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Clinico sonological evaluation of right iliac fossa mass

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Abstract

Back ground and Objectives: Mass in the abdomen, by reason of their wide spread implications, has since long exercised the minds of many workers. Mass in the right iliac fossa is not an uncommon entity. The temple of surprises, pandoras box- hackeened phraseology is apt in case of mass In the right iliac fossa.

This challenging task of recognising certain well defined clinicopathological aspects of mass in the right iliac fossa has stimulated in undertaking this study. Ultrasound is quick, non invasive and has bridged the gap between palpation and direct visualization. In this common clinical condition often disparity between clinical, ultrasound, and final diagnosis. The role of ultrasound in evaluation is necessary as some require emergency surgical intervention and some improve with conservative management.

Materials and Methods: Retrospective study of 42 patients presented with clinical diagnosis of right iliac fossa mass were selected. Pediatric age group, gynaecological conditions, and parietal wall swellings were excluded. In these cases ultrasound examination by 5 and 7.5 Mh ransducers were used and clinical, ultrasound and final diagnosis ware compared.

Results: Appendicular mass constituted 14 cases (33%), appendicular abscess 11cases (26%) leocaecal tuberculosis 8 cases (19%) carcinoma cecum 5 cases (12%) and crohn's disease 1 case (3%). Appendicular mass common in the age group 30-39 years, appendicular abscess in 60- 70 years, Ileocecal tuberculosis in 30-39 years, carcinoma caecum in > 40years, and 1 case of crohns disease between 40-49 years. Ultrasound was able to diagnose appendicular abscess which were clinically diagnosed as appendicular mass. ultrasound was able to find out the bowel thickening with target sign and pseudo kidney sign in Ileocecal tuberculosis. and Carcinoma cecum with moderate specificity.

Conclusion: Appendicular pathology constituted 59% cases. it was able to detect appendicular abscess with high sensitivity and specificity. It helped in early assessment and early intervention of the required, reduces the cost and morbidity, It is an adjuvant diagnostic tool in cases of Ileocecal tuberculosis and carcinoma cecum. In the elderly who cannot withstand and in cases of misleading presentation it has a ole and it is really cost effective, non invasive procedure done in OPD set up without preparation with good result, is a first good line of investigation modality in right iliac ossa mass.

Keywords: appendicular mass, appendicular abscess, ileocecal tuberculosis, carcinomacecum, target sign, pseudo kidney sign

Introduction

Over the years, the abdomen has retained in element of fascination, offering an intriguing diagnostic challenge. The "Temple of surprises, the "tomb of mysteries", the "magic box of Pandora"- these various names precisely describe the enigma it holds for the surgeon from the ancient time till date. Despite the advancements in field of diagnosis surprises never cease. A meticulous examination of abdomen is one of the most rewarding diagnostic procedures available to the surgeon [1-5]. As rightly said by Sir Hamilton Bailey "A correct diagnosis is the maiden of a successful operation". A lump in the abdomen has always held a fascination for clinicians. The patients presenting with mass per abdomen from bulk of the cases in surgery.

Among the various quadrants of abdomen, the right iliac fossa enjoys the pride of place as far incidence of mass per abdomen is concerned. Although an extensive subject, this study was undertaken to unravel some of mystery of a mass in right iliac fossa, the very presence of mass proving a diagnostic problem. The clinical diagnosis is possible in most cases, example if a very short history it suggests appendiceal mass, while longer chronic history suggests either inflammatory like ileocecal or if associated with diarrhea and constipation suggest some inflammatory bowel disease like crohn's.

If associated with bleeding per rectum, loss of weight suggests carcinoma caecum. Apart these we can use appropriate investigations which will aid in reaching final diagnosis and giving best treatment to the patient [6-9].

The object of this study is to evaluate the right iliac fossa mass and the role of ultrasound in diagnosis and management, comparison of clinical and final diagnosis with the ultrasound diagnosis.

However this study does not represent masses in right iliac fossa as many diseases of females admitted and treated in gynecological wards.

