Case Report

Right Iliac Fossa Mass: A Rare Case of Parietal Surface of Abdominal Wall Tumor with Multi-Modal Diagnostic Discrepancy Including Radiological and Clinical Misinterpretation with Histopathological Diagnostic Dilemma Followed by IHC Discrepenc

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Abstract

Background: Right iliac fossa (RIF) masses present a complex diagnostic challenge due to diverse etiologist involving gastrointestinal, gynecological, and soft tissue structures. We report a rare case of a 42-year-old female presenting with a right iliac fossa mass, where clinical evaluation and radiological imaging initially suggested an intra-abdominal pathology. However, intraoperative findings revealed the lesion to be arising from the anterior abdominal wall. Histopathological examination showed a hypocellular spindle cell tumor consistent with leiomyoma, with gastrointestinal stromal tumor (GIST) as a differential diagnosis. Immunohistochemistry was recommended for confirmation. This case highlights a rare diagnostic discrepancy across clinical, radiological, and surgical evaluation, emphasizing the importance of histopathology and ancillary techniques in distinguishing soft tissue tumors.

Keywords: Right Iliac Fossa Mass, Abdominal Wall Tumor, Parietal Surface Lesion, Diagnostic Discrepancy, Radiological Misinterpretation, Clinical Misdiagnosis, Histopathological Dilemma, Immunohistochemistry (IHC).

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Introduction

Right iliac fossa masses are commonly encountered in surgical practice and often originate from appendicular, ileocecal, gynecological, or soft tissue structures. However, diagnostic accuracy may be compromised when lesions mimic intra-abdominal pathology. Abdominal wall tumors presenting as RIF masses are rare and may be misinterpreted on clinical and radiological assessment.

Spindle cell tumors such as leiomyoma and gastrointestinal stromal tumors (GIST) further add diagnostic dilemma due to overlapping morphological features. This case is notable for misdirection at clinical and radiological levels, later corrected intraoperatively and was tobe confirmed histologically giving picture of rare abdominal wall GIST but IHC marker test made it challenging again.

Gastrointestinal stromal tumors (GISTs) in the abdominal wall are rare and can mimic other spindle cell tumors clinically and histologically, leading to diagnostic difficulty. Miettinen and Lasota et al,[1] highlighted the variable morphology of GIST and the need for immunohistochemistry for accurate diagnosis. Fletcher et al.[2] (WHO Classification of Tumours of Soft Tissue and Bone) emphasized the diagnostic role of KIT (CD117) and DOG1 in distinguishing GIST from other spindle cell neoplasms. Rosai et al,[3] also described the overlapping features of spindle cell lesions and the importance of correlating histopathology with immunoprofile to reach a definitive diagnosis.

Case Presentation

A 42-year-old female presented with a swelling in the right iliac fossa region.

Clinical Evaluation

Initial clinical impression suggested an intra-abdominal RIF mass.

Radiological Findings

Ultrasonography/CT scan (as applicable) suggested an intra-abdominal lesion, likely of gastrointestinal or adnexal origin, leading to a misleading preoperative diagnosis.

Intraoperative Findings

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Intraoperatively, the lesion was found to be arising from the anterior abdominal wall, not from intra-abdominal organs, significantly altering the diagnosis. The lesion was excised completely by laparoscopic method.

Specimen Details

- Tissue: Mass from anterior abdominal wall
- Size: 8.5 × 5.5 × 3.5 cm
- External surface: Bosselated, encapsulated, prominent vessels present

Gross Examination

- Single Greyish-brown soft tissue mass
- Whorled cut surface
- Areas of hemorrhage and focal firm areas

Microscopic Examination

- Hypocellular spindle cell tumor
- Intersecting fascicles of monotonous spindle cells
- Eosinophilic cytoplasm with indistinct borders
- Cigar-shaped nuclei with small nucleoli
- Mild atypia present
- Pleomorphism present
- No mitosis or necrosis identified
- All Resected Margins free of tumor cells

Impression

- Most likely: **Leiomyoma**
- Differential: **Gastrointestinal stromal tumor (GIST)**

Advice

Immunohistochemistry recommended:

- CD117 (c-KIT)
- DOG1

Immunohistochemistry

CD117(c-KIT) came out negative, and patient lost follow up and further IHC testings to confirm leiyomyoma stating inconvenience as post-operative period was uneventful.

