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AN OVERVIEW OF RIGHT ILIAC FOSSA MASS IN VIMSAR, ODISHA – A HOSPITAL
BASED RETROSPECTIVE CLINICO-PATHOLOGICAL STUDY

¹Dr. Manabhanjan Bhimasingh Kanhar, ²Dr. Kumuda Bandhu Sahoo, ³Dr. Abinasha
Mohapatra*

¹Assistant Professor Department of General Surgery, S.C.B. Medical College, Cuttack, Odisha, India,
753007.

²Assistant Professor Department of Orthopedics, Veer Surendra Sai Institute of Medical Science And
Research(VIMSAR), Burla, Sambalpur, Odisha, India, 768017.

³Assistant Professor Department of General Surgery, Veer Surendra Sai Institute of Medical Science
And Research(VIMSAR), Burla, Sambalpur, Odisha, India, 768017.

Corresponding Author – Dr. Abinasha Mohapatra

Abstract

Background : Mass in the right iliac fossa is a common clinical entity encountered in surgical practice. It is one diagnosis that has a varied range of pathologies and fits in aptly to the description that the abdomen is a Pandora's box. The main intention of this study is to know the varying modes of presentation, different modalities of diagnosis, treatment and management of right iliac fossa mass and to identify factors which can help in better management of these cases. **Aim Of The Study :** To study various diseases which can present as mass in the right iliac fossa. **Methods:** Fifty patients presenting to the Department of General Surgery, VIMSAR, Sambalpur, Odisha between January 2022 and January 2023 with a clinical diagnosis of Right Iliac Fossa Mass were included in the study. A detailed clinical history was elicited and a careful general physical and systemic examination was carried out along with the necessary investigations. Appropriate management was done. Follow up period – 1 month. **Results:** The Data obtained in the study was analyzed, and it was found that the male to female ratio was 2.8:1. Most patients were of appendicular pathology. Appendicular mass was seen in 22 patients and appendicular abscess in 6 patients. Appendicular pathology was seen in younger age groups and Carcinoma caecum was common in older group. In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass. Carcinoma, caecum formed 16% of cases of present study. 75% cases were seen in the age group above 50 years and oldest patient of this study was aged 68 years. In present study 22% of cases of ileocaecal tuberculosis had associated pulmonary tuberculosis so patients with ileocaecal tuberculosis should be evaluated for chest symptoms and subjected for sputum AFB. Patients were also analyzed based on clinical parameters, few laboratory investigations and the mode of treatment.

Keywords: Carcinoma of the colon, Ileocaecal tuberculosis, Intussusception, Psoas abscess, Non – Hodgkins lymphoma

Introduction

Abdomen is divided into nine regions by two vertical lines passing through midclavicular lines superiorly and these lines extending inferiorly through midinguinal points and two horizontal lines namely transpyloric and transtubercular lines **(1)**. Thus right iliac fossa is the region in the right lateral side and lower most quadrant. Boundaries of this region are from superficial to deep by skin, subcutaneous tissue, external oblique aponeurosis, transverse abdominis muscle and internal oblique muscles anteriorly. Posterior boundary is formed by psoas and quadratus lumborum muscles and thoracolumbar fascia. Inferiorly bounded by posterior part of ilium and iliacus muscle **(2)**. Laterally it is bounded by external oblique, internal oblique, transverse abdominis and fascia transversalis. Structures normally present in the right iliac fossa are appendix, caecum, terminal ilium, part of ascending colon, iliac lymphnodes, iliac vessels, retroperitoneal connective tissue, iliopsoas muscle and sheath. Structures which can abnormally present in the region are unascended or dropped kidney, undescended testes, masses from uterus and its appendages, bladder, gall bladder, etc **(3)**. Appendix, caecum and terminal part of ilium form an important surgical anatomic composite. Mass in the abdomen, by reason of their wide spread implications, has since long inspired the minds of many workers **(4)**. Mass in the right iliac fossa is a common entity. Pandora's box-hackneyed phraseology is apt in case of mass in the right iliac fossa **(5)**. A thorough understanding of the anatomy and pathological processes that may occur within the abdomen are essential for an accurate diagnosis and management. Some patients will need immediate surgical intervention, whereas others will improve with conservative treatment. This challenging task of finding certain well defined clinicopathological aspects of mass in the right iliac fossa has inspired me in undertaking this study **(6)**. The purpose of the present study is to find certain well defined clinicopathological entities, in mass in the right iliac fossa, the relative occurrence of various pathologies, as seen.

