The Egyptian Journal of Hospital Medicine (January 2023) Vol. 90, Page 1300-1302

Liposarcoma of Spermatic Cord: A Case Report

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ABSTRACT
A painless inguinal or scrotal tumor is a characteristic of the uncommon illness known as liposarcoma of the spermatic cord (LSC). We introduce a 40-year-old man who was hospitalized to the Surgery Department with indications of a right inguinal unilateral, painless, hard, firm mass that was slow-growing. Histopathology evaluation revealed a lipomatous neoplasm formed of lobules of fat cells of variable size having large nuclei with few showing nuclear indentation by vacules. The fat cells are separated by either loose myxoid stroma or fibrous stroma that shows atypical cells with large hyperchromatic nuclei. The mass is surrounded by an intact facia. The submitted membranes and fibrofatty tissues are free from tumor invasion.
Keywords: Spermatic cord, Liposarcoma, Radical orchiectomy, Case report, Damanhur Medical National Institute.

BACKGROUND
The most prevalent primary cancerous tumor of the spermatic cord is a malignant tumor called liposarcoma, which develops from mesenchymal cells [(1)].

Patients of all ages may develop primary spermatic cord tumors, which make up 7-10% of all intrascrotal tumors but are very uncommon. In most cases, they manifest as hard, palpable, slow growing paratesticular lumps. Even though lipomas make up the majority of them, which are mostly benign, 25% of them are potentially fatal malignant tumors [(2)].

Lipomyosarcomas, leiomyosarcomas, rhabdomyosarcomas, malignant fibrous histiocytomas, and fibrosarcomas are the most often reported malignant histological forms. Due to the rarity of these malignant tumors, treatment has been challenging, and there is no agreement on the best surgical and non-surgical treatment approaches. [(3)].

Less than 200 instances of paratesticular liposarcomas have been documented in the literature as of this writing. Most of these tumors are present as scrotal or inguinal lumps that are painless and slowly developing. Spermatic cord liposarcomas are uncommon, and because of this, they are frequently misdiagnosed as inguinoscrotal hernias, hydrocele, lipomas, funicular cysts, or testicular cancers [(4)].

There is limited information about liposarcomas and no formal guidelines or standards for diagnosis, therapy, or patient follow-up due to the rarity of these tumors. Due to these restrictions, there is no universal agreement on the best surgical and adjuvant therapies [(5)].

CASE PRESENTATION
A 40-year-old male patient with a painless movable mass in the right inguinal area was seen in April 2022 at Damanhour Teaching Hospital in Elbehiera, Egypt. When the patient performed the Valsalva maneuver, it was discovered during a clinical examination that the swelling had descended from the inguinal canal into the scrotum. This led to the clinical and radiological diagnosis of an indirect inguinal hernia.

A multi-loculated, encapsulated yellow mass was discovered intra-operatively after the spermatic cord was severed; there were no hernias seen, and the mass was totally dissectable from the surrounding tissues with the intact capsule and preservation of the spermatic cord and testis.

The final pathological evaluation of the specimen was well differentiated liposarcoma with intact capsule and free surgical resection margin, metastatic work up was done and was free. Consultation was done with a consultant medical oncologist for if the patient in need for radical orchiectomy, the final decision is no need for further surgical interventions.

HISTOPATHOLOGY
Gross pathology stroma or fibrous stroma that shows atypical cells with large hyperchromatic nuclei. The mass is surrounded by an intact fascia. The submitted membranes reveals a well-defined mass with intact facia measuring 11x9x8cm, the mass has a lobulated yellow myxoid cut section admixed with whitish areas. Also submitted is a membranous structure 10x4cm and small fibfofatty specimen's collectively measuring 4x4cm. Histopathology report reveals a lipomatous neoplasm formed of lobules of fat cells of variable size having large nuclei with few showing nuclear indentation by vacules. The fat cells are separated by either loose myxoid and fibrofatty tissues are free from tumor invasion.

