



## A Spermatic Cord Mystery: Case Report

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### KEYWORDS

Inguinal Mass,  
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Myxoid,  
Pleomorphic.

### ABSTRACT:

**Introduction:** Diagnosing a groin sarcoma is challenging because sarcoma is typically the least probable cause for a lump in the groin or inguinal region. Liposarcomas of the spermatic cord comprise 3% of spermatic cord tumours. Less than 200 cases have been reported in literature. These masses are often mistaken for an inguinal lymph node or a hernia and were discovered to be a soft tissue mass on surgical exploration. Further revision surgery or radiotherapy was planned to prevent recurrence.

**Case presentation:** This case study describes the treatment protocol of a 48-year-old male with a painful inguinal mass which was clinically suspected to be a lipoma of the cord. After a radiological investigation, surgical excision was planned to involve the mass and the testis. The final diagnosis was made on histopathological examination.

**Conclusions:** Since spermatic cord sarcomas are rare, there is no defined treatment protocol. A possibility of malignancy should be considered when inguinal or inguinoscrotal swellings do not have classical clinical presentations. Surgical excision should be planned in such a way as to avoid revision surgery.

### 1. Introduction

Diagnosing a groin sarcoma poses challenges due to sarcomas being among the least common causes of lumps in the groin or inguinal region. Liposarcomas of the spermatic cord constitute only 3% of tumors affecting the spermatic cord, with fewer than 200 cases documented in medical literature. Ultrasonography is the first-choice imaging method to distinguish between masses located within the testicles and those in the surrounding areas, demonstrating a sensitivity reported to be over 95%. Orchidectomy and high ligation of the spermatic cord is preferred to achieve clear margins.

Employing an inguinal approach, wide excision of the soft tissue mass and removal of all potentially contaminated tissues close to the deep ring are essential in managing this neoplasm, despite reported survival rates highlighting the need for additional treatments. Histopathological examination is the gold standard

diagnosis. The adjuvant therapy can be given in the form of radiotherapy.

### 2. Case Presentation

#### HISTORY

A 48-year-old male presented to the outpatient department of General Surgery with complaints of swelling in the Right Groin region for one month. The patient was apparently normal one month back after which he noticed a swelling in the Right Groin while bathing. No change in the size of the swelling noted since.

The swelling was associated with pain for one week which was pricking in type on application of pressure. There was no history of trauma or fever. No complaints of abdominal pain or vomiting. No complaints of altered bowel or bladder habits. No complaints of unintentional loss of weight or loss of appetite. The patient had no known comorbidities or no history of surgical interventions present.



## EXAMINATION

On general examination patient had no pallor, generalised lymphadenopathy or pedal edema. Vitals were stable. Systemic examination was normal.

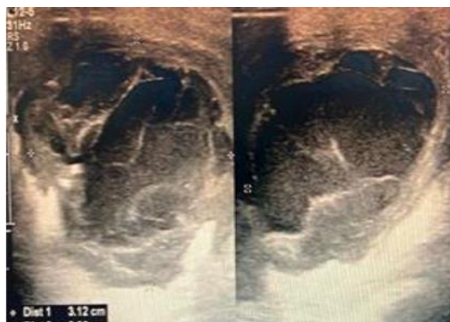
On local examination, a single ovoid swelling of size 4x3x2 cm was seen in the Right Inguinal region along the inguinal ligament. The skin over the swelling was normal and the surface of the swelling was smooth. No warmth. Minimal tenderness was present. Intrinsic mobility was limited. Swelling moved with the traction applied to the right testis. The swelling was firm in consistency.



**[Table/Figure 1] Pre-Operative Image Of The Swelling**

Routine blood investigations were found to be normal.

Suspecting an irreducible hernia, an Ultrasound of the local area was taken. it showed a well-defined lobulated hypochoic lesion with internal cystic spaces in the Right Inguinal canal along the spermatic cord showing internal vascularity. Radiologically, a differential diagnosis of an adenomatous tumour or a sarcomatous tumour of the spermatic cord was given.



**[Table/Figure 2] An Ultrasound Image of the Mass**

Due to logistic reasons, Magnetic Resonance Imaging or a Computed Tomography could not be done.

