despite being a large subject, this study was performed to solve some of the mysteries surrounding a mass in the right iliac

fossa, the existence of which posed a diagnostic issue. In most cases, a clinical diagnosis is achievable; for example, a very brief history suggests an appendiceal mass, whereas a prolonged chronic history suggests either an inflammatory, such as ileocecal, or an inflammatory bowel illness, such as Crohn's. Loss of weight signals cancer cecum if it is combined with rectum bleeding. Aside from these, we can use relevant investigations to aid in making a definitive diagnosis and providing the best treatment to the patient. The goal of this study is to assess the right iliac fossa mass and the function of ultrasound in diagnosis and management, as well as to compare clinical and final diagnosis with ultrasound diagnosis. However, this study does not include masses in the right iliac fossa, which are common in female disorders admitted to and treated in gynaecological wards.

### **AIMS AND OBJECTIVES OF STUDY**

1. Clinical evaluation of the right iliac fossa mass.
2. Role of ultra sound in the diagnosis and management of right iliac fossa mass.
3. Comparison of clinical and final diagnosis with the ultra sound diagnosis

### **MATERIALS & METHODS**

This study is conducted in Govt Medical College/General Hospital, Nalgonda in the department of surgery which satisfy both the inclusion and exclusion from January 2021 to December 2021. The study involved 42 patients.

#### **Ethical consideration:**

The ethical committee of Govt Medical College/General Hospital, Suryapet approved this study; the cases were take nup for study on admission and after obtaining written consent after explaining them the nature of operation, type of anesthesia and the study being done.

#### **Inclusion criteria:**

1. It includes patients of age more than 18 years.
2. It includes patients who admitted with mass in the right iliac region.
3. It also includes the cases which were found accident lyon examination and investigations.

#### **Exclusion criteria:**

1. It excludes all gynecological conditions
2. It excludes the massen croaching in to right iliac fossa from other regions.
3. It excludes parietal walls welling so fright iliac fossa

#### **Method of collection of data:**

The included cases were subjected to

1. Detailed clinical history
2. Physical examination
3. Investigations
  - a) Blood and Urine routine
  - b) Stool for occult blood, ova and cyst
  - c) Plain X-ray of chest
  - d) Ultrasonography of right iliac region
  - e) CT-abdomen (as and when required)
  - f) Colonoscopy (as and when required)
  - g) MRI (as and when required)

#### **Investigations and interventions:**

1. Routine blood urine investigations (Hb%, RBS, CBC, ESR, Blood Urea, serum creatinine).
2. Stool for occult blood, ova and cyst
3. Sputum for AFB in case of ileocecal tuberculosis
4. Plain X-ray of chest to rule out tuberculosis and secondaries

5. Ultra sonography of right iliac fossa in all cases.
1. Colonoscopy done in cases suspected of ileocecal tuberculosis and carcinoma caecum.
2. CT-Abdomen in cases suspected of ileocecal tuberculosis and carcinoma caecum.
3. Surgical interventions done depending on the requirements for the case

### Methods

The cases having mass in the right iliac fossa were selected on sampling basis were admitted, investigated and undergone various treatment were evaluated. The cases were subjected to detailed history and complete physical examinations, laboratory investigations and ultrasonological studies were carried out.

#### Specific investigations ultrasonography

Equipment used 5-7.5 MHZ line array transducer used in our study.

**Technique:** the ultrasound transducer issued with graded compression technique and the right iliac fossa examined. This displaces bowel loop and compresses the caecum and facilitates good sonological view of right iliac fossa.

**Advantage;** it helps in the diagnosis of right iliac fossa about its origin, pathology, regarding the size, extension, content, bowel mass, abscess, lymph node etc.

#### Specific surgical interventions–

1. Emergency open appendectomy
2. Laparoscopic appendectomy
3. Interval appendectomy
4. Right hemicolectomy
5. Limited ileocecal resection
6. Incision and drainage.

## RESULTS

**Table1: Distribution of diseases**

Disease distribution	Number	Percentage
Appendicular mass	8	26.67%
Appendicular abscess	9	30 %
Appendicular mass+ Appendicular Abscess	3	10 %
Carcinoma caecum	4	13.33%
Crohns disease	1	3.33%
Ileocae caltuberculosis	5	16.66%
Grand Total	30	100.00%

**Table-2: Sex incidence**

Diagnosis	Females	Males	Grand Total
Appendicular mass	4	04	8
Appendicular abscess	2	6	8
Appendicular mass+Abscess	1	2	3
Carcinoma caecum	2	2	4
Crohns disease	0	1	1
Ileocecal Tuberculosis	2	4	6
Grand Total	11	19	30

**Table-3: Age incidence**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years

Appendicular mass	0.0%	14.0%	28.9%	28.6%	21.4%	7.1%
Appendicular abscess	9.1%	0.0%	18.0%	18.4%	18.2%	36.4%
AM+AA	0.0%	33.3%	33.3%	0.0%	33.3%	0.0%
ICTB	0.0%	12%	75.50%	0.0%	0.0%	12.5%
Cacaecum	0.0%	0.0%	0.0%	18.0%	40.0%	42.0%
Crohns disease	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%

**Table-4: Age distribution of appendicular mass**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
Appendicular mass	0.0%	14.5%	28.3%	28.6%	21.2%	7.5%

In case of Appendicular Mass, The high estincidence 57.2% was observed between the age 30-49 Yrs and lowest incidence of 7.1% in the age group of 60-70 Yrs.

