

# Testis-Sparing Approach in Paratesticular Leiomyoma: A Rare Case Navigating From Diagnosis to Targeted Treatment Planning

Review began 11/27/2024  
Review ended 12/03/2024  
Published 12/06/2024

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DOI: 10.7759/cureus.75234

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## Abstract

In this case study, we describe a 46-year-old male presenting with a palpable, gradually enlarging scrotal mass persisting over three to four years, ultimately diagnosed as paratesticular leiomyoma, who underwent enucleation of the tumor with no signs of recurrence, two years after surgery. This report underscores the significance of accurate diagnosis to avoid unnecessary treatment. We also emphasize the sequential events and findings, supported by relevant literature review, that contributed to establishing the correct diagnosis and guiding appropriate treatment decisions.

**Categories:** Urology, Pathology

**Keywords:** histopathology, leiomyoma, paratesticular tumors, radical orchiectomy, testis sparing approach

## Introduction

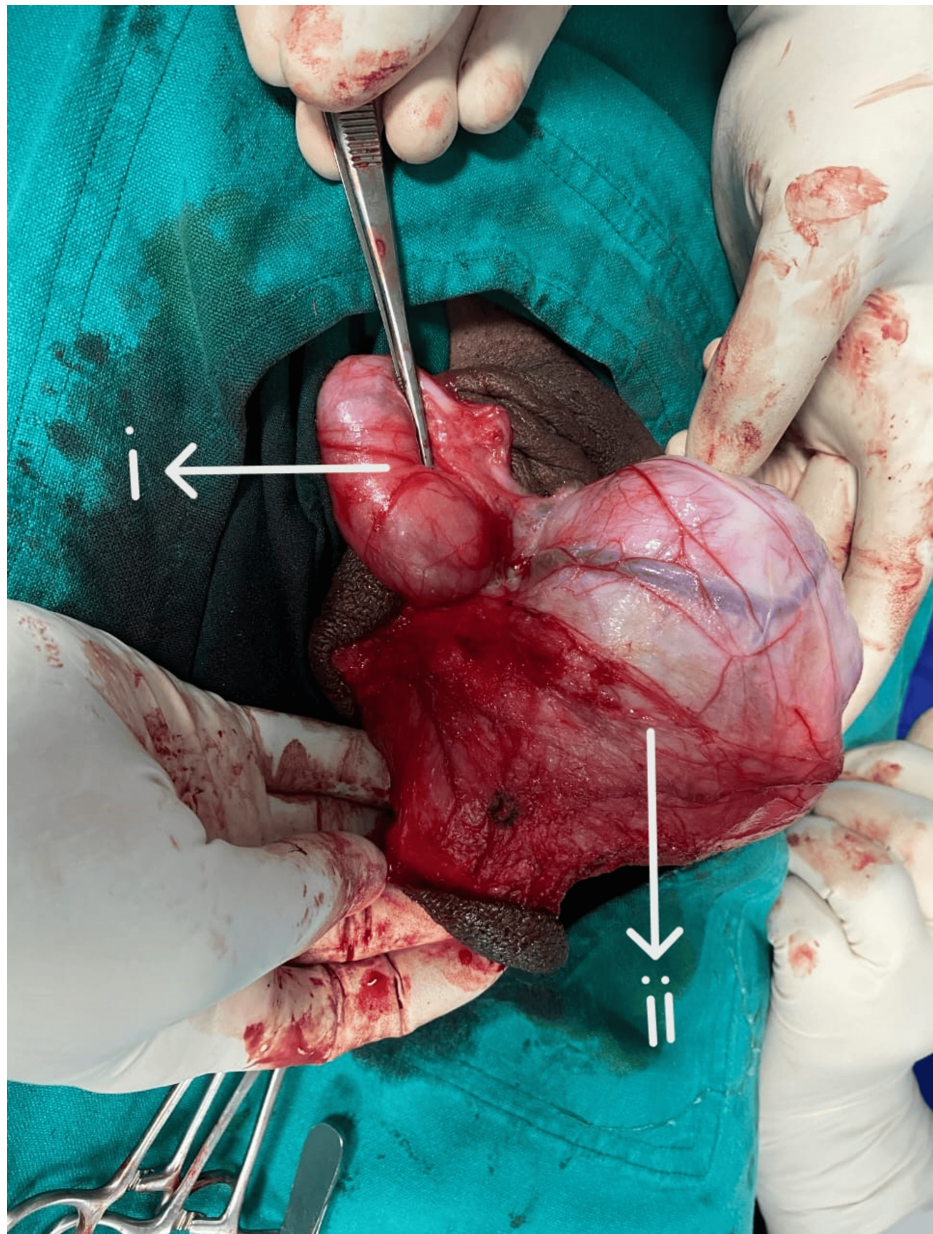
Leiomyomas are benign, slow-growing tumors of smooth muscle origin, capable of arising in various locations throughout the body [1]. Involvement of the male genitourinary tract is uncommon, with scrotal leiomyomas being an exceedingly rare occurrence. It generally presents as an asymptomatic, painless, palpable scrotal mass [1]. They are most commonly localized within the testis, epididymis, spermatic cord, subcutaneous tissue, tunica albuginea, and scrotal skin. Only a few cases have been reported where they originated in the paratesticular region without the involvement of paratesticular structures [1]. It needs surgical exploration for histopathological confirmation [2]. Paratesticular tumors have histopathological variants, including lipomas, adenomas, leiomyomas, fibromas, hemangiomas, neurofibromas, and cystadenomas, with leiomyomas being extremely rare [3]. Leiomyomas generally present as well-defined masses with a whitish-grey capsule, making surgical excision a primary treatment option [3]. In cases where there is concern for testicular malignancy or if the tumor is inseparable from the testis, a radical orchiectomy may be considered [3].

