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Case Report

Spindle Cell Lipoma of the Right Inguinal Canal Mimicking an Inguinal Hernia: A Case Report with Long-Term Radiologic Resolution Post-Surgery

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Background: Spindle cell lipoma (SCL) is a rare benign neoplasm most commonly occurring in the posterior neck and back of middle-aged men. Involvement of the inguinal canal is exceptional and may clinically mimic hernias or malignancies, leading to diagnostic and management challenges.

Case Presentation: This paper reports the case of a 68-year-old man who presented with a progressively enlarging, non-reducible right inguinal mass extending into the scrotum over a period of 2–3 months, accompanied by lower abdominal discomfort and urinary symptoms. Initial evaluations, including imaging and laboratory investigations, indicated a soft-tissue lesion without any evidence of hernia or lymphadenopathy. The patient underwent surgical excision approximately two years prior to this report. Histopathology and immunohistochemistry confirmed the diagnosis of low-grade spindle cell lipoma. Follow-up imaging, including CT, pelvic MRI, and ultrasound, demonstrated no residual lesion or recurrence, and the patient remained clinically stable.

***Conclusion*:** This case represents an unusual localisation of spindle cell lipoma with clinical features mimicking an inguinal hernia, successfully managed through surgical excision. Long-term follow-up confirmed radiological resolution, underscoring the benign nature of the lesion and the importance of precise histopathological diagnosis.

Keywords: Spindle Cell Lipoma, Inguinal Hernia

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Introduction

Spindle cell lipoma (SCL) is a benign mesenchymal neoplasm first described in 1975 by Enzinger and Harvey as a subtype of lipoma (1). It typically presents as a slow-growing, painless subcutaneous mass, most often in middle- aged to elderly men. Common sites include the posterior neck, shoulder, and upper back, while rare manifestations have been reported in the oral cavity, parotid gland, breast, and extremities (2, 3). SCL involving the inguinal canal is particularly uncommon and may clinically mimic inguinal hernias, liposarcomas, or lymphadenopathies, posing diagnostic difficulties both clinically and radiologically.

Accurate diagnosis of SCL relies on histopathological and immunohistochemical features that distinguish it from other soft-tissue tumors.

Characteristic features include uniform spindle cells, mature adipocytes, and dense collagen bundles, typically expressing CD34 while being negative for S-100, Desmin, and other lineage markers (4). In this report, we present a rare case of inguinal SCL in a 68-year-old man, initially misinterpreted as a probable hernia. The lesion was surgically excised and confirmed histologically as SCL. Notably, follow-up imaging demonstrated complete resolution without recurrence, emphasizing the benign behavior of the tumor and the value of comprehensive diagnostic evaluation.

Case Presentation

A 68-year-old man presented to the surgical clinic with a 2–3-month history of a right inguinal swelling extending into the scrotum. The patient reported progressive enlargement of the mass, which reduced in the supine position but reappeared when standing or during physical activity. He also complained of lower abdominal discomfort and urinary symptoms, including weak stream, frequency, dysuria, and nocturia. He was receiving tamsulosin at the time of assessment. His past medical history included type 2 diabetes mellitus and ischaemic heart disease (post-angioplasty one year earlier). He had previously undergone three transurethral lithotripsy (TUL) procedures. There was no history of drug allergy, family history, or other systemic illness. On examination, a non-tender, soft mass was palpable in the right inguinal canal without signs of inflammation. Scrotal contents were otherwise normal, and no features of inguinal or femoral hernia were noted.

Baseline laboratory investigations, including CBC, renal function tests, PSA, and urinalysis, were unremarkable except for 2+ blood in the urine. Tumour markers were within normal limits. Further imaging was conducted. CT of the abdomen and pelvis with contrast revealed a soft-tissue lesion measuring approximately 50 × 38 mm in the right inguinal canal, surrounded by fat stranding but without lymphadenopathy or solid-organ involvement. Scrotal ultrasound and inguinal Doppler demonstrated no hernia and no significant lymph node enlargement, though a few small reactive nodes (<12 mm) were observed. Similarly, pelvic MRI showed no abnormalities in the pelvic organs, vasculature, or bony structures. A bone scan excluded osseous metastasis **(Figure 1).**

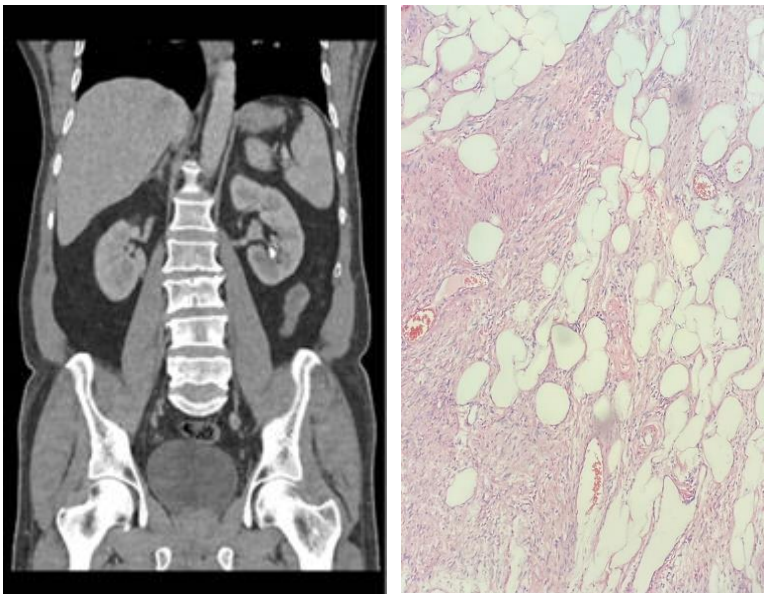

Figure 1: Pelvic MRI showing no abnormalities in the pelvic organs, vasculature, or bony structures.

