

Adult Type Granulosa Cell Tumor of the Testis: Case Report and Review of the Literature

Yetişkinde Granuloza Hücreli Testis Tümörü: Olgu Sunumu ve Literatürün Gözden Geçirilmesi

Zafer Kucukodaci¹, Muzaffer Keles², Turgut Yapanoglu³, Bilal Firat Alp⁴, Yilmaz Aksoy³, Isa Ozbey³

¹Maresal Cakmak Military Hospital, Department of Pathology, Erzurum, Turkey

²Atatürk University, Faculty of Medicine, Department of Pathology, Erzurum, Turkey

³Atatürk University, Faculty of Medicine, Department of Urology, Erzurum, Turkey

⁴Maresal Cakmak Military Hospital, Department of Urology, Erzurum, Turkey

Correspondence to: Turgut Yapanoglu, M.D., Atatürk University, Faculty of Medicine, Department of Urology, 25240, Erzurum, Turkey.
Phone: +90.532.4756205, Fax: +90.442.3166340, e-mail: turgutyapanoglu@mynet.com

Abstract

Testicular granulosa cell tumors are extremely rare in adults. We report a case of a testicular germ cell tumor (GCT) in a 21-year-old man. The tumor was treated successfully with radical orchiectomy, and follow-up computed tomography revealed no evidence of recurrence or metastasis 10 months postoperatively. The clinical and histopathological features, treatment, and prognosis of testicular GCT are reviewed in this manuscript.

Keywords: Granulosa cell tumor, Testis, Sex cord tumors

Özet

Granulosa hücreli tümör, yetişkinlerde oldukça nadir görülür. Biz 21 yaşında granulosa hücreli tümörü bulunan bir olgu sunumunu rapor ettik. Tümör radikal orşiektomi ile başarılı şekilde tedavi edildi, 10 aylık izlemde, bilgisayarlı tomografide nüks veya metastazla uyumlu herhangi bir bulgu izlenmedi. Tümörün klinik ve histopatolojik özellikleri, tedavisi ve prognozunu yeniden gözden geçirdik.

Anahtar Kelimeler: Granuloza hücreli tümör, Testis, Seks kord tümörleri

Introduction

The first testicular granulosa cell tumor (GCT) was reported by Laskowski et al. [1] in 1952. Since that time, two distinct types of testicular GCT have been identified in men: the adult type and the juvenile type. While adult type GCT is extremely rare, the juvenile type is one of the most common congenital testicular tumors and also one of the most common testicular tumors diagnosed in the first 6 months of life [2,3]. Most of these tumors occur in asymptomatic white males and usually present as a painless testicular mass. Hormonal abnormalities, such as estrogen over-secretion, and/or congenital anomalies have been shown in only a few cases. For example, gynecomastia is present in 20-25% of cases [2,4]. History of cryptorchidism has been reported in only 2 cases [1,5]. Histologically, these tumors resemble their homologous ovarian counterpart; however, testicular GCTs appear to be less aggressive than ovarian GCTs. Although the biologic behavior of testicular GCTs is usually benign and indolent, this is not always the case, and GCTs can have an unpredictable outcome [2,6].

Case Report

A previously healthy 21-year-old man presented to our urology clinic with a 1-year history of a painless, enlarging mass in the left testis. His past medical history revealed no history of trauma, infection or lower urinary tract symptoms. Physical examination showed a normal right epididymis and testis; the left testis was slightly enlarged and contained an irregular, firm mass. There was no evidence of gynecomastia. Laboratory evaluation showed normal serum values for alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (HCG) and lactate dehydrogenase (LDH). Chest radiography and abdominal computed tomography were normal. Scrotal ultrasonography showed a left testicular mass measuring 1.5 x 1.5 cm on the longitudinal axis and 1.3 x 1.4 cm on the transverse axis. This tumor appeared on ultrasound as a well-defined homogeneous hypoechoic mass with few in-

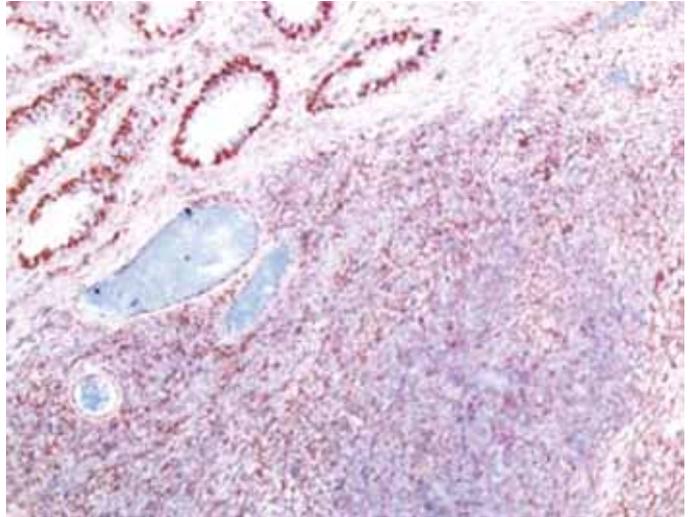


Fig. 2 — Tumor cells revealed strong immunoreactivity for vimentin.

ternal echoes. Both clinically and radiologically, the lesion was considered to be a neoplasm, and a left radical orchiectomy was performed.