A Surgical Oncologist's opinion was obtained and a suggestion to perform High Inguinal Orchidectomy was given to acquire a histopathological diagnosis.

## SURGICAL INTERVENTION:

The patient was planned for an Exploration under spinal anaesthesia. An incision was made along the Inguinal ligament over the swelling and the incision was deepened. An oval mass of size 4x3x2cm was observed arising from the spermatic cord. It was not fixed to the surrounding structures. A High Inguinal Orchidectomy with ligation of spermatic cord at the level of deep ring was done and the specimen was sent for histopathological examination.



**[Table/Figure 3] An Intra-Operative Image Of The Mass Arising From The Spermatic Cord**



**[Table/Figure 4] Specimen Showing The Mass, The Spermatic Cord And The Right Testis**

## HISTOPATHOLOGICAL EXAMINATION (HPE):

Sections studied showed a partially encapsulated, well demarcated tumor. Cells showed a predominant spindle cell morphology with moderate to markedly pleomorphic

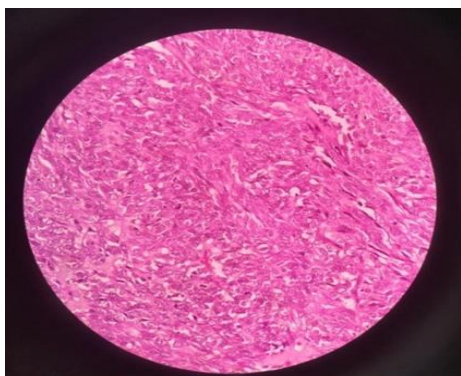


elongated nuclei with conspicuous nucleoli and high mitotic activity (>20/10hpf).

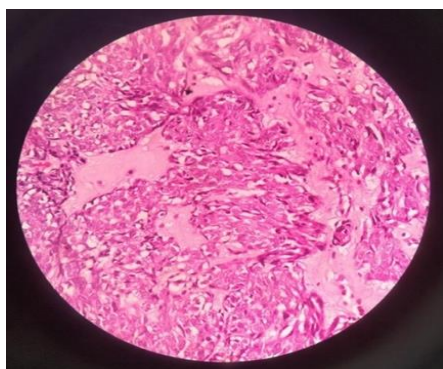
Other areas show sheets of cells with polygonal morphology, round to ovoid nuclei exhibiting mild pleomorphism and well-defined cell margins. Adipocytes (focal signet ring cell) morphology, with occasional adipoblasts, were also seen. Intervening stroma showed myxoid change.



[Table/Figure 5] HPE Showing Mitotic Figures



[Table/Figure 6] HPE Showing Spindle Shaped Cells In Fascicles



[Table/Figure 7] Hpe Showing Myxoid Changes

#### IMMUNOHISTOCHEMISTRY:

Immunohistochemical marker study showed strong positivity for Vimentin and CD34. p63 and PanCK were found to be negative.

The impression of a Spindle Cell Sarcoma with high grade nuclear features and Myxoid stroma. A differential diagnosis of Myxoid Pleomorphic Liposarcoma, Myxoid Liposarcoma with Dedifferentiated Leiomyosarcoma and Myxoid Leiomyosarcoma was considered. S100 was positive confirming the diagnosis of a Myxoid Pleomorphic Liposarcoma.

The patient was referred to another centre for logistic reasons where adjuvant radiotherapy was given. 6 monthly CT scans were done and no local recurrence was noted for the past year.

#### 3. Discussion

Soft tissue sarcomas of the external genitalia, originate from structures such as the epididymis, spermatic cord, and tunica vaginalis, excluding the testicle. While most of these are benign less than a third are malignant, with sarcomas predominating and accounting for 90% of malignant cases. These present as inguinal or inguinoscrotal masses and are often mistaken to be a hernia or may co-exist with the same. Fewer than 0.1% of hernia operations encounter complications related to this issue. Other studies indicate that unexpected tumours are discovered in just 0.00098% of specimens from hernia operations.[1] Common histological types include liposarcoma (20–56%), leiomyosarcoma (19–32%), and rhabdomyosarcoma (11–24%). [4,5,6] Typically seen in men around their sixth decade, patients commonly present with a scrotal mass or swelling in the groin, which may be painful or painless, sometimes accompanied by a hydrocele. [5] According to a literature review, 75% of soft tissue sarcomas in men are reported to originate from the spermatic cord. [2,13,15,16]. The first documented report of sarcoma of the spermatic cord dates back to Lesauvage in 1845. [18,21]. Liposarcoma is a relatively common type of soft tissue sarcoma, accounting for 9.8–18% of all cases. It primarily affects individuals aged 40 to 60 years. In the scrotum, liposarcoma accounts for 3.6% of cases, but this percentage rises significantly to 76% when located in the spermatic cord. Other affected areas include the testicular membrane (20%) and the epididymis (4%). [2,11] Within