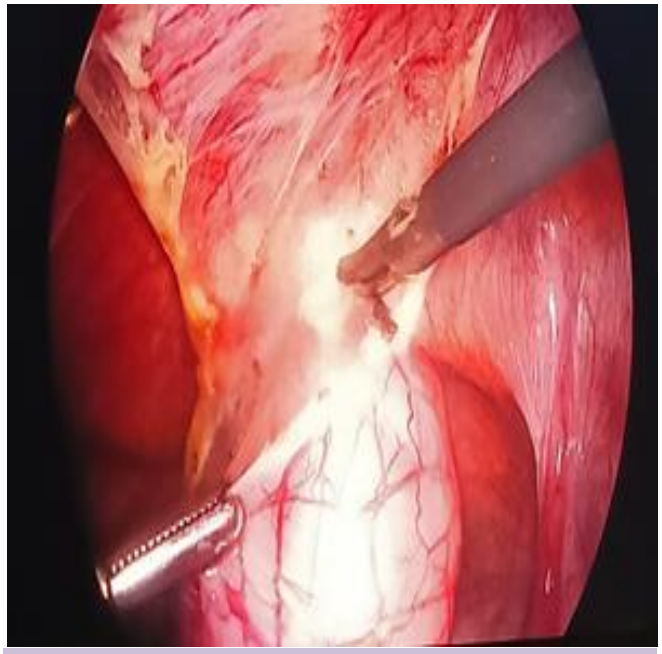


Figure 1: Diagnostic Laparoscopy with Laparoscopic Excision of Anterior Abdominal Wall Mass.

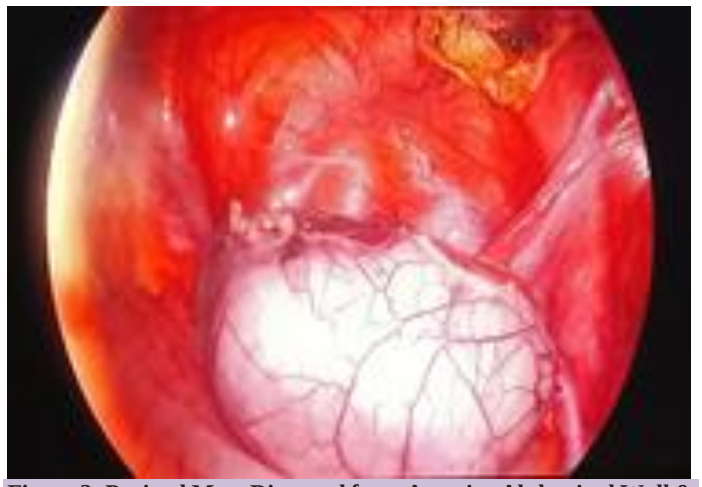


Figure 2: Parietal Mass Dissected from Anterior Abdominal Wall & Surrounding Adhesions

