



Unveiling the Rarity: A Case Report on Gigantic Primary Scrotal Lipoma

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Abstract

Primary scrotal lipoma is an exceptionally rare finding, typically detected incidentally but posing diagnostic dilemmas when presenting as a substantial mass. Often mistaken initially for inguinal-scrotal hernias or testicular malignancies due to clinical similarities, accurate differentiation is essential for appropriate management. Here, we present a case of a middle-aged male with a massive scrotal swelling, initially raising concerns of malignancy. However, thorough clinical evaluation and imaging studies guided by suspicion for lipomatous origin facilitated the correct diagnosis. Histopathological examination confirmed the presence of a primary scrotal lipoma, highlighting the importance of considering lipomas in the differential diagnosis of scrotal masses. Surgical excision remains the mainstay of treatment to alleviate symptoms, prevent complications, and confirm the benign nature of the lesion. This case underscores the need for heightened awareness among clinicians managing scrotal pathologies to ensure timely diagnosis and effective management strategies in urological practice.

Key words scrotal lipoma, testicular malignancy, Inguinal-scrotal hernia

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Introduction

Scrotal swelling is a significant clinical concern across all age groups, primarily due to the potential presence of neoplastic lesions originating from the adjacent testes. While testicular tumors are a major consideration, several other common conditions should be included in the differential diagnosis of scrotal swelling. These conditions include testicular torsion, varicocele, hydrocele, inguinal-scrotal hernia, and epididymal cysts [1]. Testicular torsion, an acute surgical emergency caused by the twisting of the spermatic cord, leads to compromised blood flow to the testis. Patients typically present with sudden onset of severe scrotal pain, swelling, and sometimes nausea or vomiting [2, 3]. Varicocele, involving the dilatation of the pampiniform plexus veins within the scrotum, often presents as a painless, palpable "bag of worms" sensation and is frequently associated with infertility [4].

Hydroceles, collections of fluid within the tunica vaginalis surrounding the testis, present as painless scrotal swelling and are usually benign but can occasionally be associated with underlying testicular pathology [5]. Inguinal-scrotal hernia, which occurs when abdominal contents protrude through the inguinal canal into the scrotum, presents as a soft, reducible mass that may increase in size with activities like coughing or straining [6]. Epididymal cysts, benign fluid-filled sacs arising from the epididymis, are generally asymptomatic and discovered incidentally during physical examination or imaging studies [7].

An exceptionally rare differential diagnosis is primary scrotal lipoma, which poses a unique diagnostic challenge. Primary scrotal lipomas arise from the subcutaneous fat of the scrotal sac, and clinical examinations often struggle to differentiate them from testicular or para-testicular swellings [8]. We present a case of a primary gigantic scrotal lipoma in an adult male, confirmed through histopathological examination. The patient, a 45-year-old man, reported a progressively enlarging scrotal mass over several years. He denied any pain, urinary symptoms, or systemic manifestations. On physical examination, a large, non-tender, and mobile mass was palpated in the scrotum, distinct from the testes. Initial differential diagnoses included hydrocele, inguinal-scrotal hernia, and a para-testicular tumor.

Ultrasonography was employed as the first-line imaging

modality, revealing a well-circumscribed, hyperechoic mass separate from the testes, suggestive of a lipomatous lesion. Given the uncertainty of the diagnosis, surgical exploration was undertaken. Intraoperatively, a large, encapsulated fatty mass was identified, arising from the scrotal subcutaneous tissue and completely separate from the testicular and spermatic structures. The excised mass was subjected to histopathological examination, confirming the diagnosis of a lipoma. The histological analysis demonstrated mature adipose tissue without any evidence of malignancy. This case underscores the importance of considering primary scrotal lipoma in the differential diagnosis of scrotal swellings and the role of histopathological confirmation in establishing the diagnosis [9].