Methods:

Fifty patients presenting to the Department of General Surgery, VIMSAR, Sambalpur, Odisha between January 2022 and January 2023 with a clinical diagnosis of Right Iliac Fossa Mass were included in the study. The patients are selected after they are diagnosed as having intra-abdominal mass in the right iliac fossa of various pathologies after careful history taking, thorough general and local examination and appropriate investigations. Female patients with pathologies related to uterus and its appendages were not included in this study. Similarly masses arising from anterior abdominal wall and bone were not included in this study. All clinical findings were recorded in the proforma case sheets. With each patient admitted with mass in the right iliac fossa, cordial interrogation session was held to obtain particulars of the disease. Detailed history was carefully elicited to chart out symptomatology. Patient was subjected to methodical physical examination to assess his general condition and to know the basic vital data on admission. Local examination of abdomen was done in a methodical way and relevant findings were recorded. Rectal examination was done in all cases, while per vaginal examination was also done in female patients. Systemic examination like respiratory system and cardiovascular system were done routinely. All relevant and routine investigations were done in these cases to establish the diagnosis. Ethical clearance has been obtained for the same. Patients were asked to present themselves for follow-

up after a specific interval or at recurrence of symptoms. Meanwhile all patients received supportive treatment aimed at correction dehydration, anaemia, vitamin and other nutritional deficiencies. (Antihelmenthics were given whenever indicated.) Respiratory and other injections were treated with appropriate antibiotics. Bowel preparation was done in all cases requiring exploratory laparotomy. During laparotomy, intra-abdominal examination of all organs was made in addition to specific pathology and specific surgery was done in each case. Postoperative follow-up was meticulously done, intake output charts and vital charts were maintained. They were given antibiotics, analgesics and sedatives if needed. Most of the operated patients had uneventful recovery. Drains were removed after 48 hours and sutures were removed on the 7th post- operative day.

Table 1: Incidence of Various Condition

Sl. No.	Diagnosis	No. of Cases	Percentage (%)
1	Appendicular Mass	22	44
2	Appendicular Abscess	6	12
3	Ileocaecal Tuberculosis	9	18
4	Carcinoma Caecum	8	16
5	Psoas Abscess	3	6
6	Others*	2	4

* Actinomycosis; Unascended kidney

Table :1 - In this study of 50 cases more than 50% of cases were related to appendicular pathology either in the form of appendicular mass or appendicular abscess. There were 9 cases of ileocaecal tuberculosis.

Table 2: Age Incidence

Sl. No	Diagnosis	No. of Cases	11-20 Years	21-30 Years	31-40 Years	41-50 Years	51-60 Years	61-70 Years
1	Appendicular Mass	22	6	8	4	1	2	1
2	Appendicular Abscess	6	1	1	3	0	0	1
3	Ileocaecal Tuberculosis	9	0	0	4	3	1	1
4	Carcinoma Caecum	8	0	1	0	1	5	1
5	Psoas Abscess	3	1	0	0	1	1	0
6	Others*	2	1	0	0	0	1	0
	TOTAL- 50	50	9	10	11	6	10	4

* Actinomycosis; Unascended kidney

Table :2 - In this study, youngest patient was of age 12 years, who presented with appendicular mass and the oldest was 68 years of age admitted with carcinoma of caecum. In this study appendicular mass manifested most commonly in 3rd decade (36%) and followed by 2nd decade (27%). Ileocaecal tuberculosis was common in the middle age group (i.e., 3rd and 4th decade) covering about 77% of cases. Carcinoma caecum was common in older age group (75%).