The patient gave informed permission for the sharing of the information displayed here.

Received: 03/08/2022
Accepted: 04/10/2022

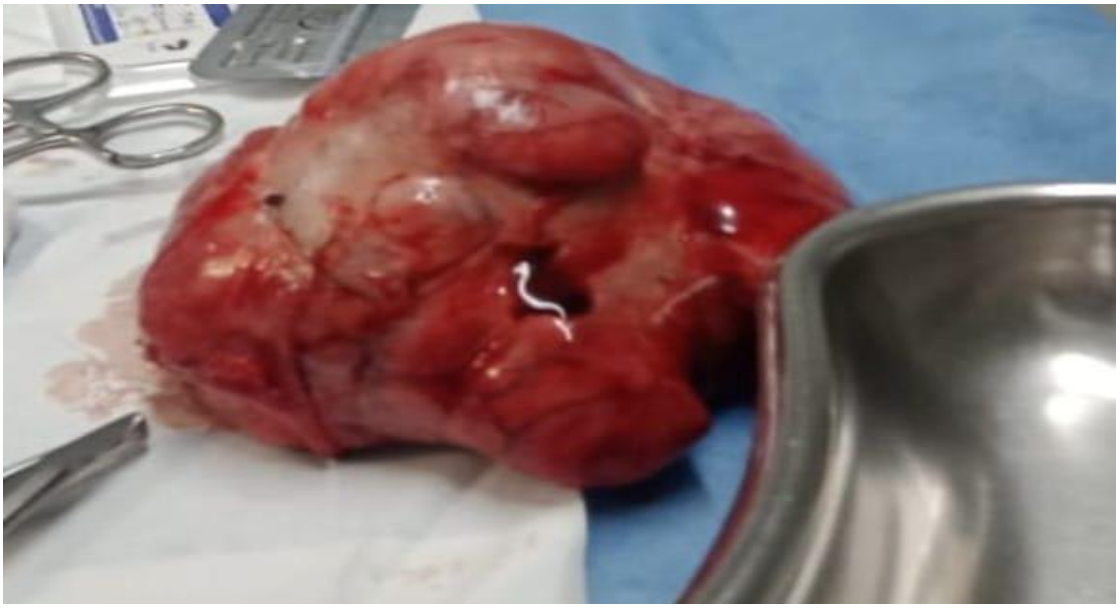

Figure 1: Liposarcoma of the spermatic cord.

DISCUSSION

Over than 75% of primary paratesticular cancers in adults develop from the spermatic cord. The majority of scientists concur that mesodermal tissue, as opposed to benign lipomatous tissue that has undergone cancer progression, is the primary source of sarcomas [(6)]. Primary spermatic cord cancers often appear as scrotal masses rather than inguinal masses because they typically arise below the external inguinal ring. Because more common illnesses present as painless scrotal lumps, identifying these tumors may be challenging. In light of this, inguinoscrotal hernias, lipomas, hydrocele, epididymal cysts, and testicular cancers are often misdiagnosed as spermatic cord liposarcomas [(7)]. The majority of spermatic cord liposarcomas are low-grade, well-differentiated cancers with little to no potential to spread. Liposarcomas are tumors that are aggressive locally and often recur locally [(8)].

In this report, our case was 40 years old, it is backed by the literature of **Li *et al.*** [(9)] which reported 61 years was the median age of presenting, with a range of 24 to 79 years, indicating that adults experienced malignancy more commonly than children. In all, 57.9% of the cases, 22 out of 38, were 60 years or older.

In the present case, the patient's right inguinal area was home to a painless movable lump. A nodular mass of different sizes that was slowly developing, non-tender, painless, and placed intra-scrotally above the testicles or in the groin was the classic clinical presentation of LSC [(10)]. Preoperative identification was uncommon and often misdiagnosed as an inguinal hernia, hydrocele or spermatocele, or a malignancy of the testis or epididymis [(13)]. A few instances reported a painful node [(11,12)].