Primary scrotal lipomas are exceptionally rare benign tumors that originate from the subcutaneous fat of the scrotal sac. Due to their rarity and non-specific presentation, they often pose a diagnostic challenge. Clinically, primary scrotal lipomas can be indistinguishable from other scrotal masses, as physical examination alone is often insufficient to delineate their exact nature and origin [10]. They typically present as slow-growing, painless masses that can attain considerable size before diagnosis. The etiology of scrotal lipomas remains unclear, though some hypotheses suggest a possible embryological origin or association with chronic irritation or trauma [9].

The clinical diagnosis of primary scrotal lipoma is challenging due to its rarity and non-specific presentation. Ultrasonography can aid in differentiating lipomas from other scrotal masses, but definitive diagnosis often requires histopathological confirmation. Fine-needle aspiration cytology (FNAC) and magnetic resonance imaging (MRI) may also be useful adjuncts in ambiguous cases [1]. Surgical excision is the treatment of choice for primary scrotal lipomas, providing both diagnostic confirmation and symptomatic relief. The prognosis is excellent, as these tumors are benign with no known potential for malignant transformation. Recurrence is rare following complete surgical removal [11].

Scrotal swellings encompass a wide range of differential diagnoses, each necessitating careful clinical and diagnostic evaluation. Primary scrotal lipoma, although rare, should be considered in the differential diagnosis, especially in cases where typical features of more common conditions are absent. This

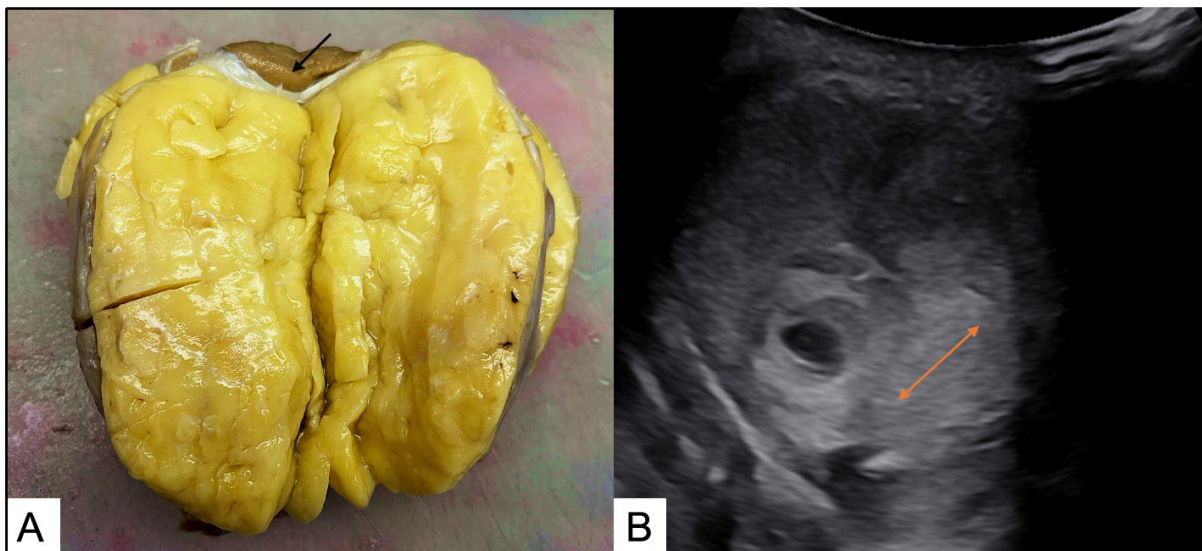


Figure 1: A) Gross image showing an encapsulated lipomatous lesion with normal compressed testes in periphery marked by arrow; B) Ultrasonographic picture showing weakly vascularized homogenous mass in right scrotum marked by arrow.

