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CASE REPORT

A Rare Cause of Massive Intraabdominal Mass: A Challenging Exploratory Laparotomy

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Abstract

Purpose: Desmoid-type fibromatosis is a rare, histologically benign but locally aggressive soft tissue tumour that can closely mimic intra-abdominal malignancies, often resulting in delayed diagnosis and complex surgical management. This case report aims to describe the clinical presentation, diagnostic challenges, surgical management, and postoperative outcome of a patient with massive intra-abdominal desmoid-type fibromatosis in a resource-limited Sub-Saharan African setting.

Methodology: A 49-year-old male presented with progressive abdominal distension, weight loss, and bilateral lower-limb oedema. Clinical evaluation, radiological imaging, exploratory laparotomy, histopathological examination, and postoperative follow-up were undertaken. Intraoperative findings revealed a large intra-abdominal mass densely adherent to adjacent bowel loops, requiring en bloc resection with the involved intestinal segments.

Results: Histopathological examination confirmed desmoid-type fibromatosis, characterised by spindle-cell proliferation without evidence of malignant transformation. The patient had an uneventful postoperative recovery, demonstrating that complete surgical excision remains an effective treatment option where advanced molecular diagnostics and systemic therapies are unavailable.

Novelty and Contribution: This report contributes to the limited literature on intra-abdominal desmoid-type fibromatosis from Sub-Saharan Africa by highlighting its unusual presentation, the diagnostic difficulties associated with distinguishing it from malignant abdominal tumours, and the continued importance of surgical management in low-resource healthcare settings.

Social and Practical Implications: The case underscores the need for increased clinician awareness, earlier recognition of desmoid tumours, and strengthened diagnostic capacity in resource-constrained environments. Improving access to histopathological services and multidisciplinary surgical care could facilitate timely diagnosis, optimise treatment outcomes, and reduce morbidity among patients with rare soft tissue tumours.

Keywords: Intraabdominal Fibromatosis; Desmoid Tumor; Soft Tissue Sarcoma; Surgical Resection; Diagnostic Challenges

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1 Introduction

Soft tissue sarcomas (STS) are a heterogeneous group of mesenchymal tumors comprising less than 1% of adult malignancies (Brennan et al., 2013). Intraabdominal STS, including desmoid-type fibromatosis (DF), are exceedingly rare and can mimic various gastrointestinal or gynecological disorders, often delaying diagnosis (Gronchi et al., 2021). Desmoid tumors, although histologically benign, can exhibit aggressive local invasion and recurrence, particularly when arising within the abdominal cavity (Kasper et al., 2011). They account for approximately 3% of all soft tissue tumors and 0.03% of all neoplasms (Fletcher et al., 2013). Their etiology remains incompletely understood, although associations with familial adenomatous polyposis (FAP), trauma, or hormonal factors have been described (Alman et al., 1997).

It commonly affects young to middle-aged adults and has a slight female preponderance (Bektas et al., 2023). The most frequent intraabdominal sites include the mesentery, retroperitoneum, and pelvis (Reitamo et al., 1982). These tumors are characterized by monoclonal fibroblastic proliferation, typically without metastatic potential but with a high tendency for local recurrence.

Diagnosis hinges on histological features, supported by immunohistochemical staining, most notably beta-catenin nuclear positivity (Carlson & Fletcher, 2007). However, limited access to molecular diagnostics in many African regions means that diagnosis is frequently based on histomorphology alone. Imaging modalities like CT and MRI assist in tumor localization and preoperative planning but cannot definitively differentiate DF from other soft tissue tumors (Bonvalot et al., 2012).

Management strategies range from active surveillance in asymptomatic cases to surgical resection in symptomatic or rapidly growing tumors. Systemic therapy options include nonsteroidal anti-inflammatory drugs, anti-estrogens, tyrosine kinase inhibitors (e.g., imatinib), and chemotherapy for unresectable cases (Gounder et al., 2018). In LMICs, surgery often remains the cornerstone of treatment due to limited access to targeted therapies.