Table 3 : Sex Incidence

Sl. No	Diagnosis	Male		Female	
		No. of Cases	Percentage(%)	No. of Cases	Percentage(%)
1	Appendicular Mass	16	73	6	27
2	Appendicular Abscess	4	67	2	33
3	Ileocaecal Tuberculosis	8	89	1	11
4	Carcinoma Caecum	7	87	1	13
5	Psoas Abscess	2	75	1	25
6	Others*	1	50	1	50
	Total - 50	38	76	12	24

* Actinomycosis; Unascended kidney

Table :3 - In the present study, appendicular mass (73%), appendicular abscess (67%) were common in males. In ileocaecal tuberculosis incidence in males was almost 90%. In carcinoma of caecum the incidence again was more in males (7:1).

Table 4: Duration of Symptoms

Sl. No.	Diagnosis	No. of Cases	Duration			
			2-30 Days	1-3Months	3-6Months	>6 Months
1	Appendicular Mass	22	21	1	0	0
2	Appendicular Abscess	6	6	0	0	0
3	Ileocaecal Tuberculosis	9	2	5	0	2
4	Carcinoma Caecum	8	3	1	3	1
5	Psoas Abscess	3	0	2	0	1
6	Others*	2	1	1	0	0
	Total Percentage	50	66%	20%	6%	8%

* Actinomycosis; Unascended kidney

Table : 4 - In present study patients with appendicular mass presented with pain initially around umbilicus which later shifted to right iliac fossa. 95% of cases of appendicular mass presented within 30 days. Pain was colicky in nature and associated with vomiting. Some patients of ileocaecal tuberculosis presented with colicky abdominal pain and fullness in right iliac fossa. Some of them complained of constant dull pain in right iliac fossa interspersed with colicky abdominal pain 2-8 hours after taking food. Pain was relieved usually by passing stools. In this series 22% cases presented within 1 month, 55% cases presented between 1-3 months and another 22% presented after 6 months. In this series out of 8 cases of carcinoma caecum, 3 cases presented within 30 days, 1 case presented between 1-3 months, 3 cases presented between 3-6 months and at 1 case presented after 6 months. In this study retroperitoneal tumor, unascended kidney and actinomycosis were included in others group.2 cases of psoas abscess presented between 1-3 months associated with fever and fullness.

Table 5: Mass Abdomen (Symptom)

Sl. No.	Diagnosis	Complains		Percentage (%)
		Total no. of Cases	No. of Cases	
1	Appendicular Mass	22	1	4.5
2	Appendicular Abscess	6	2	33.3
3	Ileocaecal Tuberculosis	9	2	22.2
4	Carcinoma Caecum	8	6	75
5	Psoas Abscess	3	3	100
6	Others*	2	2	100
	Total Percentage	50	16	32

* Actinomycosis; Unascended kidney

Table :5 - In this series only 3 of appendicular mass and abscess presented with complaints of mass.22% of ileocaecal tuberculosis patients complained of mass, but 75% of carcinoma caecum presented with mass.100 % cases of psoas abscess complained of mass of the others group, actinomycosis and retroperitoneal tumor presented with mass in right iliac fossa.

Table 6: Symptoms

Sl. No.	Diagnosis	No. of Cases	Fever		Vomiting		Loss of Weight	
			No	%	No	%	No	%
1	Appendicular Mass	22	13	59	10	45	0	0
2	Appendicular Abscess	6	3	50	2	33	0	0
3	Ileocaecal Tuberculosis	9	8	89	3	33	4	44
4	Carcinoma Caecum	8	0	0	4	50	7	87
5	Psoas Abscess	3	2	100	0	0	1	50
6	Others*	2	1	33	1	33	0	0
	Total Percentage	50	27	54	20	40	12	24

* Actinomycosis; Unascended kidney

Table :6 - In this study 54% of appendicular mass presented with fever and 40% presented with vomiting. In cases of appendicular abscess 50% presented with fever and 33% presented with vomiting. Out of 9 cases of ileocaecal tuberculosis, 4 cases presented with fever, 3 cases with vomiting and 4 cases with loss of weight. In 8 cases of carcinoma caecum 4 cases gave history of occasional vomiting and almost all cases gave history of loss of weight. Out of 3 cases of psoas abscess 2 presented with fever.1 presented with vomiting.