**Table-5: Age Distribution of Appendicular Abscess**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
Appendicular abscess	9.2%	0.0%	18.1%	18.1%	18.4%	36.3%

In case of Appendicular Abscess, The highest incidence 36.4% was observed between the age 60-70 Yrs and lowest incidence of 9.1% in the age group of 10-19 Yrs.

**Table-6: Age Distribution of both Appendicular Mass and Abscess**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
AM+AA	0.0%	33.3%	33.3%	0.0%	33.3%	0.0%

In case of Appendicular Mass with abscess, the high estinc idence 33.3% was observed in the age groups 20-29 Yrs, 30-39 Yrs and 50-59Yrs.

**Table-7: Age Distribution of Ileocaecal Tuberculosis**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
ICTB	0.0%	12.2%	75.3%	0.0%	0.0%	12.5%

In case of Ileocaecal Tuberculosis, the high estinc idence was 75% was observed in the age groups 30-39 Yrs and lowest incidence of 12.5% in 60-70 Yrs.

**Table-8: Age Distribution of Cacaecum**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
Cacaecum	0.0%	0.0%	0.0%	18.0%	42.0%	40.0%

In case of CACAECUM, The high estinc idence 42 % was observed in the age groups of 50-70 Yrs and lowest incidence 16% in age group of 40-49 Yrs.

**Table-9: Age Distribution of Crohns Disease**

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
Crohns Disease	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%

In our study, we had only one male patient with Crohns disease of age 46 Yrs.

The mean age of the study sample was 4±11.8 years.

The highest age was 58 years and the youngest was 30 years.

In our study population the number of male patients was 28 (67%) and the number of female patients was 14 (33%).

In our study population the most predominant symptom was pain abdomen followed by fever and vomiting seen in 25 patients each (59.52%) followed by loss of appetite for 13 patients (30.95%), loss of weight in 8 patients (19.05%), diarrhea in 6 patients (14.29%) and alternating diarrhea and constipation in 4 patients (9.52%).

In our study, 25patients (60%) had normal pulse rate and 17 patients (40%) had tachycardia.

**Table-10: Disease Distribution Based on Clinical Diagnosis:**

Appendicular mass	26	86.67%
Ileocaecal tuberculosis	4	13.37 %
Total	30	100%

In our study total number of appendicular masses was 39 cases (93%) and ileocaecal tuberculosis were 3 cases (7%).

**Table-11: Disease Distribution Based on Ultrasound Diagnosis**

Normal study	1	3.3%
Appendicular mass	10	33.33%
Appendicular abscess	7	23.34 %
Appendicular mass+appendicular abscess	1	3.2%
Ileocaecaltb	4	13.34%
Cacaecum	2	6.6 %
Crohns disease	1	3.3 %
Inflammation, dilated loops, stricture	4	13.33 %
Total	30	100%

In the ultrasonography, done for right iliac mass the number of patients with appendicular mass were 10(33.33%) and 7 patients with appendicular abscess (23.34 %), 4 patients with ileocecal tuberculosis (13.4%), 2 patients with Ca Caecum (6.6 %), 1 patient with crohns disease (3.3%%) and 1 patient with combined appendicular mass and appendicular abscess (3.3 %) and 4 patients with inflammation dilated loops and strictures (13.33 %) and 1 normal study (3.3 %).

**Table-12: Distribution of Disease Based on Diagnosis:**

In our study, CT has been done only in 18 patients, for further evaluation of the right iliac fossa mass which were inconclusive in ultrasound.

	CT Diagnosis	Percentage
Normal study	1	5.55%
Appendicular mass	1	5.55%

Appendicular abscess	4	22.22%
ICTB	6	33.34%
Cacaecum	4	22.22%
Crohns disease	1	5.55%
Dilloops, inflammation, stricture	1	5.55%
Total	18	100%

In the 20 patients, in which CT has been done it was detected that the number of patients with ICTB was 6 (33.34%), patients with appendicular abscess was 4 (22.22 %), Ca Caecum 4 patients (22.22%), Crohns disease 1 patient (5.55%), appendicular mass 1 patient (5.55%), inflammation dilated loops and strictures 1 patient (5.55%) and 1 patient with normal study (5.55 %).

**Table-13: Distribution of Diseases Based on Final Diagnosis**

	Final Diagnosis	Percentage
Appendicular mass	14	46.67%
Appendicular abscess	11	36.66%
AM+AA	03	10.0 %
ICTB	08	26.66 %
Cacaecum	05	16.66 %
Crohns disease	01	3.33%
Total	30	100%

In the final diagnosis, it was found that 14 patients had appendicular mass (46.67 %), 11 patients had appendicular abscess (36.67%), 8 patients had ileocaecal tuberculosis (26.66%), 5 patients had CaCaecum (16.66%), 5 patients had combined appendicular abscess with appendicular mass (16.67 %) and 1 patient had crohns disease (3.33%).

