

Large Epididymal Cyst: A Tale of Three Testes

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Abstract

Background: An epididymal cyst is a benign cystic structure that develops from the epididymis, typically due to a blockage in the epididymis, resulting in fluid accumulation. These cysts are generally harmless and noncancerous.

Case Presentation: We examine the case of a 30-year-old male referred by the Psychiatry department for an assessment of the inguinal scrotal region, due to his belief that he had three testicles. Physical examination revealed an extratesticular, fluctuant, and cystic swelling easily palpable and distinct from the body of the left testis. Ultrasound findings showed a 2.3 x 1.7 cm fluid-filled lesion at the head of the epididymis.

Intervention: Following a psychiatric evaluation, the patient underwent surgical excision of the cyst.

Conclusion: The histopathological examination of the surgically removed cyst confirmed the diagnosis of an epididymal cyst, underscoring the importance of considering such benign conditions in differential diagnoses of scrotal abnormalities.

Keywords: Epididymal Cyst; Scrotal Abnormalities; Benign Cystic.

1. Introduction

Epididymal cysts, benign fluid-filled formations within the epididymis, represent a common yet often misunderstood scrotal abnormality. These cysts have historically intrigued and challenged the medical community, from their first documentation in the late 18th century to the refined understandings of the modern era. While typically innocuous, the impact of these cysts on patient well-being can be significant, particularly when they manifest in conspicuous or symptomatic forms [1], [2].

The presentation of an epididymal cyst can vary widely, often depending on the size and location of the cyst within the scrotum. Most are discovered incidentally during routine physical examinations or imaging studies aimed at investigating other complaints. However, some cases, like the one detailed in this manuscript, come to medical attention due to patient concerns over unusual physical findings or psychological distress related to the perceived abnormality. Such scenarios underscore the importance of a thorough and multidisciplinary approach to diagnosis and management, blending insights from urology, psychiatry, and radiology to achieve a comprehensive understanding of the patient's condition [3], [4].

This case report details a 30-year-old Indian male who was referred by the Psychiatry department for an evaluation of his scrotal region, driven by his distress over what he believed to be an anomaly of three testicles. This unusual presentation brings to light several key aspects of epididymal cysts, including their psychological impact and the diagnostic challenges they pose. The patient's journey through the healthcare system, from psychiatric consultation to surgical intervention, illustrates the nuanced interplay between mental health and physical symptoms in urological practice [5].

Historically, epididymal cysts were first noted in 1785 when Guerin observed them during an examination of a patient with testicular inflammation. However, our understanding of these cysts has evolved significantly since these early observations. By the mid-19th century, further descriptions had emerged, linking these cysts to traumatic events and identifying their contents as potentially including spermatozoa and seminal fluid, a finding that would later differentiate epididymal cysts from spermatoceles [6-8].

The etiology of epididymal cysts is believed to be multifactorial. While some cysts may arise from congenital anomalies, others are thought to result from hormonal disruptions during embryonic development or from exposure to environmental endocrine disruptors. The potential roles of various causative factors, including maternal exposure to substances like diethylstilbestrol, are still under investigation. Furthermore, associations with broader syndromes such as testicular dysgenesis syndrome and specific conditions like cryptorchidism and cystic fibrosis highlight the complex pathophysiological underpinnings of these cysts. From a clinical perspective, epididymal cysts typically appear as palpable, fluctuant, and non-tender masses separate from the testis. Ultrasonography often reveals them as thin-walled, septate structures with dependent echoes, aiding in differential diagnosis from other scrotal masses such as hydroceles, varicoceles, and spermatoceles—the latter distinguished by the presence of sperm within the cyst [9], [10].

The management of epididymal cysts generally follows a conservative approach, particularly for smaller, asymptomatic lesions. However, larger or symptomatic cysts may require surgical intervention, particularly when they cause significant discomfort or psychological distress.

The decision-making process regarding the treatment of epididymal cysts can be challenging due to the lack of definitive guidelines, underscoring the need for further research into their pathophysiology and management [11].

This case report not only highlights the clinical features and management of a large epididymal cyst but also emphasizes the broader implications of such benign lesions on patient quality of life and mental health. As we continue to advance our understanding of these cysts, it is imperative that we consider both the physical and psychological components of the disease to guide our therapeutic strategies and improve patient outcomes.

2. Case presentation

A 30-year-old Indian male was referred from the Psychiatry Outpatient Department (OPD) with his wife, who reported her husband's psychological and sexual distress over the last three months due to a perceived anomaly of possessing three testicles. The patient noted the onset of a small swelling in his left scrotum three months prior, initially sized at 0.5 x 0.5 cm, which progressively enlarged to 3 x 2 cm without any identifiable factors that exacerbated or alleviated the condition. The patient denied any pain, urinary burning, or erectile dysfunction, and had no prior history of similar symptoms or other bodily swellings.