Gross pathological examination of the cut surface area of the specimen showed a solid 1.3 x 1.5 x 1.5 cm gray-white tumor. On histopathological examination, the mass was found to be a GCT. It was noted to have oval nuclei that had longitudinal nuclear grooves, causing them to have a “coffee bean” appearance (Figure 1A). In addition, the tumor had structures that resembled Call-Exner bodies (Figure 1B). Immunohistochemical staining with vimentin was noted to be positive in the specimen (Figure 2). The tumor was confined to the testis without invasion of the spermatic cord or epididymis. It was also observed to have negative surgical margins. Necrosis was not determined in the sections. The tumor was found to be stage I based on the radiological and histopathological findings. He received no adjuvant therapy and is doing well 10 months after surgery.

Discussion

Granulosa cell tumors of adult testes are rare; when they are present, however, long-term follow-up is recommended because they have unpredictable low-grade malignant potential [7]. GCTs are seen in both ovaries and testes and are divided into 2 types, adult and juvenile. While most ovarian GCTs are of the adult type, the juvenile type predominates in testicular GCTs [8]. GCTs of the adult testes are rare, with less than 25 adult GCTs reported to date. When testicular GCTs do occur in adults, they typically present in the middle age of life. Ultrasonography can be helpful to differentiate adult type GCTs from other intrascrotal masses. While juvenile type GCTs have been shown to have a “swiss cheese” appearance with solid and cystic areas, adult type GCTs appears as a hypoechoic mass with few internal echoes [5].

Because of the relative rarity of testicular stromal tumors, they frequently pose diagnostic problems for pathologists [8],

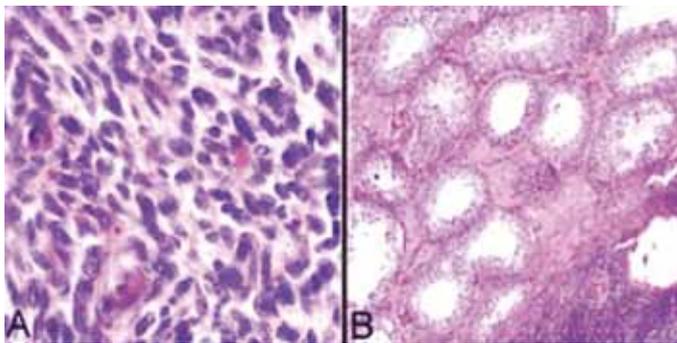


Fig. 1 — A: Histopathological examination showed oval nuclei with a longitudinal nuclear groove and a “coffee bean” appearance (hematoxylin and eosin, x400), B: The tumor showed Call-Exner body formation with cells forming circumscribed nests and microfollicles (hematoxylin and eosin, x100).

and testicular GCTs may be confused with other tumors, such as malignant lymphomas [2]. The histologic features of testicular and ovarian GCTs are similar. Most testicular GCTs described are well circumscribed, yellow to gray in color, and have a solid or partially cystic appearance. Multiple histopathologic patterns, including gyriform, macrofollicular, insular, trabecular, solid, pseudosarcomatous, and microfollicular patterns are described. Call-Exner bodies are present in the microfollicular pattern [2]. Immunohistochemical staining can help differentiate adult type GCTs from other tumor types that may resemble them pathologically, such as malignant lymphoma and germ cell tumors. GCT cells have been reported to stain positive for low molecular weight cytokeratin, vimentin, and inhibin [7] and negative for placental

alkaline phosphatase and AFP [8]. In our patient, tumor staining was positive for vimentin.

The clinical behavior of testicular GCTs is thought to be benign, and most GCTs are slow-growing, but some have the potential to cause distant metastases [2,9]. Jimenez-Quintero et al. [9] reviewed 7 patients with adult type GCTs. They concluded that the histological features of this tumor that are associated with malignant potential include tumor size greater than 7 cm, lymphovascular invasion, hemorrhage or necrosis, and increased mitotic activity.

In summary, adult type GCT is a very rare testicular tumor, but malignant cases with metastases have occasionally been reported. Therefore, long-term follow-up is warranted.

Conflict interest statement The authors declare that they have no conflict of interest to the publication of this article.

References

1. Laskowski J. Feminizing tumors of the testis. general review with case report of granulosa cell tumor of the testis. *Endokrynol Pol* 1952; 3: 337-43.
2. Al-Bozom IA, El-Faqih SR, Hassan SH, El-Tiraifi AE, Talic RF. Granulosa cell tumor of the adult type: a case report and review of the literature of a very rare testicular tumor. *Arch Pathol Lab Med* 2000; 124: 1525-8.
3. Fagin R, Berbescu E, Landis S, Strumpf K, Patil U. Juvenile granulosa cell tumor of the testis. *Urology* 2003; 62: 351.
4. Hisano M, Souza FM, Malheiros DM, Pompeo AC, Lucon AM. Granulosa cell tumor of the adult testis: report of a case and review of the literature. *Clinics* 2006; 61: 77-8.
5. Gaylis FD, August C, Yeldandi A, Nemcek A, Garnett J. Granulosa cell tumor of the adult testis: ultrastructural and ultrasonographic characteristics. *J Urol* 1989; 141: 126-7.
6. Young RH. Sex cord-stromal tumors of the ovary and testis: their similarities and differences with consideration of selected problems. *Mod Pathol* 2005; 18: 81-98.
7. Morgan DR, Brame KG. Granulosa cell tumour of the testis displaying immunoreactivity for inhibin. *BJU Int* 1999; 83: 731-2.
8. Wang BY, Rabinowitz DS, Granato RC Sr, Unger PD. Gonadal tumor with granulosa cell tumor features in an adult testis. *Ann Diagn Pathol* 2002; 6: 56-60.
9. Jimenez-Quintero LP, Ro JY, Zavala-Pompa A, et al. Granulosa cell tumor of the adult testis: a clinicopathologic study of seven cases and a review of the literature. *Hum Pathol* 1993; 24: 1120-5.