Table 7: Clinical Findings

Sl. No.	Clinical Findings	No. of Cases	Percentage(%)
1	Tenderness	45	90
2	Consistency		
	Hard	9	18
	Firm	33	66
	Soft	8	16
3	Fixity	31	62

* Actinomycosis; Unascended kidney

Table :7 - In present study of 50 cases, 90% cases had tenderness in right iliac fossa. 9 patients had mass which was hard in consistency which included all the 8 cases of carcinoma caecum and 1 case of actinomycosis.66% of patients had mass which was firm in consistency which includes mostly cases of appendicular mass and ileocaecal tuberculosis. Remaining 16% cases had masses soft in consistency which included appendicular abscess and psoas abscess.31 of 50 cases presented with swelling which were fixed. In this group it included patients of carcinoma caecum, appendicular mass and few cases of ileocaecal tuberculosis.

Table 8: Haemoglobin Percentage

Sl. No.	Diagnosis	No. of Cases	Hemoglobin (gm%)	
			<10	>10
1	Appendicular Mass	22	4	18
2	Appendicular Abscess	6	1	5
3	Ileocaecal Tuberculosis	9	6	3
4	Carcinoma Caecum	8	7	1
5	Psoas Abscess	3	0	3
6	Others*	2	0	2
	Total no. of Cases	50	18	32

* Actinomycosis; Unascended kidney

Table :8 - In this study 38% cases had Hb < 10 gm. Most of the cases of ileocaecal tuberculosis and carcinoma caecum were in this group.

Table 9: Erythrocyte Sedimentation Rate

Sl. No.	Diagnosis	No. of Cases	ESR (mm) 1hour			
			5-20	21-40	41-60	>60
1	Appendicular Mass	22	7	9	6	0
2	Appendicular Abscess	6	2	2	2	0
3	Ileocaecal Tuberculosis	9	0	0	7	2
4	Carcinoma Caecum	8	1	7	0	0
5	Psoas Abscess	3	0	0	2	1

6	Others*	2	2	0	0	0
	Total no. of Cases	50	12	18	17	3

* Actinomycosis; Unascended kidney

Table :9 - In present study 12 (24%) cases had ESR reading of 1st hour between 5-20 mm. 18 (36%) cases had reading between 21-40 mm. In 17 (34%) cases reading was between 41-60 mm. In 3 (6%) cases, ESR was more than 60 mm. All cases of ileocaecal tuberculosis had high ESR levels.

Table 10: Ultrasonography and Barium Studies

Sl. No.	Diagnosis	USG Studies		Barium Studies	
		No. of Cases (n=45)	%	No. of Cases(n=18)	%
1.	Appendicular Mass	8	38	0	0
2	Appendicular Abscess	1	14	0	0
3	Ileocaecal Tuberculosis	2	20	0	50
4	Carcinoma Caecum	2	20	18	50
5	Psoas Abscess	0	0	0	0

* Actinomycosis; Unascended kidney

Table :10 - In present series contrast x-ray barium studies were done in cases of carcinoma caecum and ileocaecal tuberculosis. In ileocaecal tuberculosis main feature was pulled up caecum with narrowed ileum. In carcinoma caecum main feature was irregular filling defect with shouldering sign positive.

Table 11: Mode of Treatment

Sl. No.	Diagnosis	No. of Cases	Medical		Surgical	
			No	%	No	%
1	Appendicular Mass	22	4	18	18	81
2	Appendicular Abscess	6	0	0	6	100
3	Ileocaecal Tuberculosis	9	1	11	8	89
4	Carcinoma Caecum	8	2	25	6	75
5	Psoas Abscess	3	0	0	3	100
6	Others*	2	1	50	1	50
		50	8	16	42	84