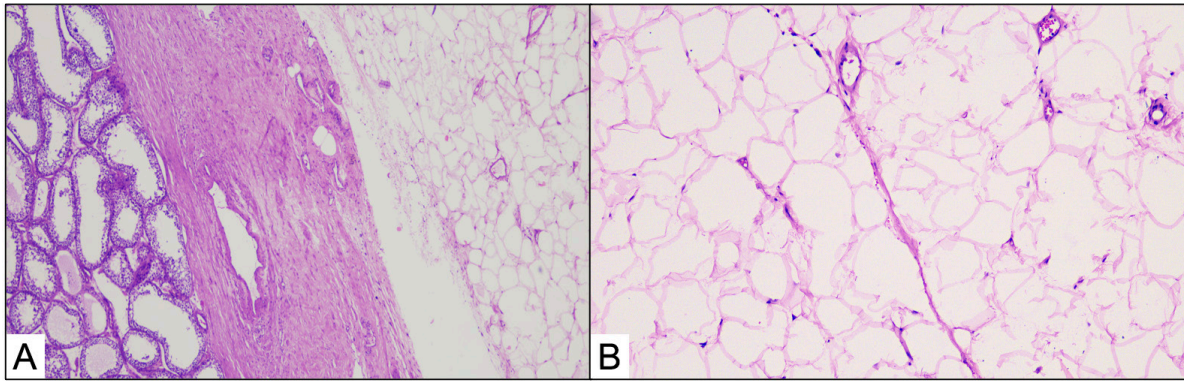


Figure 2: A) Histological image showing lipoma and adjacent normal testes (H & E 100X); B) Histological picture showing mature adipose tissue with no atypical cells (H & E 400X).

case highlights the importance of considering rare entities in differential diagnoses and the role of histopathology in confirming the diagnosis of primary scrotal lipoma. Future studies and case reports will be invaluable in enhancing our understanding and management of this uncommon condition.

Case presentation

A 37-year-old male presented to the surgical outpatient department (OPD) with a giant right-sided scrotal swelling. The patient first noticed the swelling two years ago when it was relatively small and did not cause significant concern, leading him to ignore it. Over the past year, however, the swelling gradually increased in size, eventually causing discomfort and interfering with his daily activities. The patient denied any history of pain throughout the course of the swelling's progression.

On clinical examination, a well-defined, non-reducible, non-tender mass approximately 15 cm in size was palpated in the right scrotal region. The right testis was not palpable due to the enormous size of the mass. Given the substantial swelling, a scrotal ultrasonography was performed, which revealed a hyperechoic homogeneous solid mass with weak vascularization, measuring 17.2 x 12 x 6 cm. The mass was compressing the right testis (**Figure 1**). Based on these findings, a neoplastic etiology was suspected, and surgical excision was planned.

An inguinoscrotal incision was made during the surgery, revealing an intact right testis and epididymis. A giant encapsulated tumor, slightly adhered to the tunica vaginalis, was identified and meticulously removed. The tumor was sent for histopathological examination. Grossly, the tumor appeared to be lipomatous in origin, and on serial sectioning, no necrosis or variegated areas were observed (**Figure 1**).

Histopathological examination confirmed the diagnosis of a primary scrotal lipoma. The analysis revealed mature adipocytes arranged in lobules, separated by fibrovascular septa (**Figure 2**). No atypical cells, anaplasia, or other heterologous components were noted in various sections of the tumor tissue. The adjacent testis appeared normal, with no evidence of any testicular lesion.

The diagnosis of primary scrotal lipoma was established based on these histopathological features. The patient was followed up for the next six months post-operatively, during which no recurrence of the lipoma was observed. The patient reported significant relief from discomfort and a return to normal daily activities following the surgery.

This case underscores the importance of considering primary scrotal lipoma in the differential diagnosis of scrotal swellings,

especially in instances where the presentation does not align with more common conditions such as hydrocele, varicocele, or testicular tumors. The gradual growth of the mass without pain can lead to delayed medical consultation, as seen in this case. Timely imaging and histopathological evaluation are crucial for accurate diagnosis and appropriate management. Surgical excision not only provides definitive diagnosis but also symptomatic relief and prevention of potential complications arising from large scrotal masses.