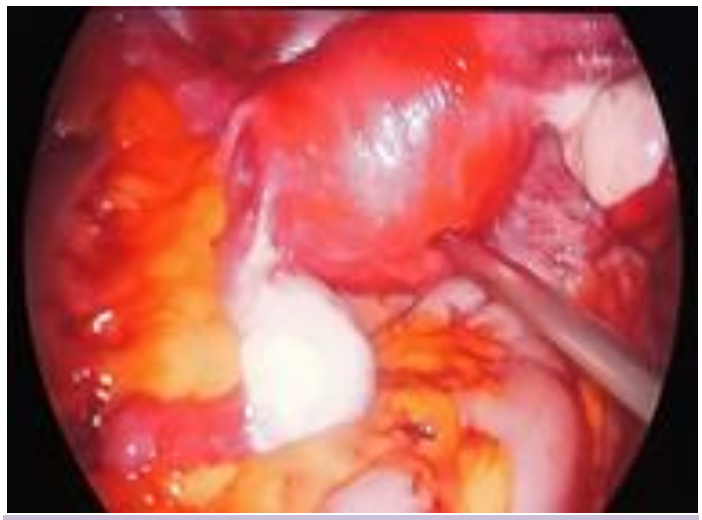


Figure 3: Pelvic Organs Examined and Found to Be Normal

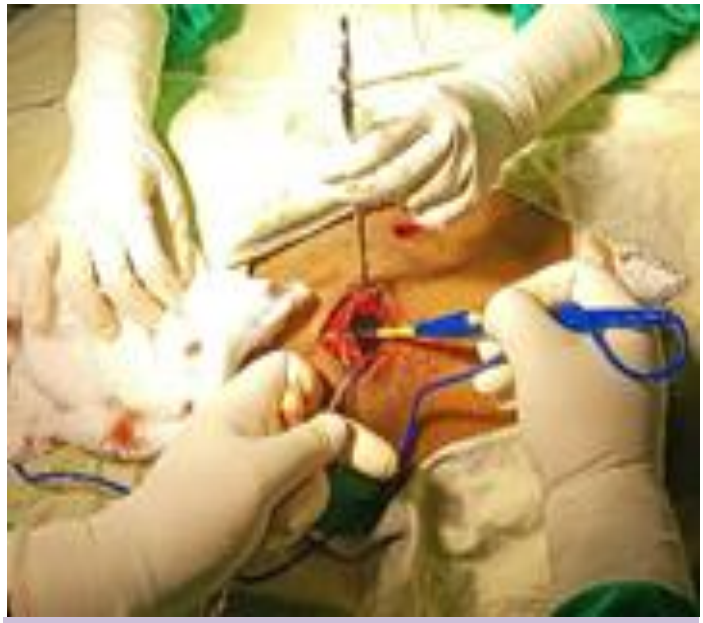


Figure 4: Incision Extended at Umbilical Port Site

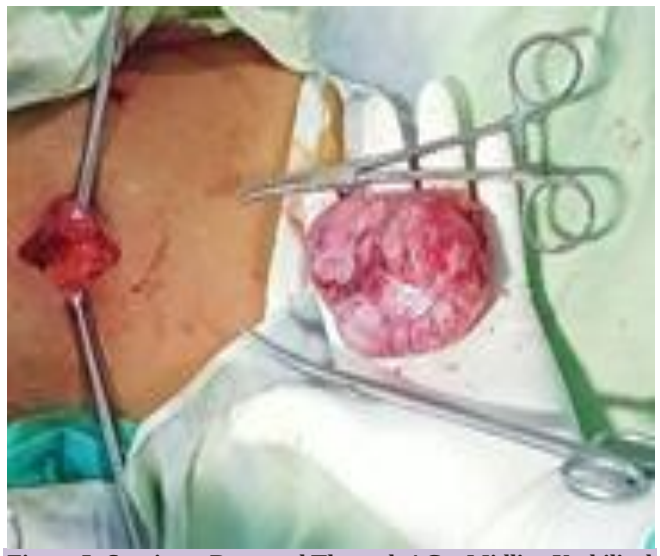


Figure 5: Specimen Removed Through 4 Cm Midline Umbilical Incision

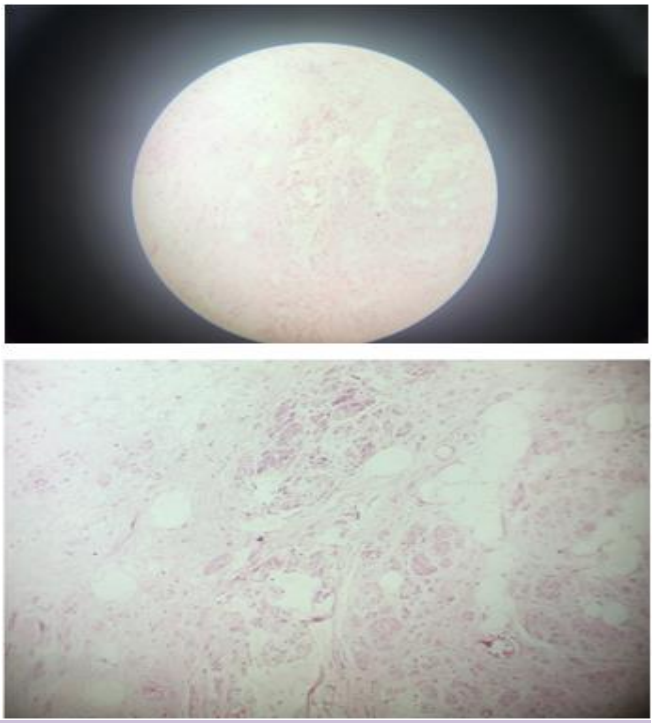


Figure 6: Microscopic Image of Tissue Section Sent for HPE From The Excised Specimen

Discussion

This case demonstrates a rare diagnostic pitfall where a right iliac fossa mass was misinterpreted at both clinical and radiological levels, later corrected intraoperatively when the lesion was found to originate from the anterior abdominal wall.

Such misinterpretation highlights the anatomical complexity of RIF masses and the importance of surgical exploration that is diagnostic laparoscopy in selected cases.

Spindle cell tumors of the abdominal wall are rare.

Leiomyoma is a benign smooth muscle tumor characterized by:

- Well-circumscribed architecture
- Whorled pattern
- Absence of necrosis and mitotic activity

GISTs, although primarily gastrointestinal, may mimic similar morphology, exhibit spindle cell patterns, necessitating immunohistochemical confirmation. These may arise in rare cases from anterior abdominal wall.

The absence of mitotic activity and necrosis in this case favours a benign lesion such as leiomyoma, and overlapping features mandated IHC testing of c-KIT to rule out GIST, that came out to be negative.

This case is rare due to:

- Unusual abdominal wall origin
- Rare origin from Parietal surface of anterior abdominal wall
- Radiological misdiagnosis
- Intraoperative diagnostic correction
- Histopathological overlap with GIST
- IHC marker c-KIT negative.