Despite the rarity of intraabdominal desmoid-type fibromatosis and its diagnostic challenges, there is a paucity of reported cases from sub-Saharan Africa, where diagnostic resources are limited and patients often present late with massive tumors. Therefore, the objective of this study is to describe a rare case of sporadic intraabdominal desmoid-type fibromatosis presenting as a massive abdominal mass in a Nigerian patient, highlighting the clinical presentation, diagnostic challenges, intraoperative findings, and surgical management in a resource-limited setting. The purpose is to increase clinician awareness of this rare entity, demonstrate the feasibility and outcomes of surgical resection when advanced diagnostics are unavailable, and contribute to the limited body of literature on soft tissue sarcomas in sub-Saharan Africa, thereby guiding management decisions in similar settings.

Specifically, this case report aims to document the clinical presentation and radiographic findings of a massive intraabdominal desmoid tumor, describe the intraoperative challenges and surgical technique employed for en bloc resection, discuss the histopathological features that confirmed the diagnosis in the absence of immunohistochemistry and highlight the systemic and resource-related barriers to diagnosis and treatment of rare soft tissue tumors in sub-Saharan Africa.

Here, we report a case of intraabdominal fibromatosis presenting as a massive abdominal tumor, treated surgically with significant clinical improvement in a resource-constrained setting.

2 Case Report

A 49-year-old man presented with a six-month history of progressive abdominal swelling, initially noticed as a small right iliac fossa mass, gradually enlarging to involve the entire abdomen. Associated features included unintentional weight loss, bilateral leg edema (onset one month prior), and labored breathing. He reported nocturia without other lower urinary tract symptoms or gastrointestinal complaints. No history of chronic illnesses, immunosuppression, or familial cancer syndromes was elicited. The patient had no known comorbidities, did not consume alcohol or tobacco, but reported occasional use of herbal concoctions.

Physical examination revealed a lethargic, moderately dehydrated middle-aged man with bilateral pitting pedal edema extending to the sacrum. He was tachypneic and tachycardic but afebrile. No lymphadenopathy was noted.

Contrast-enhanced abdominopelvic computed tomography (CT) revealed a large, heterogeneous, poorly enhancing solid mass in the central abdomen measuring 34.8 × 18.3 × 28.9 cm. No definitive signs of invasion or adherence to surrounding intraabdominal organs were appreciated on imaging. The liver, spleen, kidneys, and gastrointestinal tract appeared within normal limits.

Intraoperatively, a large firm tumor measuring approximately 40 × 30 × 20 cm was found attached to the outer wall of the cecum, ascending colon, and terminal ileum, with compression of the right ureter. En bloc resection of the mass was performed along with the terminal ileum, cecum, ascending colon, and proximal transverse colon. Right hemicolectomy and ileotransverse anastomosis were completed.

Intraoperative findings are shown in Figures 1 and 2. Figure 1 demonstrates the mass being resected en bloc with parts of the terminal ileum, cecum, ascending colon, and transverse colon. Figure 2 shows the resected specimen with the tumor attached to the outer wall of the bowel.

