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Case Report

A surprising hitchhiker: incidental spermatic cord liposarcoma discovered during inguinal hernia repair

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ABSTRACT

Spermatic cord liposarcomas are rare neoplasms that often present as inguinal hernias, posing diagnostic challenges. We report case of a 51-year-old male who underwent inguinal hernia repair, during which solid mass was incidentally discovered on spermatic cord. Mass was excised and subjected to histopathological analysis. Initial histopathological evaluation suggested a well-differentiated liposarcoma (G1) with involved surgical margins, leading to referral to a multidisciplinary sarcoma team. However, reevaluation at a specialized center indicated findings more consistent with benign adipose tissue, highlighting the diagnostic complexities associated with this rare entity. This case underscores the importance of a thorough diagnostic workup and multidisciplinary follow-up in management of rare neoplasms, ensuring accurate diagnosis and appropriate treatment. It also highlights that surgeons should remain vigilant for unexpected intraoperative findings, recognizing that the initial diagnosis prompting surgery may not encompass all underlying pathologies. Such awareness is crucial for comprehensive patient care and optimal surgical outcomes.

Keywords: Liposarcoma, Spermatic cord, Inguinal hernia, Multidisciplinary management, Rare tumors, MDM2 amplification

INTRODUCTION

Liposarcomas are the most common subtype of soft tissue sarcomas in adults; however, their occurrence in the spermatic cord is exceptionally rare, accounting for less than 0.1% of all cases.[1] These tumors often present as seemingly benign inguinal masses, which can lead to diagnostic uncertainty and delays. Complete surgical excision with negative margins remains the cornerstone of treatment, while definitive diagnosis relies on detailed histopathological evaluation and, in selected cases, molecular studies.[2] This report describes the incidental identification of a suspected spermatic cord liposarcoma during elective inguinal hernia repair, highlighting the diagnostic challenges and implications for patient management.

Clinically, these tumors typically present as painless inguinal or scrotal swellings and are frequently misdiagnosed preoperatively as hernias or lipomas.[3] Histologically, spermatic cord liposarcomas include several subtypes: well-differentiated, myxoid, dedifferentiated, pleomorphic, and mixed. Among these, well-differentiated liposarcomas (WDL) usually follow an indolent course but carry a significant risk of local recurrence, particularly when excision margins are compromised.[4] Diagnosis relies on a combination of imaging, histopathology, and molecular analysis, with MDM2 gene amplification serving as a key marker to distinguish WDL from benign adipocytic tumors.[5]

CASE REPORT

A 51-year-old male presented with a left inguinal bulge and discomfort. His medical history included cervical cyst surgery, with no significant comorbidities. The patient was a smoker (6-7 cigarettes/day) and had no history of alcohol or illicit drug use. On August 28, 2023,

the patient underwent a left inguinal hernia repair using the Lichtenstein technique. During the procedure, a solid, nodular mass was identified on the spermatic cord and excised. The surgery was uneventful, and the patient had an unremarkable recovery. Initial pathological analysis revealed a multilobulated mass measuring 2.9×1.8×0.9 cm, composed of adipocytes of varying sizes with rare lipoblasts and focal stromal atypia (Figure 1). The diagnosis was a well-differentiated liposarcoma (G1), with involved surgical margins (R1). The patient was referred to the sarcoma consultation at Instituto de Oncologia do Porto, where a second histopathological review was performed. The reevaluation described mature adipose tissue with fibrotic septa and vascular proliferation, without definitive lipoblasts or stromal atypia. Immunohistochemical studies showed no MDM2 or p16 expression, and genetic testing revealed no MDM2 amplification. The findings were deemed more consistent with benign adipose tissue changes. Pelvic MRI showed no evidence of local recurrence, lymphadenopathy, or metastatic disease. Minimal scarring was noted in the inguinal region, consistent with post-surgical changes.

The patient remained asymptomatic and was placed on annual surveillance, with planned imaging and clinical evaluations. Anticipated discharge from the sarcoma team was scheduled for 2024, with continued local follow-up for five years.

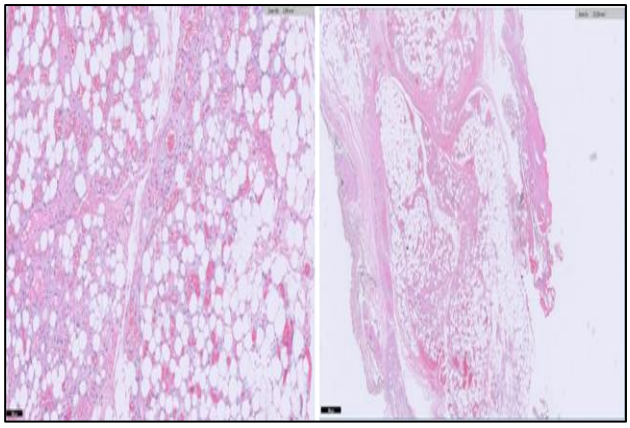

Figure 1: Histological findings: A 2.9×1.8×0.9 cm multilobulated mass composed of mature adipocytes with occasional lipoblasts and fibrovascular bundles. No mitotic figures or necrosis were observed. The lesion was consistent with a well-differentiated liposarcoma.