the spermatic cord, liposarcomas constitute about 3% of malignant tumours. There are various subtypes of liposarcoma, including well-differentiated, dedifferentiated, myxoid, and pleomorphic types. [2,11,12] Fewer than 200 cases of malignant spermatic cord sarcoma have been documented worldwide in the literature. [15,17]

Ultrasonography is the initial imaging choice to distinguish between intratesticular and para testicular masses based on location with a reported sensitivity exceeding 95%. Poorly defined, disorganized solid masses showing heterogeneity and hypervascularity are suggestive features of malignancy. [5] However, it may not effectively differentiate between herniated fat and a lipomatous mass. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are valuable investigations for assessing the extent beyond the inguinal ring and for a detailed evaluation of mass dimensions, location, and anatomical relationships. [2,3,13] Cyst-like mass can be found in approximately 20% of myxoid liposarcomas occurring in soft tissues. [8]. Spermatic cord masses are rare and diagnostically challenging. Sarcomas in this region are aggressive, requiring radical surgery and potentially additional therapies due to limited clinical guidance. [2,4] Orchiectomy and high ligation of the spermatic cord is done to achieve a negative margin. An inguinal approach with a wide excision of the soft tissue mass and removing all potentially contaminated tissues as close to the deep ring is crucial for managing this neoplasm, despite reported survival rates underscoring the need for additional therapies. Repeat wide excision is recommended when initial surgery fails to achieve complete resection due to a high rate (27%) of microscopic residual disease. [2,4,15,18] According to the latest WHO Classification of Soft Tissue and bone tumours, Myxoid Pleomorphic Liposarcoma is characterized as an unusually rare and aggressive adipocytic tumour. It displays a combination of histologic features found in both conventional myxoid liposarcoma and pleomorphic liposarcoma. [7]

Dedifferentiated liposarcoma (DDL) includes lipoblasts mixed with spindle cell or pleomorphic sarcomatous components. [9,10] DDL with myxoid features shows sparse cells in a myxoid matrix and vessels resembling myxoid liposarcoma (MLPS), but with mild nuclear atypia and larger vessels. [10]

CDK4 and MDM2 markers are crucial in distinguishing liposarcomas from benign lipomas. S100 protein is highly specific in liposarcomas, being positive in 90% of cases; desmin positivity is common in high-grade liposarcomas [21]. A diffuse CD34 and p16 expression, loss of nuclear Rb expression was noted in myxoid liposarcomas. [7] Positive margin rates of up to 19% have been documented after initial local excision, highlighting the difficulties in achieving complete surgical resection of these tumours. The accuracy of intraoperative frozen biopsy limits the assessment of tumour resection margins, complicating efforts to achieve complete surgical removal. [18]

The use of adjuvant treatment (chemotherapy/radiotherapy) remains contentious due to limited literature. Some authors advocate adjuvant radiotherapy only for cases with multiple local recurrences, positive margins, or poor prognostic factors like high-grade tumours. [16, 21] Studies on spermatic cord tumours suggest adjuvant radiation improves locoregional control and disease-free survival, yet does not significantly enhance 5-year overall survival. Liposarcomas exhibit the highest radiosensitivity among all sarcomas, and in certain instances, radiotherapy alone has led to remission. [23,24] Two prospective randomized trials focusing on soft tissue sarcoma have confirmed that incorporating radiation alongside surgery significantly decreases the risk of local recurrence [23]. Chemotherapy has no established role in managing localized liposarcoma of the spermatic cord based on current evidence. [14,18]

