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Epidermoid cyst of the testis: A rare case report emphasizing the importance of organ-sparing surgery

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Abstract

Background: Testicular tumors encompass a spectrum of neoplastic entities, with testicular germ cell tumors being the most prevalent. However, among the rarest pathological occurrences in this domain are epidermoid cysts of the testis. These cysts are characterized by the presence of stratified squamous epithelium, and due to their scarcity, only a limited number of case reports have been documented in the existing medical literature.

Case Presentation: A 31-year-old man, seeking fertility evaluation due to two years of unsuccessful attempts with his wife, presented with a cystic mass and dull pain in the right testicle. Ultrasound revealed an isoechoic, encapsulated tissue mass in the lower pole. Computed tomography identified an 8 mm lymph node near the iliac vessels. Seminal fluid analysis showed normospermia, and laboratory tests were within normal limits. Testicle resection uncovered an unexpected diagnosis-epidermoid cyst with an inflammatory cholesterol granuloma. This case underscores the value of organ-sparing surgery and collaborative diagnostics in managing rare testicular pathologies.

Conclusions: This case highlights the complexities in diagnosing and managing testicular epidermoid cysts, emphasizing the need for a detailed diagnostic approach. The advocacy for organ-sparing surgery in small testicular tumors underscores the importance of tailored interventions. This contribution aims to enhance awareness and knowledge surrounding rare testicular pathologies, facilitating improved clinical decision-making.

Keywords: Epidermoid cyst, testis, case report, organ-sparing surgery, histomorphology

1. Introduction

Epidermoid cysts of the testis are exceptionally rare and present a unique diagnostic challenge due to their scarcity and subtle clinical manifestations. This case report contributes to the limited literature by presenting a detailed analysis of a 31-year-old male with a right testicular cystic mass. Despite their infrequency, the importance of recognizing and understanding these cysts lies in the distinct diagnostic pathways they necessitate.

In the realm of testicular pathologies, epidermoid cysts are a rarity, with limited cases documented. The clinical subtlety of their presentation was evident in our patient, a 31-year-old male attempting conception with his wife. The delay in seeking medical attention underscores the nuanced nature of these indolent lesions and the need for heightened awareness among both healthcare providers and the public.

This case, with its unique blend of infertility concerns and the identification of a cystic mass, accentuates the multifaceted diagnostic approach required. Despite the predominance of malignant testicular tumors, a careful examination of benign lesions like epidermoid cysts is imperative to tailor optimal management.

This report aims to unravel the intricacies of the patient's presentation, diagnostic journey, and subsequent management decisions, providing valuable insights for clinicians encountering similar cases. By presenting a comprehensive analysis within a succinct framework, we contribute to the evolving understanding of testicular epidermoid cysts and advocate for nuanced diagnostic and therapeutic strategies, including organ-sparing surgery where appropriate.

2. Case Presentation

2.1 Patient Information

A 31-year-old man, married for 2 years, sought medical attention with concerns about infertility. Despite attempts to conceive with his wife, the couple faced challenges, prompting the decision to seek professional guidance.

2.2 Chief Complaint

The patient reported a specific symptomatology, drawing attention to a cystic mass in the right testicle accompanied by dull pain. This chief complaint served as the catalyst for the visit to the clinic, indicating the perceived significance of the symptoms.

2.3 Clinical Examination

Upon physical examination, the right testicle exhibited a normal size, but a detailed assessment revealed a relatively dense, slightly asymmetric structure on the lower pole. This observation during the clinical examination became a pivotal aspect guiding subsequent diagnostic investigations and treatment decisions.

3. Diagnostic Assessment

3.1 Laboratory Tests: Comprehensive laboratory investigations were conducted to elucidate the patient's reproductive health and overall physiological status. Seminal fluid analysis revealed normospermia, with a noteworthy 12.8% DNA fragmentation—a crucial finding in the context of the patient's infertility concerns. Blood tests provided additional insights, with lactate dehydrogenase (LDH) at 2.50 $\mu\text{cat/l}$, creatinine levels within the normal range at 83.12 $\mu\text{mol/l}$, alpha-fetoprotein (AFP) measuring 2.86, and human chorionic gonadotropin (HCG) levels below 1.20 IU/ml. These detailed laboratory findings contribute to the comprehensive understanding of the patient's health profile, influencing subsequent diagnostic decisions.