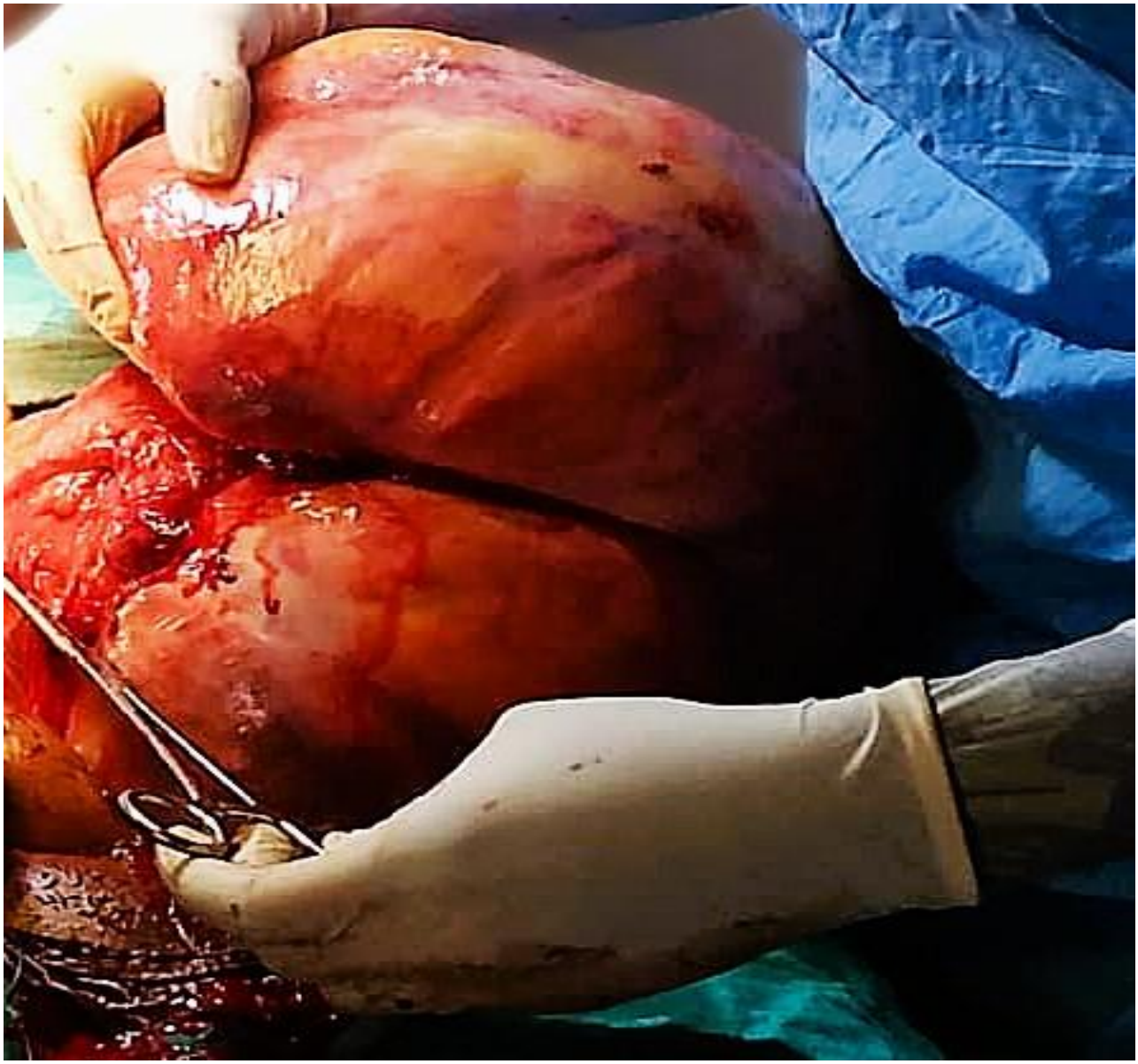

Figure 1 Mass being resected wholly with parts of the terminal ileum, cecum, ascending colon and parts of the transverse colon.

