Ulus Medical Journal

Year: 2025 Volume: 3 Issue: 1

Case Report

When a Hydrocele Is Not Just a Hydrocele: Case Report and Literature Review

Tamara Adamović[1], Maja Zecevic[1], Zorica Jovanovic[1], Goran Jankovic[1], Dimitrije Adamovic[2], Milan Bojanovic[1]

1. Clinic for Paediatric Surgery, Orthopaedics, and Traumatology, University Clinical Centre Niš
2. Clinic for Plastic, Reconstructive, and Aesthetic Surgery, University Clinical Centre Niš

10.5281/zenodo.15858874

ORCID ID of the author(s):
T.A: 0000-0003-1827-6008
M.Z: 0000-0002-3482-4230
D.A: 0009-0007-3200-9404

Correspondence Author

Tamara Adamović, Clinic for Paediatric Surgery, Orthopaedics, and Traumatology, University Clinical Centre Niš, Tel: +381693687479

e-mail
tamara.pesic91@gmail.com

OPEN ACCESS

ulusmedj.com

Published by Ulus Medical Journal.

Abstract

Abstract

Introduction: Paratesticular rhabdomyosarcoma (RMS) is a rare solid tumour in children, accounting for approximately 8.4% of all scrotal masses. Its clinical presentation is often nonspecific, making early diagnosis challenging.

Methods: The study began with a comprehensive review of the patient's medical documentation. Subsequently, a literature search was performed using PubMed and Google Scholar, employing the keywords paratesticular, rhabdomyosarcoma, children, and testicular tumour to identify relevant studies.

Case report: We present the case of an 18-month-old boy with a history of right-sided hydrocele, referred due to painless scrotal enlargement. Imaging revealed a solid mass closely associated with the testis. Tumour markers AFP and β-hCG were within normal range, with elevated LDH. Right orchiectomy was performed. Histopathological and genetic analysis confirmed embryonal RMS. The patient received oncological therapy and remains in good health at follow-up. Conclusion: Paratesticular RMS may mimic benign conditions such as hydrocele. It should be included in the differential diagnosis of persistent or recurrent scrotal enlargement in children.

Keywords: Rhabdomyosarcoma, Paratesticular Tumour, Paediatric, Testicular Tumour

How to cite: Adamović T. When a Hydrocele Is Not Just a Hydrocele: Case Report and Literature Review. Ulus Med J. 2025;3(1):29-33.
Received: 25 April 2025 **Revised:** 21 May 2025 **Accepted:** 9 July 2025 **Published:** 16 July 2025

Introduction

Testicular and paratesticular tumors in children are a rare group of clinical conditions, significantly different from the adult population. They account for 1-2% of all solid tumors in children, with an incidence of 0.5-2/100,000 (1). From registry data of childhood testicular tumors, one-third are malignant yolk sac tumors; the other two-thirds are teratomas and stromal tumors, which are mostly benign (2). Immature teratomas have the potential for malignant alteration, which is rare in prepubertal children (3). The commonly recognized histological subtypes include embryonal, botryoid embryonal, spindle cell embryonal, alveolar, and anaplastic (4). Among these, embryonal RMS is the most frequently occurring subtype, making up approximately 60% of all RMS cases and about 8.4% of all scrotal masses (1,5). The age distribution is bimodal, with peaks in the first two years of life and a second peak in young adulthood, around age 16 (1). The clinical signs of the tumor are varied and nonspecific, typically presenting as painless scrotal mass, hydrocele, or epididymitis, highlighting the importance of careful diagnosis and consideration of all possible differential diagnostic options.

This paper presents a case of a young male patient who has been monitored by a pediatrician for hydrocele since birth.

Case Report

An 18-month-old boy's parents brought him to a pediatric surgeon for a suspected hydrocele of the right testicle. The mother reported that the hydrocele was present at birth, disappeared, and reappeared a month before the visit to the surgeon. There were no other complaints. Physical examination revealed a hard, enlarged right hemiscrotum that was painless on palpation (**Figure 1**). There was no inguinal lymphadenopathy. Ultrasound described an extratesticular vascularized mass that was difficult to differentiate from the epididymis. MRI revealed a neoplastic formation of the right testicle with infiltration of the funiculus and no clear border with the testicle (**Figure 2**).