3.2 Imaging: The diagnostic journey extended to imaging studies, with computed tomography (CT) playing a pivotal role in assessing the broader anatomical landscape. Notably, CT revealed normal-sized lymph nodes, providing reassurance regarding regional metastatic concerns. However, a meticulous examination identified an 8 mm lymph node proximate to the iliac vessels, warranting further consideration. These imaging findings became integral in shaping the diagnostic trajectory, guiding subsequent decisions for a more detailed evaluation, and ensuring a comprehensive understanding of the patient's condition.

Additionally, ultrasound examination of the testicles unveiled significant insights (Figure 1-2).

3.3 Right Testicle: Dimensions: 48/25/29 mm, Volume 18, oval shape, straight contour, average echogenicity.

Heterogeneous ecostructure with an isoechoic, encapsulated, weakly vascularized tissue in the lower third (18/15 mm) containing calcinates.

Epididymis: Dimensions 16/8, passable echogenicity, normal vascularization, homogeneous structure. No vein dilation.

3.4 Left Testicle: Dimensions: 46/25/29 mm, Volume 18, oval shape, straight contour, medium echogenicity.

Homogeneous ecostructure with an epididymal supplement (17/7) showing contrast straight, medium echogenicity, and uniform ecostructure. No dilation of veins.

These combined imaging modalities played a crucial role in comprehensively characterizing the patient's condition and guiding subsequent clinical decisions.



Fig 1-2: Echogram - Tissue Formation, Right Testicular Tissue Pole Formation

The echogram illustrates tissue formation and the polar organization of the right testicular tissue, presenting a size similar to the lower pole. The ecostructure is heterogeneous, featuring an isoechoic, encapsulated, weakly vascularized tissue in the lower third, measuring 18/15 mm and containing calcinates.

4. Treatment

4.1 Operative Intervention

In navigating the diagnostic ambiguity surrounding the testicular mass, a judicious decision was undertaken to pursue operative intervention. A meticulous testicle resection was performed (Figure 3), coupled with an expedited diagnostic study of the operative material. This proactive approach aimed not only to address the diagnostic uncertainty but also to expedite a tailored treatment plan based on the identified pathology.

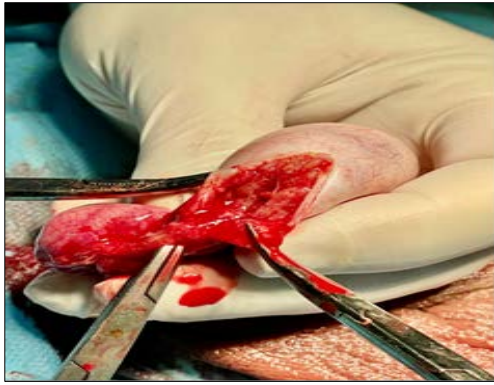


Fig 3: Testis Resection - Resected Testis, Excised Tissue, and Preserved Testis

Figure 3 depicts a testis resection, showcasing the resected testis, excised tissue, and the preserved testis.

4.2 Pathological Findings

The histomorphological evaluation of the resected tissue initially hinted at the possibility of a dermoid cyst/atheroma, introducing a spectrum of diagnostic considerations. However, a deeper investigation through subsequent cytomorphological and immunohistomorphological studies unravelled a more nuanced understanding. The definitive diagnosis emerged as a testicular epidermoid cyst with an intriguing association-an inflammatory cholesterol granuloma. These intricate pathological findings not only clarified the nature of the testicular mass but also underscored the importance of detailed histological analyses in guiding precise treatment strategies.



Fig 4: Excised Testicular Tissue

Figure 4 displays the excised testicular tissue with a size of 20 mm

5. Discussion

5.1 Literature Review: The exploration of testicular epidermoid cysts commences with a meticulous review of existing case reports, shedding light on their rare occurrence. A comprehensive synthesis of these cases not only accentuates the scarcity of documented instances but also allows for a contextual comparison of findings. This literature review serves as the backdrop against which the presented case unfolds, emphasizing its unique attributes and contributing to the evolving narrative surrounding this rare testicular pathology.

5.2 Limitations: Transparency reigns in the ensuing dialogue as the study's limitations are conscientiously acknowledged. The inherent rarity of testicular epidermoid

cysts poses a challenge to generalizing findings to a broader population. This acknowledgment sets a foundation for future investigations and underscores the need for collaborative research efforts to enhance our collective understanding of these infrequent testicular pathologies. The limitations section serves not as a constraint but as an invitation for further inquiry and refinement in the ever-evolving landscape of medical knowledge.