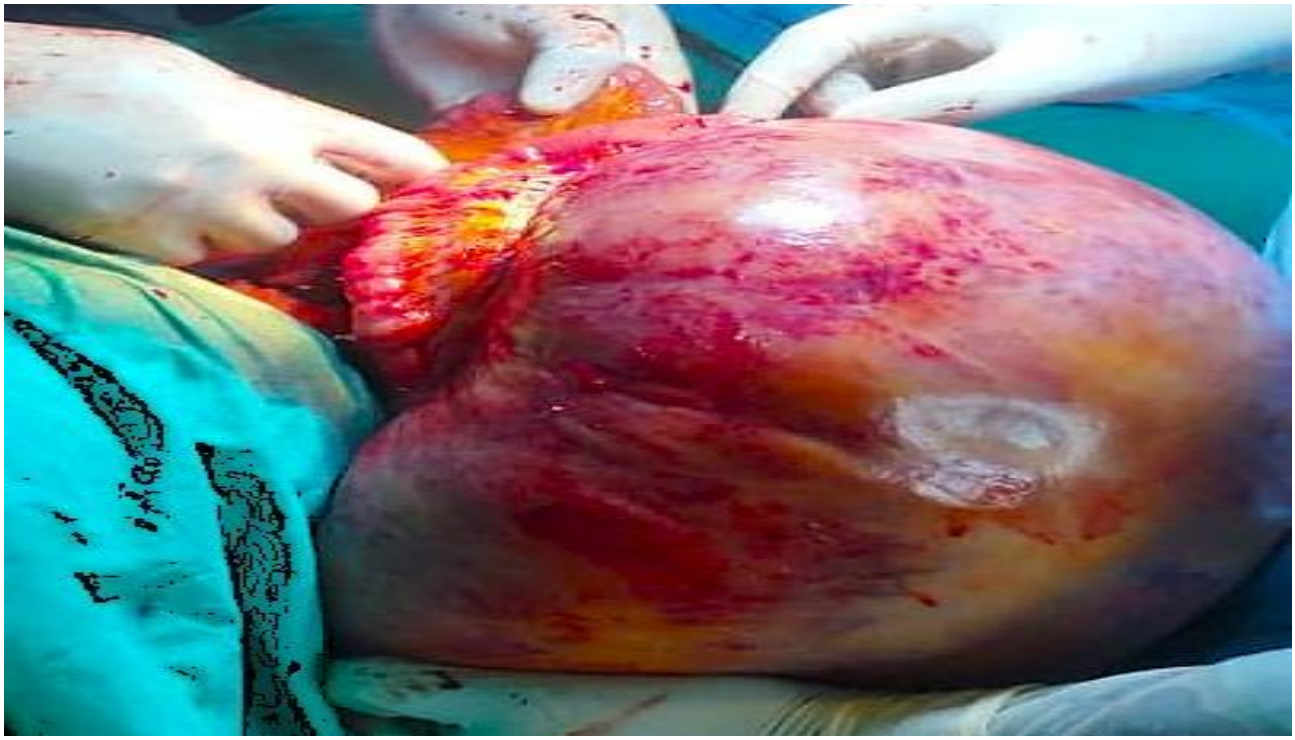

Figure 2 Intraabdominal mass resected, attached to the outer wall of the bowel

Histopathological evaluation demonstrated long sweeping fascicles of uniform spindle cells with pale cytoplasm in a hyalinized collagenous stroma. No nuclear hyperchromasia was observed. Cytological atypia was minimal with a variable mitotic rate. Thin-walled blood vessels with perivascular edema were noted. A diagnosis of soft tissue sarcoma, most consistent with desmoid-type fibromatosis, was rendered.

Postoperatively, the patient recovered well and was discharged on postoperative day six for outpatient follow-up.

3 Discussion

Desmoid-type fibromatosis (DTF) represents a rare, benign and often misdiagnosed subset of soft tissue sarcomas. Despite its histologically non-malignant nature, it demonstrates locally infiltrative behavior and a high recurrence rate (Kasper et al., 2011). Intraabdominal fibromatosis, particularly those arising sporadically in the mesentery, is even rarer and typically occurs in association with familial adenomatous polyposis (FAP) or Gardner's syndrome (Aldilaijan et al., 2020). However, our patient had no clinical or familial evidence of FAP, suggesting a sporadic variant.