The patient's medical history was notable only for a blood donation three years prior, with no chronic conditions or surgical interventions. Mental status evaluation by the Psychiatry department showed him to be conscious, oriented, and without signs of insanity or neurological disorders. Physical examination of the inguinoscrotal region identified a cystic, extratesticular swelling that was fluctuant and clearly distinct from the left testis (Figure 1). Ultrasonographic assessment confirmed a 2.3 x 1.7 cm fluid-filled lesion at the head of the epididymis. Semen analysis returned normal results; however, the patient tested positive for Hepatitis C Virus (HCV). After providing informed consent and undergoing a comprehensive psychological assessment, the patient received a surgical excision of the cyst under cord block anesthesia. During the surgery, a cyst was identified at the head of the epididymis (Figure 2) and was subsequently excised (Figure 3). A tissue sample was sent for histopathological examination, confirming the diagnosis of an Epididymal Cyst. The patient received follow-up care in Surgery, Psychiatry, and Medicine OPD for further management.



Fig. 1: Inguinoscrotal Region Suggestive of Left Scrotal Swelling.



Fig. 2: Cystic Swelling Identified at the Head of Epididymis.



Fig. 3: Excised Cyst in Comparison to Testis.

3. Discussion

Epididymal cysts are benign cystic formations filled with fluid, presenting as either unilocular or multilocular entities. They predominantly occur along the epididymis, with the head being the most frequent site. These cysts generally appear in post-pubertal males, though instances in late adulthood are uncommon. The first documented observation of epididymal cysts dates to 1785 when Guerin noted their presence in an adult experiencing testicular inflammation. This early account differs markedly from today's understanding. In 1840, Liston described a condition involving a cystic structure adjacent to the epididymis filled with spermatozoa and seminal fluid, which was associated with testicular trauma. Over time, research has refined the understanding and definition of epididymal cysts [4], [12].

The etiology of these cysts is not definitively known but is suspected to be linked to congenital anomalies possibly related to hormonal disruptions during embryogenesis. There are historical associations with maternal exposure to endocrine disruptors such as diethylstilbestrol during fetal development, which may contribute to cyst formation.

Additionally, environmental endocrine disruptors and obstructions in the vasal or epididymal pathways have been explored as potential causative factors in children. Epididymal cysts may also be associated with testicular dysgenesis syndrome, and conditions such as cryptorchidism, cystic fibrosis, and von Hippel-Lindau disease [13-15].

Clinically, patients with epididymal cysts typically exhibit scrotal swelling, which may increase over time and cause pain. Some cysts remain asymptomatic and are discovered incidentally during physical examinations or scrotal ultrasounds. They appear on ultrasound as thin-walled, septate structures within the epididymal head, displaying dependent echoes [16], [17].

In differential diagnosis, it is essential to consider conditions such as spermatoceles, inflammatory epididymal disorders, hydrocele, varicocele, and other external scrotal masses. The terms epididymal cyst and spermatocele are often used interchangeably; however, the presence of sperm distinguishes spermatocele, which are typically confined to the epididymal head, from other epididymal cysts.

The size of the cyst significantly influences the treatment approach. Conservative management is advised for cysts smaller than 10 mm, while larger cysts may necessitate surgical intervention. However, the lack of definitive guidelines for surgical thresholds underscores the need for further prospective studies to enhance the understanding of epididymal cyst pathophysiology and to refine treatment guidelines. While conservative management with serial follow-ups is practical for smaller epididymal cysts, surgical excision is recommended for those causing persistent pain, psychological distress, or stigma, or when the cyst shows no signs of spontaneous regression [18-20].

4. Conclusion

This case of a large epididymal cyst in a 30-year-old male, initially mistaken by the patient for an additional testicle, highlights the complexity of diagnosing and managing benign scrotal masses. The psychological impact, as evidenced by the referral from Psychiatry, underscores the significant interplay between mental health and physical symptoms in urological conditions. Effective management of epididymal cysts requires a multidisciplinary approach, encompassing thorough physical examinations, detailed imaging studies, and a sensitive understanding of the patient's psychological state. The surgical intervention, guided by both urological and psychiatric evaluations, successfully resolved the physical abnormality and alleviated the patient's psychological distress. Histopathological confirmation of the epididymal cyst reinforced the importance of considering these benign entities in the differential diagnosis of scrotal swellings. This case further supports the need for ongoing research into the etiology and optimal management strategies for epididymal cysts, particularly in cases where they cause significant patient concern. Ultimately, this report serves as a reminder of the critical need for awareness and understanding of the potential complexities involved in seemingly straightforward medical conditions. It also highlights the importance of patient education and reassurance as integral components of the management strategy for epididymal cysts, ensuring that both the physical and psychological well-being of patients are addressed.

5. Conflicts of interest

Authors declared that there is no conflict of interest.

6. Funding

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7. Ethics approval and consent to participate

All necessary consent & approval was obtained by authors.

8. Consent for publication

All necessary consent for publication was obtained by authors.