#### Clinical diagnosis vs final diagnosis-

Clinical diagnosis of appendicular mass and ileocaecal tuberculosis correlated significantly with final diagnosis ( $\chi^2=13.7, p=0.02$ )

**Table-14: Clinical Diagnosis Vs Final Diagnosis**

	Appendicular mass	Appendicular abscess	AM + AA	ICTB	Cacaecum	Crohns disease	Chisquar, pvalue
Appendicular mass	14(46.67)	11(36.67)	3(10)	5(16.6)	5(16.6)	1(2.6)	13.7,0.02
ICTB	0	0	0	3(10.0)	0	0	

#### Clinical diagnosis vs final diagnosis

The sensitivity of clinical diagnosis with final diagnosis was 82% with 95% CI between 55 to 95%. The specificity was zero. Positive predictive value or true positive was only 35.8%.

**Table-15: Sensitivity of clinical diagnosis vs. Final diagnosis**

	Condition		Totals
	Absent	Present	

Test Positive	25	14	39
Test Negative	0	3	3
Totals	25	17	30

**Table-16: CT diagnosis with final diagnosis**

There was a significant correlation between CT diagnosis with final diagnosis for appendicular mass, appendicular abscess, ileocaecal tuberculosis, Ca Caecum and Crohns disease ( $\chi^2=70.7, p<0.001$ ).

	Appendicu LarmASS	Appendicu LarabsceSS	ICTB	CA Caecum	Crohns disease	Chisquare,p value
Normal study	1(100%)	0.00%	0.00%	0.00%	0.00%	70.7, p<0.001
Appendicular mass	1(100%)	0.00%	0.00%	0.00%	0.00%	
Appendicular Abscess	1(20%)	4(80%)	0.00%	0.00%	0.00%	
ICTB	0.00%	0.00%	7(100%)	0.00%	0.00%	
Caecum	0.00%	0.00%	0.00%	4(100%)	0.00%	
Crohns Disease	0.00%	0.00%	0.00%	0.00%	1 (100%)	
Inflammation stricture, Dilloops	0.00%	0.00%	0.00%	1(100%)	0.00%	

## DISCUSSION

### Appendicular mass

Common disease in our study accounting for about 08 cases (26.67 %). 5 patients were males and 3 patients were females M:F Ratio is 1.8:1 Maximum number of cases were between 30-39 yrs. Clinical presentation of pain abdomen in all 08 cases(100%) and fever in 59.0% and loss of appetite in 30.95% and altered bowel habits in 9.72% were observed. There were 9 males and 5 females with ratio 1.8:1 showing male predominance the other series Erikskubokristensen,<sup>[4]</sup> and Jordan J. Setal also showed male predominance.

### Appendicular abscess

Second most common disease in our study accounts for about 9 cases (30 %) 6 patients were males and 3 patients were females M:F Ratio is 2:1 Maximum no of cases were between the age group 60-70 yrs (36.4%) In a study conducted by junior sundresh,<sup>[5]</sup> et al dept of general surgery RMMCH Annamalai Nagar between 2000-2002 showed the incidence of appendicular abscessis 18% and Male:female ratio=1.25:1 showing male predominance. Major symptoms being pain abdomen, fever, vomiting and anorexia of one week duration. Ultrasound helped in diagnosing all the clinical suspected cases of appendicular abscess and in patients who earlier on conservative management who later had developed an abscess. S.Nitecki,<sup>[6]</sup> suggested that contrast enhanced CT is more reliable method in differentiating appendicular phlegmon from appendicular abscess.

### Ileocecal Tuberculosis

Ileocaecal tuberculosis accounts for about 5 cases (16 %). 5 patients were males and 2 patients were females. maximum number of patients were between the age group 30-39 yrs (75%). Male:Female Ratio was 3:2.

### **Carcinomacecum**

Carcinomacecum accounts for about 4 cases (13.33%). 3 patients were male and 1 patient was female. Younger patient was between age group 40-50 years. Older patient was between age group 60-70 years. Male: female Ratio=3:1.

In a clinical study conducted by Joseph F Philadelphia involving 29 patients of carcinomacecum, the mean age of the patient was 61 years, male to female ratio was 1:2.2, and mean duration of symptoms was 1 year.

In one more clinical study conducted by John Hopkins involving 28 patients the mean age was 61 years, the ratio of male to female was 1.3:1 and the mean duration was 7 and half months.

In a review of Scott and White records, there were records of 62 patients with histological confirmed diagnosis of carcinoma cecum, out of which 37 were males and 25 were females. The average age of diagnosis was 70 years.

### **CONCLUSION**

Ultrasound assisted in the early assessment of the patient, the success of treatment in terms of reducing morbidity, early surgical intervention when necessary, and the reduction of the length of hospital stay and the expense of the therapy, among other things. With good results, ultrasound is an ideal first-line investigative modality in the pre-operative evaluation of right iliac fossa mass because it is cost-effective, non-invasive, and patient-friendly. It can be performed in the outpatient setting without any preparation and without any exposure to radiation.

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