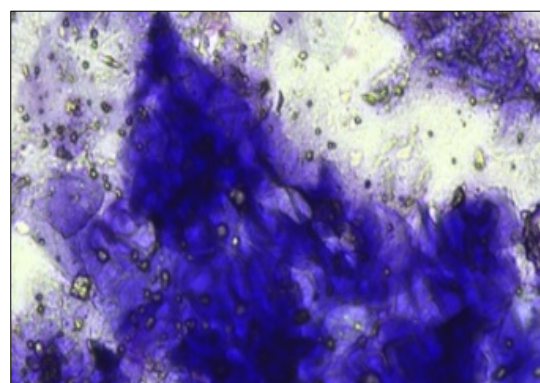
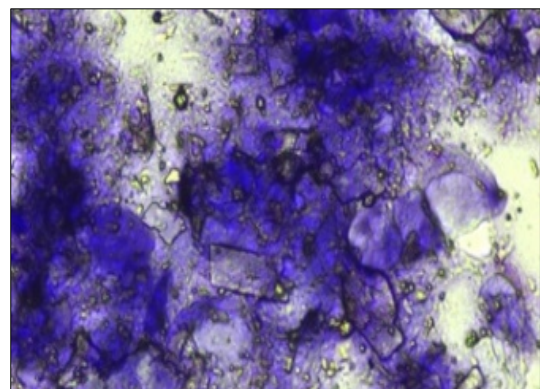
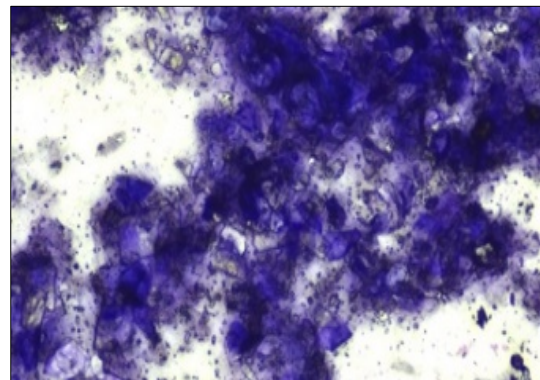
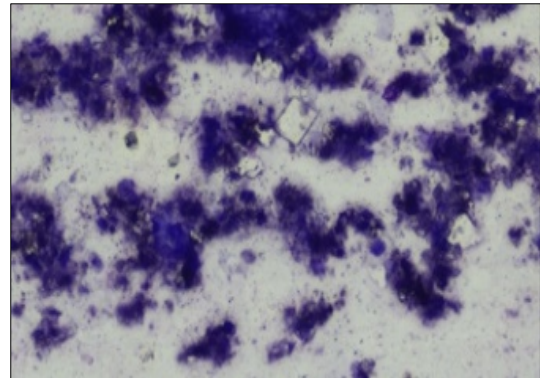


Fig 5-8: Material Examination - Structureless Masses with Flat Epithelium, Cholesterol Crystals

In the examined material (Figures 5-9), structureless masses are observed against the background, revealing scales identified as flat epithelium and cholesterol crystals. Notably, neoplastic and organ-specific cells are not detected in these samples. May-Grunwald-Giemsa Stain X MP was used for the staining process.

The figures illustrate squamous epithelium scales and cholesterol crystals within structureless masses, aligning with the characteristic features of a dermoid cyst/atheroma. This cytomorphological profile supports the diagnosis.

6. Conclusion

This case report serves as a pivotal contribution to the nuanced landscape of testicular pathology, specifically addressing the diagnostic intricacies associated with epidermoid cysts. The amalgamation of clinical, laboratory, and histomorphological insights unveils a narrative that not only encapsulates the singularity of this case but also offers profound insights for the medical community.

The discerning findings underscore the judicious application of organ-sparing surgery in select cases of testicular epidermoid cysts. The nuanced approach advocated here resonates with the evolving paradigm in the management of testicular tumors, particularly emphasizing the imperative to tailor interventions based on individual patient profiles.

Integral to this conclusion is the indispensable role of qualified morphological services. The fusion of clinical acumen and meticulous histological analyses emerges as a linchpin for precise diagnosis, laying the foundation for optimal patient outcomes. This is not a mere suggestion but a decisive directive, stressing the imperative for collaborative efforts that seamlessly integrate clinical and pathological expertise.

In essence, beyond its role as documentation, this case report serves as a clarion call for clinicians and researchers to engage in collective endeavors, advancing our comprehension of testicular epidermoid cysts. As we conclude this narrative, the resonance of collaboration, precision in interventions, and the relentless pursuit of medical knowledge persist—a testament to the perpetual journey of enlightenment within the field.

6.1 Conflict of Interest

Not available

6.2 Financial Support

Not available

7. References

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