

Evaluating Right Iliac Fossa Masses: Differential Diagnosis Spectrum and Therapeutic Management

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Received: 18-10-2024 / Revised: 21-11-2024 / Accepted: 26-12-2024

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Conflict of interest: Nil

Abstract:

Background and Aim: Right iliac fossa (RIF) masses are associated with various pathologies such as appendicitis, tuberculosis, and malignancies. This study explores the different etiologies, clinical presentations, diagnostic techniques, and management approaches for RIF masses.

Material and Methods: A prospective observational study was conducted on 45 patients presenting with RIF masses. Data was collected through clinical examinations, imaging, and histopathological analysis.

Results: The most common diagnosis was appendicular mass (46.67%), followed by ileocaecal tuberculosis (20%) and appendicular abscess (15.56%). Ultrasound was the primary diagnostic tool, and conservative management was most frequently employed for appendicular mass.

Conclusion: Early diagnosis and tailored treatment, including conservative or surgical approaches, are essential for managing RIF masses and improving patient outcomes.

Keywords: Appendicular Abscess, Appendicular Mass, Ileocaecal Tuberculosis, Right Iliac Fossa.

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Introduction

The right iliac fossa (RIF) is a common site for abdominal masses that can be associated with various underlying pathologies. It is an important region anatomically, as it contains vital structures such as the cecum, appendix, ileum, and portions of the large intestine, as well as significant vasculature and lymphatic systems. Masses in this region can result from conditions related to the gastrointestinal, urological, gynecological, or vascular systems, each presenting with a diverse clinical picture. [1-3]

Etiologies of RIF masses can range from benign conditions like appendicitis, cecal volvulus, and Crohn's disease to malignant conditions such as colon cancer and lymphoma. Gynecological causes, including ovarian cysts, ectopic pregnancies, and pelvic inflammatory diseases, are also significant contributors to RIF masses, especially in females [4-5]. Furthermore, urological causes like urinary tract infections, kidney stones, and hydronephrosis should be considered [6].

Clinical presentation varies widely depending on the underlying pathology, with patients often experiencing nonspecific symptoms such as

abdominal pain, bloating, or palpable mass. These symptoms can sometimes lead to diagnostic ambiguity, making it essential for clinicians to employ a combination of imaging techniques and clinical investigations to determine the exact cause [7]. Different management strategies, including conservative management, surgical intervention, or targeted therapy, depend on the specific etiology of the mass [8]. Imaging plays a critical role in the diagnostic process, with modalities such as ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI) being used to identify and assess the mass. [9]

This prospective observational study aims to explore the different etiologies of right iliac fossa masses, examine their clinical presentation, investigate the underlying pathologies, and evaluate the management approaches used in these cases.

Material and Methods

Study Design and Setting:

This prospective observational study was conducted between July 2021 and September 2022 at Medical College and Hospital, Udaipur. A total

of 45 patients presenting with right iliac fossa (RIF) masses at the general surgery outpatient department (OPD) were included.

Inclusion Criteria:

- Patients aged over 12 years.
- Both male and female patients presenting with a mass in the RIF.
- Patients incidentally found masses in RIF during examination or investigations.

Exclusion Criteria:

- Patients with masses due to gynecological conditions.
- Patients with debilitating illnesses such as chronic renal failure, acute renal failure, coronary artery disease, or liver failure.

Data Collection:

A detailed clinical history and physical examination were performed for all patients. Investigations included:

- Routine blood and urine tests.
- Urea, electrolytes, and stool tests for occult blood, ova, and cysts.
- Chest and abdominal X-rays.
- Ultrasound (USG) of abdomen and pelvis.
- Contrast-enhanced CT (CECT) of abdomen and pelvis.
- Colonoscopy and biopsy for suspected cecal carcinoma.
- Diagnostic laparoscopy and biopsy in selected cases.

Interventions:

Surgical procedures performed included:

- Interval appendectomy.
- Radical right hemicolectomy with ileo-transverse colon anastomosis.
- Limited ileo-colic resection with ileo-ascending colon anastomosis.
- Abscess drainage (extra-peritoneal or intra-peritoneal) as needed.

Histopathological examination of resected specimens was done.

Statistical Analysis:

Data was entered into Microsoft Excel and analyzed using SPSS version 22. Categorical data were represented as frequencies and proportions.

Results

The total number of cases considered in this study is 45, admitted in the Department of General Surgery, Medical College and Hospital, Udaipur. The results of the study are discussed as follows. In the first table, the distribution of diagnoses among

the study population is presented. Out of the 45 cases, appendicular mass was the most common diagnosis, accounting for 46.67% of cases. This was followed by Ileocaecal TB at 20%, appendicular abscess at 15.56%, CA caecum at 11.11%, and Psoas abscess at 6.67%. This table provides insight into the prevalence of different causes of right iliac fossa masses in the study group.

The second table shows the gender distribution of patients. There were 23 male and 22 female patients in the study, which reflects an equal gender representation. The male patients made up 51.11% of the sample, while females accounted for 48.89%. This balanced distribution is typical for many clinical studies.

The third table outlines the clinical symptoms associated with each diagnosis. Appendicular mass was most associated with pain, fever, and vomiting. Ileocaecal TB was more often associated with loss of appetite and weight loss, as well as constipation. In contrast, CA caecum had a higher incidence of loss of appetite and weight loss, along with some cases of constipation. The presence of a palpable mass was most frequently noted in cases of Appendicular mass. This table highlights the varied symptom profiles depending on the underlying pathology.