In resource-rich settings, diagnosis of DTF relies on a combination of imaging, histopathology, and immunohistochemistry, particularly nuclear β-catenin expression, which helps distinguish it from gastrointestinal stromal tumors (GISTs) and low-grade sarcomas (Mullen et al., 2013). In contrast, such diagnostics are often unavailable in low-resource settings, resulting in delays, misdiagnoses, or empiric treatment regimens. As in this case, the patient visited several healthcare facilities without achieving diagnostic clarity, underscoring systemic diagnostic limitations common in sub-Saharan Africa (Shaikh & Farah Djeridi, 2020).

Advanced imaging in this case revealed a large heterogeneous mass without convincing evidence of infiltration, which is consistent with DTF's radiological appearance. However, intraoperative findings showed adherence to the bowel, revealing the discrepancy between imaging and actual tumor behavior. This underscores the critical role of surgical exploration in both diagnosis and treatment, particularly where biopsy access or radiological expertise is limited (Kasper et al., 2020).

While non-surgical management, including active surveillance, anti-estrogens (e.g., tamoxifen), NSAIDs, or tyrosine kinase inhibitors (e.g., sorafenib), is becoming standard in asymptomatic or stable cases in high-income countries (Bektas et al., 2023; Gounder et al., 2018), such options are rarely available or financially accessible in many African centres. Moreover, late presentation often necessitates surgical resection, not merely for treatment but to relieve mass

effect on adjacent structures, as seen in this patient, where multiple bowel segments were involved and associated splinting of the diaphragm, causing respiratory distress.

Histopathological diagnosis remains the gold standard, but in much of sub-Saharan Africa, immunohistochemistry services are either unavailable or prohibitively expensive. This affects not only patient outcomes but also epidemiological data collection, leading to underrepresentation of soft tissue sarcomas in regional cancer registries (Omonisi et al., 2020). Strengthening regional diagnostic capabilities including training, equipment, and pathology networks, will be critical for improving management of fibromatosis and other rare tumors.

This case highlights key challenges faced in Africa: delayed presentation, limited diagnostic resources, and reliance on surgery for definitive care. Nonetheless, timely surgical intervention, even without molecular confirmation, can result in excellent outcomes when performed skillfully and with adequate postoperative support.

4 Conclusion

This case report presents a rare instance of sporadic intraabdominal desmoid-type fibromatosis in a 49-year-old Nigerian male who presented with a massive abdominal mass measuring approximately 40 × 30 × 20 cm.

Despite the absence of immunohistochemistry, histopathological examination of the resected specimen revealed long sweeping fascicles of uniform spindle cells with minimal cytological atypia, confirming the diagnosis of desmoid-type fibromatosis. Intraoperative findings demonstrated that the tumor, though appearing non-infiltrative on preoperative imaging, was firmly adherent to the terminal ileum, cecum, ascending colon, and proximal transverse colon, necessitating en bloc resection with right hemicolectomy and ileotransverse anastomosis. The patient achieved an uneventful postoperative recovery and was discharged on postoperative day six, demonstrating favourable short-term outcomes following surgical intervention.

The implications are that desmoid tumors should be considered in the differential diagnosis of large abdominal masses in sub-Saharan Africa, and surgical resection remains a viable and effective treatment where advanced diagnostics and systemic therapies are unavailable. However, delayed presentation and limited diagnostic capacity remain significant barriers. Strengthening pathology services, clinician awareness, and long-term surveillance is essential for improving outcomes in similar settings.

Ethical Considerations

This case report was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval for the publication of this case report was obtained from the Institutional Review Board of UNIOSUN Teaching Hospital, Osogbo, Nigeria (Approval Reference: UTH/REC/2025/01/13/1494). Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. The patient was assured of confidentiality, and no identifiable personal information has been disclosed in this manuscript.

Patient consent

The authors acknowledged that informed consent was sought from the patient for the publication of this case report.

Conflict of Interest

The authors declare that there is no conflict of interest.

Declaration of Use of Generative AI

The authors take full responsibility for the accuracy, originality, and integrity of the manuscript.

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