* Actinomycosis; Unascended kidney

Immediate appendicectomy : 9 cases, Late appendicectomy : 9 cases

Table :11 - In our study of 50 cases, 8 cases were managed conservatively and 42 cases were managed surgically. Out of 18 cases of appendicular mass managed surgically 9 cases were taken up for surgery immediately whereas rest of the 9 cases were managed by Oschner Scherren regime and

appendicectomy was done at a later date. All 6 cases of appendicular abscess and 3 cases of psoas abscess were managed by extraperitoneal drainage. These 6 cases of appendicular abscess were subjected to interval appendicectomy 6-8 weeks later. 8 out of 9 cases of ileocaecal tuberculosis were managed surgically 1 case was not operated because of associated active pulmonary tuberculosis. 6 out of 8 cases of carcinoma caecum were operated upon. 2 case was not operated as there were multiple secondaries in liver and another two case was not operated as he was already operated once and it was diagnosed as recurrent carcinoma caecum. So both these patients were put on palliative chemotherapy. 1 case of unascended kidney did not agree for surgery. 4 cases of appendicular mass put on O-S regimen did not turn up for surgery.

Table 12: Various Types of Surgical Treatment

Sl. NO	Type of Surgery	No. of Cases	Percentage(%)
1	O-S regimen with Appendicectomy	9	21
2	Extraperitoneal drainage with Appendicectomy	6	14
3	Right hemicolectomy	9	21
4	Limited ileocaecal resection	6	14
5	Laparotomy with biopsy	3	7
6	Immediate laparotomy with Appendicectomy	7	18
7	Extraperitoneal drainage with antibiotics ATT	2	5

Table :12 -In 18 cases of appendicular mass, immediate appendicectomy was done in 9 cases out of these 1 cases underwent local resection with end- to-end anastomosis had to be done on the mass was adherent and appendix could not be separated. Rest of 8 cases, appendix was released and appendicectomy done. In all 6 cases of appendicular abscess, extraperitoneal drainage of pus was done immediately and interval appendicectomy done after 6 weeks. In 8 cases of ileocaecal tuberculosis managed surgically, for 3 cases, limited ileocaecal resection with end to end anastomosis was done. Whereas in 3 cases they had to go in for hemicolectomy. In rest of 2 cases as there was associated military tuberculosis with unresectable mass only biopsy was done. In 2 cases of psoas abscess, extraperitoneal drainage was done followed by which two cases was put on ATT and other two on antibiotics.

Table 13: Complications and Follow-Up

Sl. No.		No. of Cases	Percentage(%)
Post-operative Complications		14	28
1	Wound Infections	11	44
2	Mortality	3	12
At Follow-up		35	70
1	Surgery done	15	30

2	ATT	9	18
3	Chemotherapy	3	6
4	Normal	8	16

In postoperative period, complications in the form of wound infection occurred in 11 cases and 3 cases died, out of 42 cases operated. 70% of cases came back for follow-up. 15 cases were operated i.e., Interval appendicectomy in case of appendicular mass (9) managed by O-S regimen and all cases of appendicular abscess (6). 16 cases of ileocaecal tuberculosis were regularly taken ATT and responded well. 6 cases of carcinoma caecum were regularly coming for chemotherapy. Others were normal at follow up.

Discussion

Mass in the Right Iliac Fossa (RIF) is said to be the temple of surprises, a common condition with diagnostic dilemma to the surgeon. Patients with a mass in the right iliac fossa are often admitted in surgical departments. The mass can be due to intra or extra-abdominal causes. The common conditions met with are appendicular lump, ileocecal tuberculosis, carcinoma cecum, iliac lymphadenitis, tuboovarian mass (7). This challenging task of recognizing certain well defined clinic pathological aspects of mass in the right iliac fossa has stimulated me in undertaking this study. The purpose of the present study is to recognise these aspects of mass in the right iliac fossa, their relative incidence and an overall endeavour to reduce morbidity and in a few instances mortality (8). This formed 44% of cases of present study. All the patients came to the hospital for pain of duration of less than one month. They complained of colicky pain, initially around umbilicus which later shifted to right iliac fossa. Some patients had associated vomiting (9). In present study maximum age incidence was in 3rd decade (36%) followed by 2nd decade (27%). It was more common in males than females (2.6:1). Only two patient complained of mass in present series. But all examined cases were found to have mass in the right iliac fossa (10). According to Bailey and Love, on the third day (rarely sooner) after the commencement of an attack of acute appendicitis, a tender mass can frequently be felt in the right iliac fossa beneath some rigidity of the overlying musculature, the other quadrants of the abdomen being free from rigidity or tenderness. 38 out of 46 cases had rigidity and tenderness was present in 43 out of 46 cases. In present series, history of pain and vomiting is given by all patients. All patients had masses which were tender and firm. In present study, 10 of the 44 cases had restricted mobility whereas rest of the cases were fixed. 55% of his cases experienced febrile episodes with temperature > 39.0. In present study 59% of cases presented with fever and in 81 % of cases, Hb % was above 10 gms%. In present series, 59% of patients were treated conservatively by Oschner Sherrren regimen. Nil by mouth, Ryles tube aspiration, antibiotics and IV fluids (11). This decision was based on fact that nature has already localized the lesion and it is unwise to disturb these barriers. Inadvertent surgery at this time is dangerous, difficult and bloody. Rest of the cases (18) were immediately operated (12). In present series cases which were managed conservatively were called back for appendicectomy 6 weeks later. Specimens of appendix