Two prospective randomized trials examining the addition of radiation to surgery in soft tissue sarcoma have demonstrated that adjuvant radiotherapy can enhance locoregional control and disease-free survival. However, this benefit did not result in improved overall survival. [14,18,21] Another study showed that postoperative radiotherapy significantly reduces the 10-year local recurrence rate in patients with high-grade lesions ( $p = 0.0028$ ). [22]

Further research is needed to thoroughly investigate the role of both neoadjuvant and adjuvant chemotherapy in the treatment of liposarcomas through well-documented studies. [17]

As described by Ebey BN et.al, (TABLE/FIGURE 8) patients with para testicular liposarcomas often presented



with scrotal masses. They were often mistaken for hernias until a radiological investigation confirmed otherwise.[17] Excision of the mass with the spermatic cord at the level of the deep ring along with the testis and scrotal skin was done. Follow-up CTs were taken to track the local recurrence. [15, 17, 25]

Another case was reported where a retroperitoneal sarcoma presented as an inguinal hernia. An ultrasound was taken which showed a “large lipomatous hernia” descending into the scrotum. On initial exploration, a large extraperitoneal mass without a hernia defect was visible and the procedure was aborted to carry out further radiological investigations. The patient was then taken up for exploratory laparotomy with complete tumour resection followed by Lichtenstein repair of the resulting defect. The patient was not willing for any mutilating procedures, including orchidectomy. [19]

The current case study and the other mentioned case reports show that isolated inguinal or inguinoscrotal

masses may not always be benign. It is a challenge to identify malignant potential within an inguinal or an inguinoscrotal swelling as they tend to be confused with an inguinal node or an irreducible hernia. Hence the line of management varies according to patient complaints, resources available and the operating surgeon.

**4. Conclusion**

Any discrepancy with clinical findings not correlating with an inguinal hernia or a node should be paired with radiological investigations. One should be mindful of a slight discrepancy in the regular findings and according interventions are to be planned. A proper counselling should be given to the patient regarding the possibility of a radical procedure if a suspicious mass is present on exploration. Post-operative radiotherapy or chemotherapy can be decided based on the histopathological findings with the help of an expert.

**Table/Figure 8: A Comparison Of The Current Study With Other Prominent Studies**

	This Case Study	Chalouhy C et.al [18]	Ebey BN et.al [14]
Age	48 year old	63 year old	45 year old
History	Mobile, non progressive painful mass in right inguinal region x 1 month.	Painless, mobile mass in inguinal region.	Progressive, painless swelling in inguinoscrotal region x 6 months
Presentation	4x3x1cm mass in inguinal region. Mass moved with traction on testis with side to side mobility. Testis palpated separately in scrotum.	Mass descending from inguinal canal into the scrotum.	Firm and nodular scrotal mass. No associated inguinal lymphadenopathy. Testis not palpated separately.
Radiology	USG : Well-defined lobulated hypoechoic lesion with internal cystic spaces in the Right Inguinal canal along the spermatic cord showing internal vascularity.	5cm mas with heterogenous enhancement located in the right inguinal canal.	USG : heterogenous hyperechogenic mass in right hemiscrotum with mixed echogenecity. CT: 14x8cm mass lesion in the right hemiscrotum which contained fat and soft tissue.
Pre-operative Diagnosis	? Soft tissue Sarcoma	Indirect inguinal hernia.	Fat containing tumour- ?Liposarcoma.
Surgery	Through Inguinal approach, High Inguinal Orchidectomy was done.	-Intra-operative exploration was done and when a mass was identified in the inguinal	Through right Inguinal approach,Radical orchidectomy.



		region. Surgery deferred and CT Scan was taken to find extent of the mass. Patient was then taken up for excision.	
Histopathology report and Immunohistochemistry	Myxoid Pleomorphic Liposarcoma. Vimentin + CD34+ S100+	Well-differentiated liposarcoma .	Pleomorphic liposarcoma.
Post-Surgery	CT Screening every 6 months.	CT Screening at 6 months,1,3,5 and 10 years	CT Screening every 6 months.
Recurrence	No local recurrence in 1 year follow up.	No recurrence in CT scan performed after 10 years.	No recurrence during 1 year follow up period.

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