DISCUSSION

Liposarcomas are the most common soft tissue sarcomas in adults but rarely occur in the spermatic cord, accounting for less than 0.1% of all soft tissue sarcomas.[1] These tumors often present as benign inguinal masses, which complicates both diagnosis and therapeutic management. In this case, a spermatic cord liposarcoma was incidentally identified during routine inguinal hernia repair, illustrating the difficulty in distinguishing these rare tumors from more common conditions such as hernias or lipomas.[3]

Spermatic cord liposarcomas usually present as painless inguinal or scrotal masses, often leading to misdiagnosis as hernias or lipomas before surgery.[3] Histologically, liposarcomas are classified into several subtypes, including well-differentiated, myxoid, dedifferentiated, pleomorphic, and mixed types, each presenting distinct features that influence their clinical behavior and prognosis.[4] WDL are the most indolent but can exhibit local recurrence, particularly if excision margins are compromised.[4] The diagnosis in this case was challenging, as the initial histopathological analysis suggested a well-differentiated liposarcoma, but further testing revealed findings more consistent with benign adipose tissue changes.

The diagnostic complexity of spermatic cord liposarcomas is highlighted in this case. While initial pathological findings suggested malignancy, subsequent histopathological reevaluation at a specialized sarcoma center revealed that the mass was more consistent with benign adipose tissue. Imaging studies, including pelvic MRI, showed no evidence of local recurrence or metastatic disease, further supporting the revised diagnosis. The absence of MDM2 amplification, a key marker for distinguishing WDL from benign adipose tissue, played a crucial role in excluding the malignancy diagnosis.[5]

Recent studies have reinforced the diagnostic challenges associated with spermatic cord liposarcomas, particularly in distinguishing these from more common benign masses. Liposarcomas in this location may mimic other conditions such as hernias or lipomas, leading to delays in accurate diagnosis[6]. Furthermore, imaging modalities, especially advanced MRI techniques, play a vital role in evaluating the local extent of the tumor and potential for metastasis.[2] The absence of MDM2 amplification in this case further underscores the importance of molecular diagnostics in differentiating WDL from benign adipose tissue changes, as well as the need for a multidisciplinary approach to confirm the diagnosis.[2]

Surgical excision with clear margins is the cornerstone of management for liposarcomas, though in this case, the tumor was excised during inguinal hernia repair. Although the initial diagnosis suggested malignancy, the follow-up evaluation revealed benign characteristics, leading to a less aggressive management approach. The patient's imaging showed no evidence of local recurrence, and he was placed on surveillance with annual imaging and clinical evaluations. This case underscores the importance of accurate initial assessment and the role of a multidisciplinary approach, integrating histopathological expertise and molecular diagnostics, to ensure optimal patient outcomes.[4]

The incidental discovery of a spermatic cord liposarcoma during hernia repair highlights the challenges in managing rare neoplasms. Although the mass was initially suspected to be malignant, further investigations revealed it to be benign. This case illustrates the importance of comprehensive diagnostic tools, including advanced imaging and molecular studies, in managing such rare conditions. Additionally, it emphasizes the need for ongoing surveillance, as even benign masses may require careful monitoring following a malignancy diagnosis.[3]

Further research into the molecular characterization of liposarcoma may improve the differential diagnosis between these lesions and benign conditions. Studies of MDM2 and CDK4 amplification are crucial for differentiating liposarcoma subtypes, and utilizing these techniques may help avoid misdiagnosis in challenging adipose masses.[7] Additionally, Montgomery and Fisher provided valuable insights into the clinicopathologic features of paratesticular liposarcomas, emphasizing the diagnostic difficulties in this region, which are similar to the challenges encountered in this case and Doyle et al provides a more accurate approach to the diagnosis of liposarcomas and can be applied in complex cases like the one presented.[8,9]

CONCLUSION

Incidental findings during routine surgeries can present unexpected diagnostic and management challenges. This case highlights the complexities involved in diagnosing and managing rare neoplasms such as spermatic cord liposarcoma. It underscores the importance of a multidisciplinary approach, integrating histopathological expertise, molecular diagnostics, and vigilant follow-up to ensure optimal outcomes for patients with rare neoplasms. Moreover, continued research into the molecular characteristics of liposarcomas will further refine our ability to differentiate these tumors from benign conditions, improving diagnostic accuracy and patient care in challenging cases.

Furthermore, this case emphasizes that surgeons should remain vigilant for unexpected intraoperative findings, recognizing that the initial diagnosis prompting surgery may not encompass all underlying pathologies. Such awareness is crucial for comprehensive patient care and optimal surgical outcomes.

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