Materials and Methods

This study is conducted in Kamineni institute of medical sciences & hospital, Hyderabad in the department of surgery who satisfy both the inclusion and exclusion from June 2020 to May 2021. The study involved 42 patients.

Ethical consideration

The ethical committee of Kamineni institute of medical sciences approved this study, the cases were taken up 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 accidentally on examination and investigations.

Exclusion criteria

1. It excludes all gynecological conditions
2. It excludes the mass encroaching into right iliac fossa from other regions.
3. It excludes parietal wall swellings of right 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

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. Ultrasonography of right iliac fossa in all cases.
 - Colonoscopy done in cases suspected of ileocecal tuberculosis and carcinoma caecum.
 - CT- Abdomen in cases suspected of ileocecal tuberculosis and carcinoma caecum.
 - 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 linear array transducer used in our study.

Technique: The ultrasound transducer is used 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 hemi colectomy
5. Limited ileocecal resection
6. Incision and drainage.

Results

Table 1: Distribution of diseases

Disease distribution	Number	Percentage
Appendicular mass	14	33%
Appendicular abscess	11	26%
Appendicular mass + appendicular abscess	3	7%
Carcinoma caecum	5	12%
Crohns disease	1	3%
Ileocaecal tuberculosis	8	19%
Grand Total	42	100.00%

Table 2: Sex incidence

Diagnosis	Females	Males	Grand total
Appendicular mass	5	09	14
Appendicular abscess	3	8	11
Appendicular mass + Abscess	1	2	3
Carcinoma caecum	2	3	5
Crohns disease	0	1	1
Ileocaecal Tuberculosis	3	5	8
Grand total	14	28	42

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%	14.3%	28.6%	28.6%	21.4%	7.1%
Appendicular abscess	9.1%	0.0%	18.2%	18.2%	18.2%	36.4%
AM+AA	0.0%	33.3%	33.3%	0.0%	33.3%	0.0%
ICTB	0.0%	12.5%	75.0%	0.0%	0.0%	12.5%
CA CAECUM	0.0%	0.0%	0.0%	20.0%	40.0%	40.0%
CROHNS DISEASE	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%

Appendicular mass

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%	14.3%	28.6%	28.6%	21.4%	7.1%

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

Appendicular abscess

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	9.1%	0.0%	18.2%	18.2%	18.2%	36.4%

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.

Appendicular mass + appendicular abscess

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 highest incidence 33.3% was observed in the age groups 20-29Yrs, 30-39Yrs and 50-59Yrs.

Ileocaecal tuberculosis

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%	12.5%	75.0%	0.0%	0.0%	12.5%

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

Table 8: Age distribution of CA caecum

Age Group	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-70 years
CA caecum	0.0%	0.0%	0.0%	20.0%	40.0%	40.0%

In case of CA CAECUM, The highest incidence 80% was observed in the age groups of 50- 70Yrs and lowest incidence 20% in age group of 40-49Yrs.

CROHN's disease

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 46Yrs. The mean age of the study sample was 43.9±13.8 years. The highest age was 58 years and the youngest was 30 years.

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

Symptoms

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

Table 10: Disease distribution based on clinical diagnosis

Appendicular mass	39	93%
Ileocaecal tuberculosis	3	7%
Total	42	100%

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

Table 11: Disease distribution based on ultrasound diagnosis

Normal study	1	2%
Appendicular mass	18	43%
Appendicular abscess	9	22%
Appendicular mass + appendicular abscess	1	2%
Ileocaecal TB	5	12%
Ca caecum	3	7%
Crohns disease	1	2%
Inflammation, dilated loops, stricture	4	10%
Total	42	100%

In the ultrasonography, done for right iliac mass the number of patients with appendicular mass were 18 (43%) and 9 patients with appendicular abscess (22%), 5 patients with ileocaecal tuberculosis (12%), 3 patients with Ca Caecum (12%), 1 patient with crohns disease (2%) and 1 patient with combined appendicular mass and appendicular abscess (2%) and 4 patients with inflammation dilated loops and strictures (10%) and 1 normal study (2%). In our study, CT has been done only in 20 patients, for further evaluation of the right iliac fossa mass which were inconclusive in ultrasound.