Similar studies have emphasized the diagnostic complexity of spindle cell tumors arising in atypical locations, particularly when presenting as right iliac fossa masses. Weiss and Goldblum, in *Enzinger and Weiss's et al,*[4] *Soft Tissue Tumors*, describe leiomyoma as a well-circumscribed benign smooth muscle tumor lacking necrosis and significant mitotic activity, often requiring careful histopathological evaluation to exclude mimics such as GIST. DeVita et al,[5] in *Cancer: Principles & Practice of Oncology*, highlight that gastrointestinal stromal tumors may present with spindle cell morphology and overlapping histological features, necessitating immunohistochemical confirmation, particularly with c-KIT and DOG1 markers. Hanley et al,[6] and Joensuu et al,[7] have highlighted that gastrointestinal stromal tumors (GISTs) may present with spindle cell morphology and can closely mimic other mesenchymal tumors, making immunohistochemical evaluation essential for accurate diagnosis. Dematteo et al,[8] and Rubin et al,[9] emphasized the importance of correlating radiological, intraoperative, and histopathological findings to avoid misinterpretation of abdominal spindle cell lesions and improve diagnostic precision. Hirota et al,[10] further demonstrated the role of KIT (CD117) mutations and immunohistochemical expression in establishing the diagnosis of GIST and distinguishing it from other spindle cell tumors

Histopathology Report

Department: Department of Pathology, AGMC & GBP Hospital, Agartala, West Tripura

Name: Kanchan Das Beowmik

CR No.: 10271641 (as written)

Slide No.: C 03/4/25 (partially handwritten, interpreted)

Age/Sex: 42 years / Female

Date: 20/4/25 (as noted on report)

OPD/Cabin/Ward: AS-III

Tissue Submitted: Mass excised from anterior abdominal wall

Clinical Diagnosis: Not clearly specified in the report (noted as mass lesion of anterior abdominal wall)

Gross Examination: Received single greyish-brown calcified soft tissue measuring 8.5 × 5 × 3.5 cm.