In the current example, the patient's scrotal lump was felt while he was standing but vanished when he was laying down. As a result, an inguinal hernia was often mistaken for it. **Tan *et al.*** [(14)] revealed that the right side of the body has the most tumors. But in the analysis of the literature of **Li *et al.*** [(9)], they revealed that on the left than the right, there were more instances. In addition, 3 instances included the retroperitoneum, which strongly indicated that a pelvic CT scan be performed prior to surgery in order to rule out the likelihood of malignancy.

In contrast to testicular masses, paratesticular sarcomas are seen as homogenous and iso-echogenic in some, while being inhomogeneous in others, and echodensity is fairly varied. The use of CT scans does not provide any pathognomic markers for differentiating benign from malignant masses since liposarcomas are low density and easily identifiable [(15)]. First-line testing should include ultrasonography (US) due to the wide range of pathologic diseases in the differential diagnosis of scrotal tumors. Spermatic cord liposarcoma often presents in the US as a heterogeneous, hypervascular mass with hyperechoic regions that show varying quantities of internal fat [(16)]. Additional imaging is often required since there are no pathognomonic sonographic markers that may distinguish benign from malignant lesions, despite the fact that US can be valuable for learning about the location, size, and integrity of the mass [(17)].

Based on their morphological characteristics, natural history, and cytogenetic changes, four subtypes of liposarcomas, well differentiated, dedifferentiated, myxoid, and pleomorphic, are histologically distinguished from one another. A tiny subset of liposarcomas exhibiting characteristics from two or more subtypes combined is referred to as mixed-type [(18)]. In the present case, histopathology report revealed a lipomatous neoplasm formed of lobules of fat cells of variable size having large nuclei with few showing nuclear indentation by vacules. The fat cells are separated by either loose myxoid stroma or fibrous stroma that shows atypical cells with large hyperchromatic nuclei. This is in comparison with the case report of **Dunev *et al.*** [(19)] According to histopathologic analysis, the tumor mass was made up of dedifferentiated and well-differentiated liposarcoma,

as well as nests of big, poorly differentiated lipoblasts that protruded from the myxoid, sclerosing, or well-differentiated liposarcoma. There were no pathogenic alterations in the spermatic cord or testis.

Radical orchiectomy combined with extensive local excision of the surrounding soft tissues and high cord ligation constitutes the standard treatment for spermatic cord liposarcoma. Adjuvant radiation treatment is often used to treat intermediate or high-grade lesions, lymphatic infiltration, an insufficient surgical margin, or recurrence to lower the likelihood of loco-regional recurrence following surgery [(20)]. Liposarcoma has a similar probability of local recurrence as high-grade lesions, but since these relapses often only affect a small area, the prognosis is still positive. Spermatic cord sarcoma overall 5- and 10-year disease-specific survival rates are 75% and 55%, respectively. Therefore, long-term follow-up is usually necessary due to the significant probability of local recurrence [(21)]. Liposarcoma has a similar probability of local recurrence as high-grade lesions, but since these relapses often only affect a small area, the prognosis is still positive. Spermatic cord sarcoma overall 5- and 10-year disease-specific survival rates are 75% and 55%, respectively. Therefore, long-term follow-up is usually necessary due to the significant probability of local recurrence [(22)].

CONCLUSIONS

Spermatic cord liposarcoma is an uncommon condition. Although challenging, the diagnosis is crucial, and imaging tests should be carried out as needed to support the diagnosis. It is possible to find LSC in the urology or outpatient general surgery departments, albeit it is quite uncommon. In individuals who have recurring inguinal hernias, it should be strongly suspected. Therefore, this cancer should be known to all surgeons. An accurate preoperative diagnosis is aided by a thorough clinical and radiographic evaluation.

DECLARATIONS

- **Consent for publication:** I certify that all writers have given their consent to submit the work.
- **Availability of data and material:** Available
- **Competing interests:** None
- **Funding:** No fund
- **Conflicts of interest:** no conflicts of interest.

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