Table 12: Distribution of disease based on CT diagnosis

	Ct diagnosis	percentage
normal study	1	5%
appendicular mass	1	5%
appendicular abscess	5	25%
Ictb	7	35%
Ca caecum	4	20%
Crohns disease	1	5%
dil loops, inflammation, stricture	1	5%
total	20	100%

In the 20 patients, in which CT has been done it was detected that the number of patients with ICTB was 7 (35%), patients with appendicular abscess was 5 (25%), Ca Caecum 4 patients

(20%), Crohns disease 1 patient (5%), appendicular mass 1 patient (5%), inflammation dilated loops and strictures 1 patient (5%) and 1 patient with normal study (5%).

Table 13: Ultrasound diagnosis with final diagnosis

Diagnosis (n=42)	AM (%)	AA (%)	AM + AA (%)	CA (%)	CROHNS (%)	ICTB (%)	Chi Sq p Value
Normal Study	1 (100)	0	0	0	0	0	119.5 P <0.001
Appendicular Mass	11 (61.11)	3 (16.7)	2 (11.1)	0	0	2 (11.1)	
Appendicular Abscess	0	8 (88.9)	0	1 (11.1)	0	0	
AM+AA	1 (100)	0	0	0	0	0	
ICTB	0	0	0	0	0	5 (100)	
CA CEACUM	0	0	0	3 (100)	0	0	
CROHNS	0	0	0	0	1 (100)	0	
Inflammation	1 (25)	0	1 (25)	1 (25)	0	1 (25)	

In the final diagnosis, it was found that 11 patients had appendicular mass (61.11%), 8 patients had appendicular abscess (88.9%).

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: Final Diagnosis

	Mass Present	Mass Absent
Mass Present	37	0
Mass Absent	5	0

In the present study, Sensitivity of USG was derived to be 89

Discussion

Appendicular mass

Common disease in our study accounting for about 14 cases (33%). 9 patients were males and 5 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 14 cases(100%) and fever in 59.2% and loss of appetite in 30.95% and altered bowel habits in 9.52% were observed.

There were 9 males and 5 females with ratio 1.8:1 showing male predominance the other series Erik skubo-kristensen [10] and Jordan J.S *et al* also showed male predominance.

Appendicular abscess

Second most common disease in our study accounts for about 11 cases (26%) 8 patients were males and 3 patients were females M:F Ratio is 2.6:1 Maximum no of cases were between the age group 60-70 yrs (36.4%) In a study conducted by junior sundresh [11] *et al* dept of general surgery RMMCH Annamalaiagar between 2000-2002 showed the incidence of appendicular abscess is 18% and Male: female ratio =1.25:1 showing male predominance. Major symptoms being pain abdomen, fever, vomiting and anorexia of mean duration 1 week.

Ultrasound helped in diagnosing all the clinical suspected cases of appendicular abscess and also in patients who earlier on conservative management who later had developed an abscess. S.Nitecki [12] suggested that contrast enhanced CT is more reliable method in differentiating appendicular phlegmon from appendicular abscess.

Ileocecal tuberculosis

Ileocaecal tuberculosis accounts for about 8 cases (19%). 5 patients were males and 3 patients were females. maximum number of patients were between the age group 30-39yrs (75%). Male: Female Ratio =1.6:1.

Carcinoma cecum

Carcinoma cecum accounts for about 5 cases (12%). 3 patients were males and 2 patients were females. younger patient was between age group 40-50 years. Older patient was between age group 60-70 years. Male: female Ratio=1.5:1

In a clinical study conducted by Joseph F Philadelphia involving 29 patients of carcinoma cecum, 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 histologically confirmed diagnosis of carcinoma cecum, out of which 37 were males and 25 were females. The average age of diagnosis was 70 years.