The fourth table focuses on the diagnostic tools used to identify the conditions. USG (ultrasonography) was the primary diagnostic tool for Appendicular mass, which was performed in all 23 cases of that diagnosis. Colonoscopy and CT scans were primarily used for diagnosing CA caecum, where both methods were employed in all 6 cases. Diagnostic laparoscopy was used in 2 cases of Ileocaecal TB. This table reflects the diagnostic strategies employed based on clinical suspicion and the type of mass.

The fifth table shows the management strategies for the different diagnoses. Appendicular mass was entirely managed conservatively, with 21 cases being treated without surgery. For Ileocaecal TB, 4 cases were managed conservatively, while 5 required surgeries. Similarly, all 7 cases of Appendicular abscess, 5 cases of CA caecum, and 3 cases of Psoas abscess were managed surgically. This table illustrates the differing treatment approaches depending on the diagnosis, with a clear distinction between conservative and surgical management.

Each table provides valuable information on diagnosis, clinical symptoms, diagnostic methods, and management strategies, helping to understand the study's findings and treatment patterns in patients with right iliac fossa masses.

Table 1: Causes of right iliac fossa swellings.

Diagnosis	No. of cases	Percentage
Appendicular mass	21	46.67
Ileocaecal TB	9	20.0
Appendicular abscess	7	15.56
CA caecum	5	11.11
Psoas abscess	3	6.67
Total	45	100

Table 2: Gender wise distribution of RIF mass.

Gender	RIF mass	Percentage
Male	22	51.11
Female	23	48.89
Total	45	100

Table 3: Presenting symptoms diagnosis wise.

Diagnosis	Pain	Fever	Vomiting	Loss of appetite and weight loss	Constipation	Diarrhea	Mass
Appendicular mass	21	17	14	0	0	2	5
Ileocaecal TB	9	9	5	5	5	0	3
Appendicular abscess	7	7	5	0	0	2	2
CA caecum	5	0	0	5	2	0	3
Psoas abscess	3	3	0	0	0	0	0
Total	45	19	12	10	7	4	13

Table 4: Endoscopy and imaging as per diagnosis.

Diagnosis	USG	Colonoscopy	CT scan	Diagnostic laparoscopy
Appendicular mass	21	0	0	0
Ileocaecal TB	9	0	0	2
Appendicular abscess	7	0	0	0
CA caecum	5	5	5	0
Psoas abscess	3	0	0	0
Total	45	5	5	2

Table 5: Treatment as per diagnosis.

Diagnosis	No. of cases	Conservative management	Surgery
Appendicular mass	21	21	0
Ileocaecal TB	9	4	5
Appendicular abscess	7	0	7
CA caecum	5	0	5
Psoas abscess	3	0	3
Total	45	25	20

Discussion

In this study, appendicular mass was the most common diagnosis, accounting for 46.67% of cases. This finding aligns with previous studies, which have highlighted appendicitis and its complications, such as appendicular mass, as leading causes of RIF masses [3]. Appendicular abscesses, a complication of appendicitis, were observed in 15.56% of the cases. Ileocaecal tuberculosis (TB) was diagnosed in 20% of the patients, emphasizing its significance as a differential diagnosis in areas where TB remains prevalent.[10] Other conditions, such as CA caecum and psoas abscesses, were less common, comprising 11.11% and 6.67% of cases,

respectively. The prevalence of these conditions mirrors findings from Bahl et al. (2018). [11] Who noted a similar distribution in a study of patients presenting with RIF masses. The clinical presentation varied depending on the underlying pathology. In cases of appendicular mass, pain, fever, and vomiting were the predominant symptoms, consistent with the typical presentation of acute appendicitis [12].

In contrast, ileocaecal TB presented more often with symptoms such as loss of appetite, weight loss, and constipation, indicative of chronic inflammatory conditions [13]. The presence of a palpable mass was most frequently associated with appendicular mass, a feature often seen in chronic

appendicitis or appendicular abscess [14], and can aid in differentiating it from other causes of RIF swelling.

Ultrasound (USG) was the most commonly employed diagnostic tool, particularly for identifying appendicular mass, which is in line with the standard approach for diagnosing acute abdominal conditions like appendicitis [15]. For CA caecum, both colonoscopy and CT scans were used, reflecting the need for advanced imaging and direct visualization when malignancy is suspected [16]. Diagnostic laparoscopy was utilized in select cases of ileocaecal TB, offering a minimally invasive technique for diagnosis and biopsy [17].

Management approaches differed based on the underlying diagnosis. Most cases of appendicular mass were treated conservatively, with 21 out of 23 patients receiving non-surgical management. This reflects the standard treatment protocol for uncomplicated appendicular masses, where conservative management with antibiotics and monitoring is effective [18]. On the other hand, appendicular abscesses, CA caecum, and psoas abscesses required surgical intervention, which is consistent with the more aggressive nature of these conditions. Surgical management of ileocaecal TB was less common, as some patients responded well to conservative treatment, particularly with anti-TB medications [19].

Conclusion

Right iliac fossa masses present with a variety of underlying pathologies, ranging from benign conditions like appendicitis to more serious diseases such as colon cancer and ileocaecal tuberculosis. The clinical presentation of these masses is diverse and often nonspecific, requiring careful differential diagnosis. Imaging techniques, especially ultrasound, play a crucial role in diagnosis, while specific pathologies may also require advanced methods such as colonoscopy or diagnostic laparoscopy. Management strategies depend on the underlying cause, with conservative management being effective for conditions like appendicular mass, while surgical intervention is necessary for more complex conditions such as appendicular abscesses and malignant tumors. Early diagnosis and tailored treatment plans are key to improving outcomes for patients presenting with RIF masses.

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