## Case Presentation

A 46-year-old married man with two kids presented with a right-sided scrotal mass with heaviness in the scrotum, the patient himself perceiving it as an extra testicle, gradually growing in size for the past four years. He has no additional complaints. He has no comorbidities. Upon examination, a round, regular mass was felt separable from the right testis, non-tender and non-reducible, while the left side was normal, with no palpable lymph nodes on either side. Based on the above history and examination findings, testicular tumor, paratesticular tumor, though unlikely, and polyorchidism were considered as differentials. Further evaluation and scrotal ultrasound revealed a heterogeneously hypoechoic lesion of 10x4 cm in the right scrotum separate from the testis suggestive of a paratesticular tumor, ruling out the possibility of extremely rare polyorchidism. Tumor markers, including alpha-fetoprotein, human chorionic gonadotropin (HCG), and lactate dehydrogenase (LDH), were within normal limits. CT thorax, abdomen, and pelvis showed no features suggestive of metastasis or lymph node involvement. Considering the age of the patient and the size of the tumor, he was explained the possibility of orchiectomy or testis-sparing surgery based on intraoperative findings, and the patient's consent for high inguinal orchiectomy was taken. The inguinal approach was preferred, and intraoperatively, the mass was identified to be well-circumscribed and well-separated from the testis and cord structures (Figure 1). The tumor was covered by a glistening grey-white capsule, distinct from the testis, with no signs of necrosis or hemorrhages and no lymph node involvement, supporting a very high likelihood of a benign lesion. Enucleation of the mass was done by resecting the tumor in toto (Figure 2). A sample was sent for histopathological examination (Figure 3), which revealed a benign spindle cell lesion suggestive of leiomyoma, and the diagnosis of paratesticular leiomyoma was established. The patient was under regular follow-up, and two years post-surgery, the patient had no signs of recurrence.

### How to cite this article

Haritha A, A S, Murthy N (December 06, 2024) Testis-Sparing Approach in Paratesticular Leiomyoma: A Rare Case Navigating From Diagnosis to Targeted Treatment Planning. Cureus 16(12): e75234. DOI 10.7759/cureus.75234



**FIGURE 1:** Intraoperative image showing (i) testes separate from the (ii) well-encapsulated tumor





**FIGURE 2: Post-operative specimen tumor enucleated in toto**



**FIGURE 3: Post-operative specimen cut section, showing a uniform, firm mass with no areas of necrosis**

## Discussion

Most paratesticular lesions are benign cystic formations of the epididymis, such as cysts and spermatoceles, or scrotal fluid collections, including hydroceles and pyoceles. They may also present as inflammatory conditions, like acute and chronic epididymitis, or as hernias. Primary solid neoplasms within paratesticular tissues are, however, uncommon [4]. As the tumor is usually asymptomatic and grows bigger slowly [5], many patients postpone seeking treatment until the tumor grows significantly, leading to poor cosmetic outcomes [3]. Our patient noted a gradual enlargement of a scrotal mass over a span of approximately four years prior to seeking medical attention. Although a testicular tumor was considered unlikely based on ultrasonography findings, given the mass's distinct paratesticular location separate from the testes, the possibility of a paratesticular malignancy remained on the differential diagnosis, though less probable due to the benign characteristics noted during assessment and the absence of associated lymphadenopathy. Given the strong clinical suspicion of a benign paratesticular lesion, a pre-surgical biopsy or fine-needle aspiration cytology (FNAC) was omitted to avoid unnecessary invasiveness. However, it's acknowledged that establishing a precise preoperative diagnosis is advantageous to prevent overtreatment resulting from misdiagnosis. Therefore, we deemed the intraoperative findings crucial for guiding further management and preparing for a high inguinal orchiectomy with appropriate patient consent. An inguinal approach was preferred for testicular exploration, though a trans-scrotal excision of the mass could have been considered under

absolute certainty of its benign nature [2]. The intraoperative findings, characterized by the absence of adhesions or invasive features and minimal vascularity, suggested a lower probability of malignancy. However, to exclude malignancy, an intraoperative frozen section after excision of the mass can be done for confirmation [1], although it was not done in our case due to resource limitations. In cases where benign lesions are confirmed, simple enucleation is preferred over radical orchiectomy to minimize complications and avoid unnecessary tissue removal. Although immunohistochemistry was not performed in this instance, its potential role in confirming leiomyoma diagnosis is acknowledged in comprehensive diagnostic protocols.

## Conclusions

Therefore, this case emphasizes the critical role of each phase, from history and examination findings, imaging studies, and intraoperative observations, to tailor treatment strategies and determine the appropriate level of intervention for the tumor. It underscores the significance of histopathology in confirming the diagnosis. Our management approach reflects a thorough consideration of clinical findings, relevant factors, and insights from the literature review, especially given the rarity of this presentation. Accurate diagnosis is paramount to avoid unnecessary treatment escalation in such cases.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Annem Haritha, Sri Balram A, N. Rama Murthy

**Acquisition, analysis, or interpretation of data:** Annem Haritha, Sri Balram A

**Drafting of the manuscript:** Annem Haritha

**Critical review of the manuscript for important intellectual content:** Sri Balram A, N. Rama Murthy

**Supervision:** N. Rama Murthy

### Disclosures

**Human subjects:** Consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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