Discussion

Scrotal lipoma is an unusual finding, with only a handful of cases reported in the literature. The term "primary scrotal lipoma" is used when the lipoma arises from the scrotal wall, as was the case here. These lipomas can mimic testicular tumors when they present as large masses, creating a diagnostic challenge. Although there is no definitive classification system, primary scrotal lipomas are generally divided based on their site of origin into three types: i) posterior of the spermatic cord, ii) spermatic cord, and iii) dartos tunica.

Typically, the first symptom of a scrotal lipoma is a sensation of fullness in the scrotum, which later progresses to an evident swelling. Radiological investigations, particularly ultrasonography, play a crucial role in diagnosing scrotal lipomas. Ultrasonography usually reveals a homogenous and hyperechoic mass, which helps differentiate it from other types of scrotal masses. However, in cases involving a large mass, distinguishing a benign lipoma from a malignancy can be challenging.

One important differential diagnosis to consider is well-differentiated liposarcoma, which accounts for 3% to 7% of extratesticular tumors. Key histopathological features of a lipoma include mature adipose tissue without atypical cells or heterologous elements. Magnetic resonance imaging (MRI) is thought to be a useful modality for differentiating between well-differentiated liposarcoma and lipoma. Jasper et al. [12] reported a case of primary scrotal lipoma in a 40-year-old male which was initially diagnosed as hydrocele. Another similar case was reported by Ibrahim et al. [10] in a young male whose size was approximately similar to the present case. The comparison of previous reported cases is shown in **Table 1**.

The only effective management for scrotal lipomas is surgical resection, primarily because a neoplastic entity needs to be ruled out definitively. In the present case, a giant mass was identified and excised, which was subsequently confirmed to be a lipoma through histopathological examination. This finding is extremely rare,

Table 1. Comparison of previous reported cases.

Author	Age	Radiological finding	Size (cm)	Initial diagnosis	Imaging modality	Histopathological findings
Zarami, et al. [10]	42	Not available	60	Not available	Not available	Mature adipocytes, no atypia, encapsulated mass
Mbwambo, et al. [12]	40	Vascularized and heterogeneous lesion	10	Not available	Not available	Mature adipocytes, no atypia
Forsmann, et al. [13]	75	Not available	10 & 10.3	Inguinal hernia	Not available	Mature adipocytes, fat necrosis
Ibrahim, et al. [14]	23	Hyperechoic homogenous solid mass	12.7	Not available	Ultrasound, MRI	Mature adipocytes, no atypia
Louis et al. [15]	46	Heterogenous solid mass with weak vascularization	16	Hydrocele	Ultrasonography, MRI	Well-differentiated and mature adipocytes
Present Case	37	Hyperechoic homogenous solid mass with weak vascularization	17.2	Testicular tumor	Ultrasound	Mature adipocytes, no atypia, encapsulated mass

underscoring the importance of including lipoma in the differential diagnosis when encountering non-reducible and painless scrotal swellings.

Surgical excision not only provides definitive diagnosis but also symptomatic relief and prevents potential complications arising from large scrotal masses. Moreover, timely intervention can alleviate the psychological distress associated with the fear of malignancy. Postoperative follow-up is crucial to monitor for any signs of recurrence, although recurrence is rare following complete surgical removal.

In conclusion, while primary scrotal lipomas are rare, they should be considered in the differential diagnosis of scrotal swellings, especially in cases where the presentation does not align with more common conditions such as hydrocele, varicocele, or testicular tumors. This case highlights the clinical presentation, diagnostic approach, and successful management of a primary giant scrotal lipoma, emphasizing the necessity of considering rare entities in clinical practice to ensure comprehensive patient care. Further research and case reports will be invaluable in enhancing our understanding and management of this uncommon condition.

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Not Applicable.

Ethical policy

The study was done in accordance with the Declaration of Helsinki. Informed patient consent was taken.

Availability of data and materials

That data is available from the corresponding author on request.

Author contributions

Adil Aziz Khan: writing original draft, editing; Sumanta Das:

formal analysis, data curation, conceptualization, supervision.

Competing interests

The authors have no conflicts of interest to declare.


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