Conclusion

In this study group of 42 patients 14 were diagnosed as appendicular mass, 11 as appendicular abscess, 08 as ileocaecal Koch's, 5 as Carcinoma Caecum, and 1 case as crohns disease. Appendicular Pathology alone constitute 59% of the cases presenting as mass in the right iliac fossa, followed by ileocaecal Koch's, Carcinoma Caecum, and crohns disease. This study showed that appendicular mass is the commonest mass in the

right iliac region among all and is best to be treated conservatively, which showed good response without morbidity. All the cases of ileo-caecal tuberculosis, which were treated surgically showed good response. The cases of crohns disease treated surgically and continued on medical line of treatment showed good response. Ultrasound a quick and a safe first line of diagnostic tool in case of mass abdomen showed 89% sensitivity in identifying the right iliac fossa mass, with accuracy; correct diagnosis was made in 89.3% and found to be superior to the clinical assessment 82%.

With the final diagnosis ultrasound is found to be 89% sensitive. It is found to be helpful in differentiating appendicular mass from appendicular abscess. This is important pre-operative evaluation as the line of management changes from conservative line to surgical line.

It is an adjuvant investigating modality to the clinical diagnosis in differentiating ileo-caecal tuberculosis and Carcinoma Caecum. Though the Ultrasound can able to pick up the bowel wall thickening the specificity is moderate. In cases with vague presentation which are often misleading ultrasound has a role in identifying the origin of the mass, character and extension of the mass. This is an important aid to the diagnosis and pre operative evaluation of the mass.

In our study computerized tomography was done in 20 patients for further evaluation of right iliac fossa mass in which ultrasonography was inconclusive. CT compared to final diagnosis it was 94% sensitive in detecting the underlying pathology.

In elderly patients who cannot with stand procedures like colonoscopy, and patients who are not willing for radiation exposure (barium studies) and those who cannot afford for CT scanning and in rural areas where CT scan is not available ultrasound has a definitive role in diagnosis of the right iliac fossa mass, in its pre operative evaluation and management.

Ultrasound helped in early assessment of the patient, effectiveness of treatment in terms of reducing the morbidity, early surgical intervention whenever it was necessary, reduces the hospital stay and cost of the therapy. Ultrasound a economical, non invasive, patient friendly procedure, done in OPD set up without any preparation, without any exposure to radiation with good results is an ideal first line of investigating modality in pre operative evaluation of right iliac fossa mass.

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References

1. Dorlands Illustrated Medical Dictionary 38rd Edition.
2. Lee Me.Gregor's Synopsis of Surgical anatomy, 12th edition, Alexander lee Mc gregor, D.J. du Plesis.
3. Williams PL *et al.* Grays New York 38th edition
4. BD Chaurasia, Human anatomy 5th Edition 2.
5. Bailey and Love's Short practice of Surgery, 26th Edition, Norman. S. Williams, Christopher J.K. Bullstrode, p ronan,o Connell.
6. Sabiston textbook of Surgery 19th edition 2012, Courtney M. Townsend, R. Daniel Beauchamp, Mark Evers, Kenneth Mattox.
7. Schwartz's principles of Surgery 9th edition F Charles Brunicardi. Dana k Andersen.
8. Maingot's abdominal surgery 12th edition, Michael J. Zinner, Stanley W. Ashley.
9. Mastery of Surgery, 6thedition, Josef E Fischer, Daniel B

jones, frank B pomposelli, gilbert R upchurch.

10. Erik Skoubo-Kristen, Ivan Hvid. Appendicular mass- Results of conservative treatment, Denmark 1982, 584-587.
11. Juniorsundresh *et al.* Evaluation of Pathological nature of right iliac fossa mass and its management; Journal of biomed science research 1(1), 55-58.
12. Nitecki S, Assalia A, Schein M. contemporary Management of appendiceal mass, British Journal of Surgery 1993, 80.