Cut section showed a variegated appearance with hemorrhagic

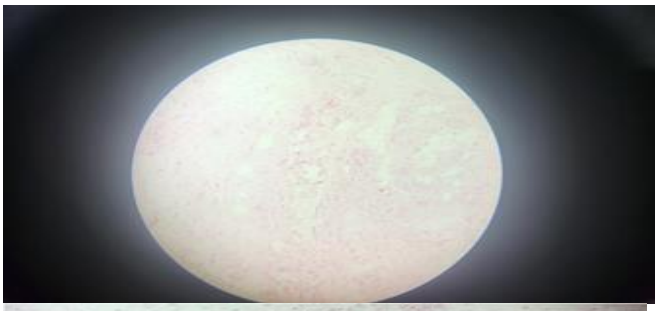
areas and one hard area.
Outer surface was nodular with intact capsule and prominent vessels.

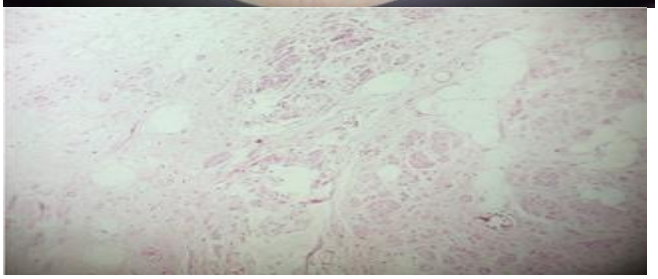
Microscopic Examination:
Sections show a hypocellular tumor composed of interlacing fascicles of monomorphic spindle cells with wavy borders and eosinophilic cytoplasm.
Nuclei are cigar-shaped with mild atypia and pleomorphism. No atypical mitosis or necrosis is identified.

Immunohistochemistry (IHC): CD117 (c-KIT): Negative in neoplastic cells

Impression:
Morphological features are suggestive of:
Leiomyoma
Gastrointestinal stromal tumor (GIST)

Advice:
Immunohistochemistry (C-KIT and DOG1) recommended to rule out GIST.





Conclusion

This case emphasizes a rare diagnostic discrepancy involving clinical, radiological, and intraoperative findings in a right iliac fossa mass followed by diagnostic challenge of spindle cell tumours. Abdominal wall leiomyoma should be considered in the differential diagnosis of RIF masses. Histopathology with immunohistochemistry remains essential for definitive diagnosis and exclusion of GIST for guiding treatment and prognosis.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Inter Departmental Letter for Procuring Tissue Block for IHC testing

To
The Head of the Department,
Department of Pathology
Agartala Govt. Medical College
Agartala, Tripura

Subject: Application for procurement of Tissue block for IHC testing of the specimen details mentioned below.

Respected Sir,
Kindly consider to provide the tissue block for IHC markers CD117 & DOG-1 testing for confirmation of diagnosis and further plan of management of the patient with suspected anterior abdominal wall GIST.
Details of the patient and HPE slide are as follows:

Particulars	Details
Name of the Patient	Mrs.XYZ
Age	42 years
Gender	Female
CR No.	10271641
Slide No.	GB/34/25
HPE Report	Suggestive of GIST/Leiomyoma
Date of reporting	02-02-2025

So, I pray and hope that you would be kind enough to accept my application and oblige thereby.

Thanking you.
Yours faithfully,
Dr. Mani Ranjan Debbarma
Professor & HOD
Department of General Surgery
AGMC & GBP Hospital
Date: 04/03/2025
Place: Agartala

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