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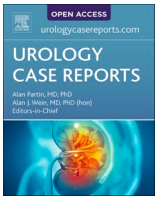

Oncology

A rare case of Sertoli cell tumor in an adult male with testicular preservation

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ABSTRACT

Sertoli cell tumors are a rare subtype of testicular tumors. This report describes a 55-year-old male who presented with scrotal pain and a palpable mass. Diagnostic imaging revealed a hypoechoic mass in the left epididymis and a hyperechoic mass in the right testis. A right testis-sparing surgical procedure was performed, and subsequent histopathological analysis confirmed the presence of a benign Sertoli cell tumor. The patient experienced an uncomplicated postoperative course and was discharged on the same day. This case underscores the viability of testis-sparing surgery in the management of rare testicular tumors, emphasizing its potential for preserving testicular function.

1. Introduction

Tumors of the testicle can be divided into germ cell tumors (GCTs) derived from germ cell neoplasia in situ, germ cell tumors unrelated to germ cell neoplasia in situ, and sex cord-stromal tumors. Testicular tumors typically present as a unilateral hard mass, which is usually painless. However, some patients experience testicular pain. Sex cord-stromal tumors are rare, accounting for only 3–5% of testicular tumors, and can occur at any age.[1] These tumors originate from gonadal sex cords (including Sertoli and granulosa cells) and from the stromal cells (Leydig cells).[1] They can be misdiagnosed as GCTs, making histopathological examination essential for accurate diagnosis.[2]

Here we report on a rare Sertoli cell tumor in an adult male, successfully treated with testis-sparing surgery. This case underscores the rarity and potential misdiagnosis of Sertoli cell tumors, emphasizing the need for precise histopathological examination, and illustrates that testis-sparing surgery can effectively improve patient outcomes.

2. Case presentation

A 55-year-old man with a history of ischemic heart disease was referred to the urology department due to left scrotal subsiding pain and a palpable, painful testicular mass. He reported no specific urinary tract symptoms and had no history of infertility, undescended testis, or previous testicular trauma.

When examined, there were no signs of gynecomastia or lymphadenopathy. Genital examination revealed a palpable, painful, round para-testicular mass on the left side, related to the tail of the epididymis, measuring 10 × 5 mm, while the left testis showed no pathological findings. On the right testis, there was a palpable, hard mass measuring 10 × 10 mm, which was tender upon palpation.

Serum alpha-fetoprotein (AFP) and beta-human chorionic gonadotropin (B-HCG) levels were within normal ranges, while lactate dehydrogenase (LDH) was slightly elevated at 209 U/L (normal range: 105–205 U/L).

Scrotal ultrasound revealed a 9 × 5 mm well-defined hypoechoic mass at the tail of the left epididymis, and a 9 × 11 mm round well-demarcated hyperechoic mass in the lower pole of the right testis, under the tunica albuginea. Both testes showed signs of microlithiasis. The cystic lesion on the left epididymis was consistent with a spermatocele.

After discussing management options with the patient, the decision was made to perform right testis-sparing surgery by enucleation of the tumor via an inguinal approach, with intraoperative frozen section examination.

Gross examination described the specimen as a grayish, well-defined, presumably encapsulated nodule with an elastic consistency, measuring 13 x 10 × 4 mm. Sectioning through the nodule revealed yellowish areas with a small hemorrhagic region.

Microscopically, the tumor appeared relatively well-defined and

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measured less than 10 mm. The center of the tumor contained areas of loose, edematous stroma and minor hemorrhagic foci, but no necrosis. Vascular invasion was not identified.

Immunohistochemical analysis showed positive staining for vimentin and calretinin, with a weak to moderate positive reaction for CD99. However, the tumor cells tested negative for SALL4, D2-40, OCT4, inhibin, and alpha-fetoprotein. The Ki-67 proliferation index was below 5 % (Fig. 1).

The tumor morphology and most of the immunohistochemical profile were consistent with a Sertoli cell tumor.

Reassessment of the specimen postoperatively by a second pathologist confirmed the tumor was consistent with a sex-cord stromal tumor, which, based on the immunoprofile, was compatible with a Sertoli cell tumor. The spermatocele on the left epididymis was not excised due to subsiding pain. The postoperative course was uneventful. The patient was discharged the same day as the surgery.

3. Discussion

The presented case highlights the clinical presentation, diagnostic process, and surgical management of a rare Sertoli cell tumor (SCT) of the testis in a 55-year-old patient. Sertoli cell tumors are a subtype of sex cord-stromal tumors, constituting about 0.4–1,5 % of all testicular tumors.[3,4] This case is notable due to the successful use of testis-sparing surgery, a relatively conservative approach in the management of testicular tumors.

Testicular tumors often present as painless masses. The absence of gynecomastia and lymphadenopathy, along with normal serum levels of tumor markers AFP and B-HCG, helped narrow the differential diagnosis.