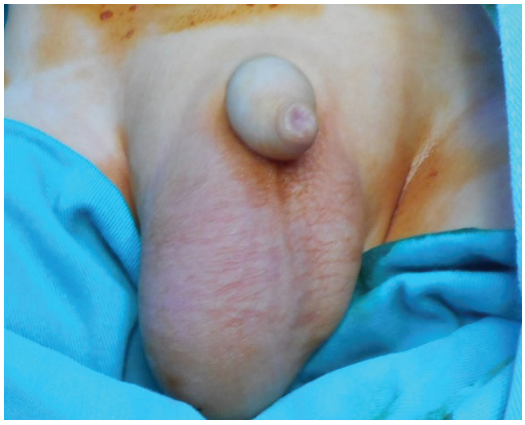

Figure 1: Preoperative clinical appearance of the right hemiscrotum demonstrating a smooth, non-tender scrotal swelling, initially interpreted as a hydrocele. The overlying skin was normal, and there were no signs of inflammation or discoloration.

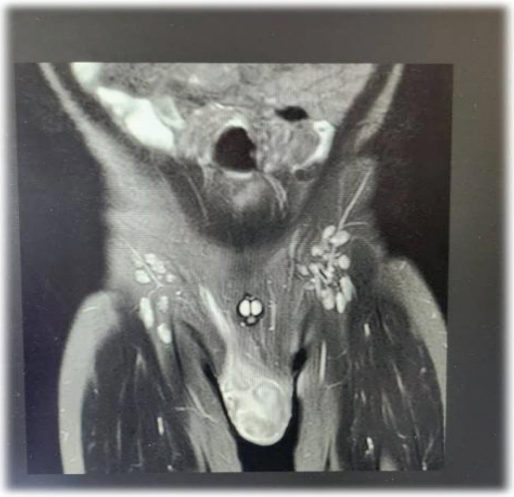

Figure 2: Coronal MRI scan of the pelvis and scrotum showing a right-sided scrotal mass in close contact with the testicle, with evidence of infiltration of the spermatic cord and indistinct margins between the mass and the testis. The imaging was highly suggestive of a neoplastic process

All laboratory findings were within reference levels, including AFP and BHC, except for an elevated level of LDH (597 U/l). Due to the suspected malignant diagnosis, a right orchiectomy was performed. Retroperitoneal lymph node dissection was not conducted in this case due to the absence of radiologically detected lymphadenopathy. The macroscopic testis was 6.3 x 3 x 3 cm in size and weighed 44 g. The entire testicle was replaced by light gray, homogeneous tumor tissue (Figure 3). Microscopic findings revealed high mitotic activity of tumor cells, without areas of necrosis, and positive resection margins. Genetic analyses revealed that it is an embryonic subtype. The patient was discharged two days after surgery, followed up with control ultrasound exams on the 7th postoperative day, suture removal, and subsequent follow-ups at one month, six months, and one year post-surgery. During this time, the patient was evaluated by a pediatric oncologist who prescribed chemotherapy at another institution. The patient, now three years old, is a happy and healthy child.

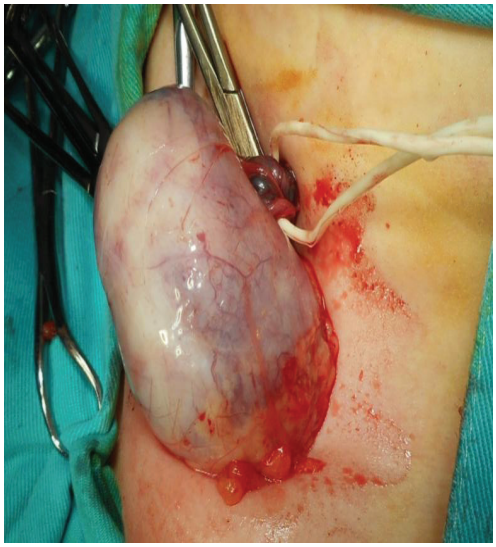

Figure 3: Intraoperative view during right inguinal orchiectomy. The testis is completely replaced by a homogeneous, vascularised tumour mass with a tense capsule. The spermatic cord is mobilised and prepared for high ligation.