The patient underwent surgical excision of the lesion. Gross pathology showed a well-circumscribed, yellowish, firm mass measuring 6 × 4 × 3.5 cm. Histopathological examination revealed bland spindle cells with mature adipocytes and eosinophilic collagen

bundles, without cytological atypia or mitotic activity. Immunohistochemical (IHC) studies demonstrated positivity for CD34 and a low Ki-67 proliferation index (<1%), while SMA, HMB-45, Desmin, and S-100 were negative. The findings confirmed the diagnosis of spindle cell lipoma. Serial imaging during the two-year follow-up period, including CT and ultrasound, confirmed complete radiological resolution of the lesion, with no evidence of recurrence. **(Figure 2).**

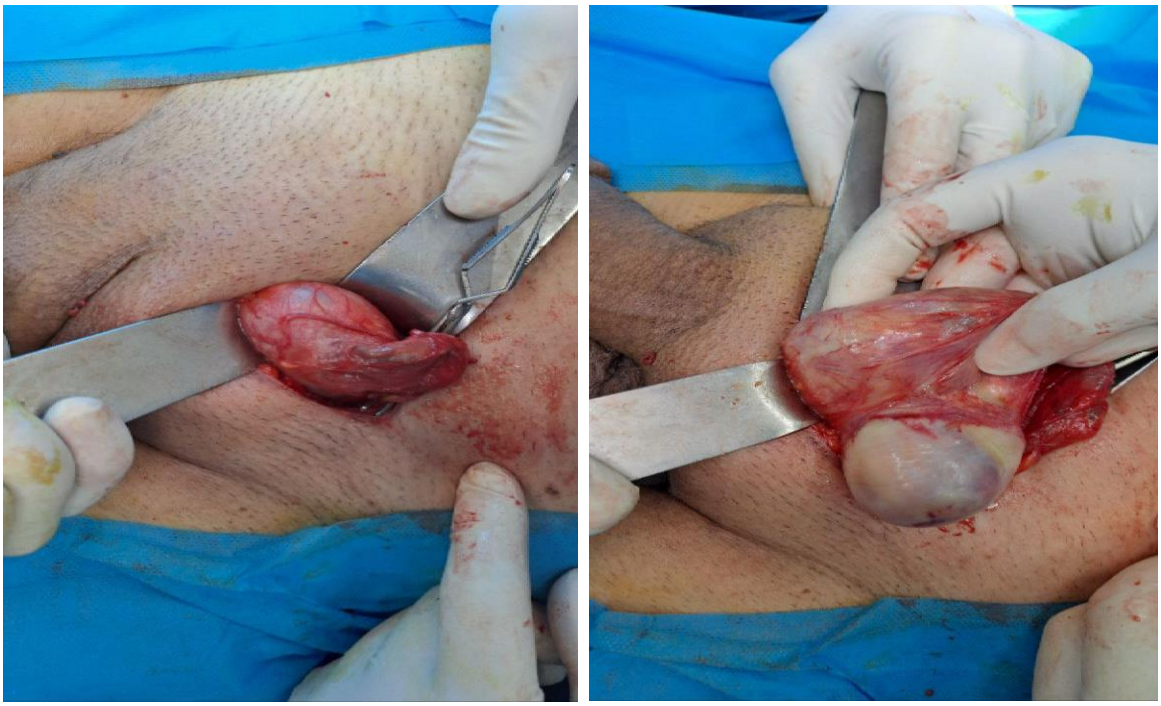

Figure 2: Histopathological examination reveals bland spindle cells with mature adipocytes and eosinophilic collagen bundles, without cytological atypia or mitotic activity.

Discussion

Spindle cell lipoma (SCL) is an uncommon benign adipocytic tumour that generally occurs in middle-aged to older men, most frequently in the posterior neck, back, or shoulder region (5). First described by Enzinger and Harvey in 1975, SCL accounts for less than 1.5% of all lipomatous tumours and is characterised histologically by a mixture of mature adipocytes and uniform spindle cells arranged in a collagenous stroma (1, 6). Though well recognised histopathologically, its occurrence in uncommon anatomical locations may complicate diagnosis (5).