References

- [1] Mukendi, A.M., Bilateral epididymal cyst with spontaneous resolution. *Clin Case Rep*, 2020. 8(12): p. 2689-2691. <https://doi.org/10.1002/ccr3.3199>.
- [2] Valentino, M., et al., Cystic lesions and scrotal fluid collections in adults: Ultrasound findings. *J Ultrasound*, 2011. 14(4): p. 208-15. <https://doi.org/10.1016/j.jus.2011.10.008>.
- [3] Ilangovan, G., et al., Torsion of Epididymal Cyst: A Case Report with Review of Literature. *Cureus*, 2023. 15(12): p. e51158. <https://doi.org/10.7759/cureus.51158>.
- [4] O'Kelly, F., et al., The futility of continued surveillance of epididymal cysts - A study of the prevalence and clinico-demographics in pre- vs. post-pubertal boys. *Can Urol Assoc J*, 2019. 13(12): p. E398-e403. <https://doi.org/10.5489/cuaj.5667>.
- [5] Mazketly, M., et al., A rare case of polyorchidism in a 40-year-old man. A case report. *Ann Med Surg (Lond)*, 2021. 66: p. 102389. <https://doi.org/10.1016/j.amsu.2021.102389>.
- [6] Weatherly, D., et al., Epididymal Cysts: Are They Associated with Infertility? *Am J Mens Health*, 2018. 12(3): p. 612-616. <https://doi.org/10.1177/1557988316644976>.
- [7] Homayoon, K., C.D. Suhre, and G.F. Steinhardt, Epididymal cysts in children: natural history. *J Urol*, 2004. 171(3): p. 1274-6. <https://doi.org/10.1097/01.ju.0000110322.87053.99>.
- [8] Nickel, J.C., Chronic epididymitis: a practical approach to understanding and managing a difficult urologic enigma. *Rev Urol*, 2003. 5(4): p. 209-15.
- [9] Nistal, M., et al., Cystic dysplasia of the epididymis: a disorder of mesonephric differentiation associated with renal maldevelopment. *Virchows Arch*, 2010. 456(6): p. 695-702. <https://doi.org/10.1007/s00428-010-0906-8>.
- [10] Bendarska-Czerwińska, A., et al., Endocrine disorders and fertility and pregnancy: An update. *Front Endocrinol (Lausanne)*, 2022. 13: p. 970439. <https://doi.org/10.3389/fendo.2022.970439>.
- [11] Pieri, S., et al., A therapeutic alternative in the treatment of epididymal cysts: percutaneous sclerotherapy. *Radiol Med*, 2003. 105(5-6): p. 462-70.
- [12] Schoina, E., et al., Symptomatic Intraparenchymal Epididymal Cysts: Description of 11 cases. *Folia Med Cracov*, 2023. 63(4): p. 49-55. <https://doi.org/10.24425/fmc.2023.148757>.
- [13] Ebadi, M., et al., Sarcopenia in cirrhosis: from pathogenesis to interventions. 2019. 54(10): p. 845- 859. <https://doi.org/10.1007/s00535-019-01605-6>.
- [14] Uzumcu, M. and R. Zachow, Developmental exposure to environmental endocrine disruptors: consequences within the ovary and on female reproductive function. *Reprod Toxicol*, 2007. 23(3): p. 337-52. <https://doi.org/10.1016/j.reprotox.2006.10.006>.
- [15] Rolfo, A. and A.M. Nuzzo, Fetal-Maternal Exposure to Endocrine Disruptors: Correlation with Diet Intake and Pregnancy Outcomes. 2020. 12(6). <https://doi.org/10.3390/nu12061744>.
- [16] Patil, V., S.M. Shetty, and S. Das, Common and Uncommon Presentation of Fluid within the Scrotal Spaces. *Ultrasound Int Open*, 2015. 1(2): p. E34-40. <https://doi.org/10.1055/s-0035-1555919>.
- [17] Fernández-Ibieta, M., F. Villalon-Ferrero, and J.L. Ramos-García, Benign Scrotal Tumor in a Pediatric Patient: Epididymal Cyst. *Case Reports in Urology*, 2018. 2018: p. 1635635. <https://doi.org/10.1155/2018/1635635>.
- [18] Boscarelli, A. and T. Bellini, Epididymal cyst in children. *Eur J Pediatr*, 2021. 180(9): p. 2723- 2729. <https://doi.org/10.1007/s00431-021-04080-5>.
- [19] Silva, G.F., et al., Case report: Long term follow-up of a large unilateral epididymal cyst in a stallion used for teaching: Is this condition associated with infertility? *Front Vet Sci*, 2023. 10: p. 1145742. <https://doi.org/10.3389/fvets.2023.1145742>.
- [20] Ravikanth, R., Varicocele with Concomitant Ipsilateral Intratesticular Spermatocele: A Rarity. *J Med Ultrasound*, 2018. 26(4): p. 224-225. https://doi.org/10.4103/JMU.JMU_32_18.