after appendicectomy were sent for histopathological examination and all were reported as chronic appendicitis. These patients formed 12% of the present group study. 50% of the cases were in 4th decade and in 67% cases males were affected. All the patients presented within 1 month of symptoms **(13)**. According to Edward L Bradley III et al⁸, mean age at which appendicular abscess occurred was 40.7 ± 2.7 . Symptoms had been present on an average of 9.2 ± 0.8 days prior to admission **(14)**. In present study initially pain was colicky and then it progresses to pricking/throbbing type. 33% of cases complained of mass per abdomen and it was tender and soft in consistency. Fever was present in 50% cases **(15)**. In all cases Interval appendicectomy was done and histopathology report showed chronic appendicitis. According to Edward L Bradley III et al⁸, 6% of his patients group had wound infection after initial extraperitoneal drainage and after interval appendicectomy wound infection occurred in 9% of his patients. In present study 16% of patients had wound infection after extra peritoneal drainage and wound infection occurred in 50% cases after interval appendicectomy. Tuberculosis of the gastrointestinal tract presents a common diagnostic and therapeutic problem to a surgeon in most countries. In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass **(16)**. In present series, all patients complained of pain in right iliac fossa. All these patients had associated fever of mild degree and history of evening rise of temperature. Loss of weight and appetite were also present in these patients. In their study 62.3% of cases presented with bowel symptoms. Tenderness was present in 58% cases and 63% cases presented with mass. Altered bowel habits was present in present study of 22% cases. In 66% of cases tenderness was present and 22% of cases presented with mass in the right iliac fossa **(17)**. Crohn's disease, an appendix mass or a malignant lesion of caecum or ascending colon. Hyperplastic ileocaecal tuberculosis or lymphadenitis is the cause for it. In present study in 77% of cases duration of symptoms was less than 3 months and in others it was more than 6 months. In present study, contrast x-ray barium enema study was done in all cases **(18)**. Narrowing of terminal ileum, obtuse ileocaecal angle and pulled up caecum were the main radiological features. I.P. Elhence and B.D. Sharma et al said that clinical subjective improvement after surgery occurred after 2-6 months of ATT which may be because of surgical removal of basic tuberculous lesion. In present study 66% cases underwent definitive surgery and followed by this were put on antituberculous therapy **(19,20)**.

Conclusion

The highest incidence of mass in the right iliac fossa was seen in 3rd and 4th decade. Most of our patients were of low socio-economic status. Commonest presenting symptoms were pain in right iliac fossa, fever, vomiting, loss of weight. Tenderness was the prominent clinical sign which was elicited in most of these cases. Appendicular mass was most common cause of RIF mass at our hospital constituting to 44% of the cases. It is common in 3rd, 4th and 2nd decades of life. Male to female ratio was 19:4 (4.7:1). In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass. Carcinoma, caecum formed 16% of cases of present study. 75% cases were seen in the age group above 50 years and oldest patient of this study was aged 68 years. In present study 22% of cases of ileocaecal tuberculosis had associated pulmonary

tuberculosis so patients with ileo-caecal tuberculosis should be evaluated for chest symptoms and subjected for sputum AFB.

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