The scrotal ultrasound findings were instrumental in further characterizing the masses. The hypoechoic mass in the left epididymis was consistent with a spermatocele, while the hyperechoic mass in the right testis required further investigation. The ultrasound characteristics, coupled with the slightly elevated LDH, necessitated surgical intervention.

The intraoperative frozen section and subsequent histopathological analysis were crucial in diagnosing the SCT, as the lack of features associated with malignancy, such as a size greater than 5 cm, cytological atypia, high mitotic index, necrosis, and vascular invasion, indicated a benign nature of the tumor.[5] These findings guided the decision to do tumor-sparing surgery instead of a more radical approach.

The decision to perform testis-sparing surgery was influenced by the tumor's small size, well-defined margins, and benign histopathological features. This conservative approach is significant as it preserves testicular function and is associated with favorable outcomes in benign cases. The literature suggests that testis-sparing surgery does not increase the risk of recurrence in benign tumors.

While most SCTs are benign, a small percentage can exhibit malignant behavior. The low Ki-67 proliferation index and absence of aggressive features in this case suggest a good prognosis.

This case underscores the importance of a thorough diagnostic workup, including imaging, histopathological examination, and immunohistochemistry, in the management of testicular masses. The successful use of testis-sparing surgery in this patient demonstrates the feasibility and efficacy of conservative surgical approaches in benign testicular tumors, highlighting the potential for preserving testicular function without compromising oncological safety. Future guidelines should continue to refine the criteria for conservative versus radical surgery, incorporating emerging evidence from cases such as this one to optimize patient outcomes.

4. Conclusion

This case report presents a rare Sertoli cell tumor in a 55-year-old male, managed effectively with testis-sparing surgery. The tumor's benign nature was confirmed through comprehensive diagnostic evaluations, including imaging and histopathological analysis. The decision to pursue a conservative surgical approach was based on the tumor's small size, well-defined characteristics, and lack of aggressive features. This case demonstrates the feasibility and effectiveness of testis-sparing surgery for rare testicular tumors, highlighting its potential for preserving testicular function without compromising oncological safety.

CRediT authorship contribution statement

Ahmed T.S. Al-Ghezi: Writing – review & editing, Writing – original draft, Resources, Project administration, Methodology, Investigation.

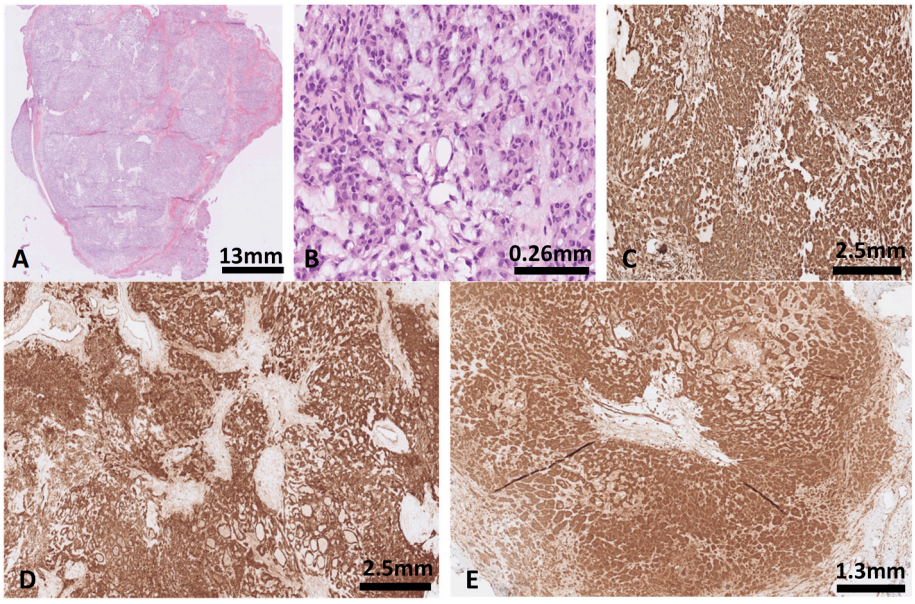

Fig. 1. The morphologic features show small tubules, solid cords, and nest of tumor cells embedded in a densely collagenous stroma and exhibiting nodular growth (A), bland slightly irregular round to ovoid nuclei and a predominantly abundant eosinophilic or clear cytoplasm(B) as well as diffusely positive reactivity for vimentin (C), β-catenin (D), and calretinin (E).

Søren S. Madsen: Supervision, Methodology, Investigation. **Dubravka B. Hizak:** Writing – review & editing, Supervision, Investigation. **Mads H. Poulsen:** Writing – review & editing, Supervision, Resources, Methodology.

Declaration of competing interest

The authors report no conflicts of interest.

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