Inguinal SCL is particularly rare (7). In the present case, the progressively enlarging inguinal–scrotal mass initially raised suspicion of an inguinal hernia or malignant neoplasm. Absence of bowel or omental content on imaging excluded a hernia, while the lack of significant enhancement and lymphadenopathy reduced the likelihood of malignancy. Nevertheless, fat stranding around the lesion and its deep pelvic extension warranted surgical excision and histopathological confirmation. Histologically, SCL contains mature adipocytes and spindle cells arranged in short fascicles separated by dense collagen bundles (8).

Immunohistochemical markers are key for diagnosis: spindle cells typically express CD34 and are negative for S-100, Desmin, and SMA, distinguishing them from neural, myogenic, and atypical lipomatous tumours (9).

The low Ki-67 index in this case supports the indolent nature of the tumour. The primary treatment for SCL is complete surgical excision, which is curative in most cases. Recurrence is rare and generally occurs only following incomplete excision (3). The absence of residual lesion in sequential imaging over two years

strongly supports the benign character of the tumour and the success of surgical management.

This case further highlights the importance of long-term follow-up, particularly in tumours arising in atypical anatomical sites. Although benign, such lesions may mimic malignancies and thus require careful histopathological and immunohistochemical evaluation. Their presentation in regions such as the inguinal canal may also cause functional disturbances (e.g. urinary symptoms, discomfort on movement), justifying excision even in the absence of malignancy.

Only a limited number of SCL cases originating in the inguinal or para-testicular region have been documented, most presenting similarly-with groin or scrotal masses misdiagnosed as hernias or malignancies. **Table 1** summarises representative cases published in the last two decades. Most patients were older males who underwent surgical excision following suspicion of neoplasm or hernia. Histopathological and IHC findings consistently confirmed benign SCL, and long-term outcomes were favourable, with no recurrence or metastasis.

Table 1. Reported Cases of Spindle Cell Lipoma in the Inguinal/Para-testicular Region

Author (Year)	Age/Sex	Location	Clinical Presentation	Diagnostics	Treatment	Outcome	References
Karahan et al. (2014)	58/Male	Left inguinal region (inguinoscrotal)	4-year history of gradually enlarging left groin mass, misdiagnosed as hernia	MRI showed a 7.5×7×4.5 cm inguinoscrotal mass with fibrous capsule and septations; biopsy and histology confirmed SCL; IHC positive for CD34 and vimentin, negative for S-100.	Initial surgery cancelled due to patient refusal of orchiectomy; later underwent laparoscopic adrenalectomy with simultaneous excision of mass, left testis, and spermatic cord.	Final diagnosis of SCL and pheochromocytoma; no recurrence or complications reported.	-
Iqbal et al. (2019)	72/Male	Left scrotum	4-year painless swelling of left hemi-scrotum; firm mass separate from testis	Ultrasound showed a 3.5 × 1.5 cm complex extra-testicular mass; MRI revealed a 3.4 × 2.7 × 3.4 cm benign extra-testicular lesion with patchy enhancement; tumor markers (β-HCG, AFP, LDH) were normal; histopathology confirmed SCL.	Surgical excision of the mass separate from the testis and spermatic cord via scrotal exploration.	Benign SCL confirmed; uneventful postoperative recovery; patient remained symptom-free.	(10)
Dahmen et al. (2022)	65/Male	Left spermatic cord	Recurrent left groin bulge after hernia repair; palpable left scrotal fullness (no discrete testicular mass)	Initial ultrasound showed fat-containing left inguinal hernia; CT revealed 6.7×6.1×5.8 cm scrotal mass with 2.5 cm area suspicious for liposarcoma; MRI confirmed 8×6×3.5 cm spermatic cord lipoma with suspicious region; tumor markers (LDH, AFP, β-HCG) were within or near normal range; pathology confirmed spindle cell/pleomorphic lipoma, CD34+, S100–.	Radical left inguinal orchiectomy with high ligation of spermatic cord.	Diagnosis of spindle cell/pleomorphic lipoma confirmed; uneventful postoperative course.	(11)
Fujiwara et al. (2024)	71/Male	Left intra-scrotal (spermatic cord)	2-year history of enlarging left scrotal mass	CT showed 5.7 cm left scrotal mass with features suggestive of well-differentiated liposarcoma; ultrasound revealed heterogeneous, hyperechoic mass; MRI showed varied T1/T2 signal intensity; histology confirmed	Radical inguinal orchiectomy with high cord ligation, external spermatic fascia preserved to prevent tumor migration.	Complete excision with negative margins; mild postoperative hematoma resolved; no recurrence at 3-month follow-up.	(12)

				SCL (mature adipocytes + bland spindle cells); immunohistochemistry: CD34+, CDK4–, MDM2–, P16–.			
Al-Rashid et al. (2004)	60/Male	Right spermatic cord (scrotum)	Painless right scrotal mass (1-year); no hernia on exam	-	-	-	(13)

Conclusion

This case illustrates a rare presentation of spindle cell lipoma in the inguinal canal, clinically mimicking an inguinal hernia. Imaging, surgical excision, and histopathological examination were all crucial for establishing the final diagnosis. Long-term follow-up confirmed the absence of recurrence, reaffirming the benign course of this tumor. Clinicians should consider SCL in the differential diagnosis of atypical soft-tissue masses in the inguinal region, particularly in middle-aged or elderly male patients.

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