Discussion

Rhabdomyosarcoma is the most common paratesticular solid tumor in children, originating from mesenchymal tissues of the epididymis, testis, spermatic cord, and testicular tunics. The incidence of rhabdomyosarcoma in children accounts for approximately 8.4% of all scrotal masses, and there are four histological types: embryonal (65-70%), alveolar (20-25%), botryoid embryonal (5-10%), spindle cell embryonal and anaplastic types of RMS (4,5). The most common type is embryonal, as seen in our patient. The incidence of this tumor follows a bimodal distribution, with occurrences in the first two years of life and teenagers around 16 years of age (1). In our case, the patient was 18 months old at the time of RMS diagnosis, indicating an age inside the average range for this tumor. The most frequent clinical presentations include painless scrotal enlargement (85%), hydrocele (6%), pain/torsion (8%), and incidental detection during elective surgical procedures (6). In the case of our patient, the initial manifestation was a hydrocele, which was first identified by the pediatrician. For the diagnosis of RMS, in addition to clinical examination, imaging studies such as ultrasound and MRI/CT are essential, along with tumor marker analysis. The most relevant tumor markers include alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (β-hCG), and carcinoembryonic antigen (CEA), which are typically within normal ranges. This was the case with our patient. The only elevated parameter was lactate dehydrogenase (LDH). Paratesticular rhabdomyosarcoma can spread via lymphatic and hematogenous routes, although in our case, there were no regional or distant metastases. Rhabdomyosarcoma is classified into four groups based on the extent of disease and surgical outcomes. **Group I** includes completely resected localized tumors with clear margins and no lymph node involvement. **Group II** involves localized tumors with either microscopic residual disease, resected regional lymph node involvement, or both. **Group III** refers to localized tumors with gross residual disease or cases where only a biopsy was performed. **Group IV** includes patients with distant metastases at the time of diagnosis (7). The survival rate for patients with Group I disease exceeds 90%, while for Group II it is approximately 85%. In Group III, the survival rate drops below 60%, and in cases of distant metastatic disease (Group IV), it is less than 20% (7). Our patient was in Group II, which is treated by orchidectomy followed by chemotherapy.

Conclusions

Paratesticular rhabdomyosarcoma, although rare, should be considered in the differential diagnosis of scrotal masses in children, especially when presenting like a hydrocele. Early diagnosis through clinical assessment and imaging is essential for optimal outcomes. Surgical resection followed by appropriate chemotherapy remains the cornerstone of treatment, particularly in Group II disease, where prognosis is generally favorable.

Declaration of interest: The authors report no conflicts of interest.

Funding source: No funding was required

Ethical approval: No need for reviews.

Acknowledgments: We thank the oncology team at the collaborating institution for ongoing care and follow-up of the patient.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Contributions

Research concept and design: TA, DA, MZ

Data analysis and interpetation: TA, MZ

Collection and/or assembly of data: TA, MZ

Writing the article: TA, DA

Critical revision of the article: GJ, MB, ZJ

Final approval of the article: ZJ, GJ, MB

References

1. Nerli RB, Ajay G, Shivangouda P, Pravin P, Reddy M, Pujar VC. Prepubertal testicular tumors: our 10 years experience. Indian J Cancer. 2010;47(3):292-5.
2. Ross JH, Rybicki L, Kay R. Clinical behavior and a contemporary management algorithm for prepubertal testis tumors: a summary of the Prepubertal Testis Tumor Registry. J Urol. 2002;168(4 Pt 2):1675-8; discussion 1678-9.
3. Li Z, Zhang W, Song H, Sun N. Testis-Preserving Tumor Enucleation Is Applicable in Children with Immature Testicular Teratoma. Urol Int. 2021;105(1-2):27-30.
4. Singh P, Anandani G, Parmar R. Primary paratesticular embryonal rhabdomyosarcoma - An unusual presentation. J Family Med Prim Care. 2023;12(9):2176-80.
5. Harel M, Ferrer FA, Shapiro LH, Makari JH. Future directions in risk stratification and therapy for advanced pediatric genitourinary rhabdomyosarcoma. Urol Oncol. 2016;34:103–15.
6. Dangle PP, Correa A, Tennyson L, Gayed B, Reyes-Múgica M, Ost M. Current management of paratesticular rhabdomyosarcoma. Urol Oncol. 2016;34(2):84-92.
7. Raney RB, Maurer HM, Anderson JR, Andrassy RJ, Donaldson SS, Qualman SJ, Wharam MD, Wiener ES, Crist WM. The Intergroup Rhabdomyosarcoma Study Group (IRSG): Major Lessons From the IRS-I Through IRS-IV Studies as Background for the Current IRS-V Treatment Protocols. Sarcoma. 2001;5(1):9-15.