

# Adult Type Granulosa Cell Tumor of the Testis

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Testicular granulosa cell tumor (GCT) is a rare neoplasm. We report here on an incidentally discovered testicular granulosa cell tumor in a 36-year-old man. The serum tumor markers were within the normal limits. The ultrasonographic findings revealed a mass with a heterogenous hypoechoic echotexture, including multiple variable sized cystic components. The histology on the orchiectomy specimen demonstrated a gonadal stromal tumor with granulosa cell features. Testicular granulosa cell tumor of the adult type is a very rare tumor, and there have been several isolated case reports and small serial studies described in the literature. (Korean J Urol 2008;49:95-97)

**Key Words:** Testis, Testicular neoplasms, Granulosa cell tumor

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Granulosa cell tumor of the testis (GCT) is a subtype of non germ cell tumor of the testis and is similar to the conventional GCT of ovary morphologically.<sup>1</sup> Pure classic GCTs are exceedingly rare in the testis. To date and our knowledge, estimated 23 cases have been reported in English published literatures.<sup>2</sup> Only two cases of GCT of the testis had been reported in Korea. One is a juvenile GCT of undescended testis and the other is an adult type GCT arose in the paratesticular area.<sup>3,4</sup> But, adult type GCT of the testis has not been reported to date. We report a case of adult type GCT of the testis in 35-year-old man with a review of the literature.

## CASE REPORT

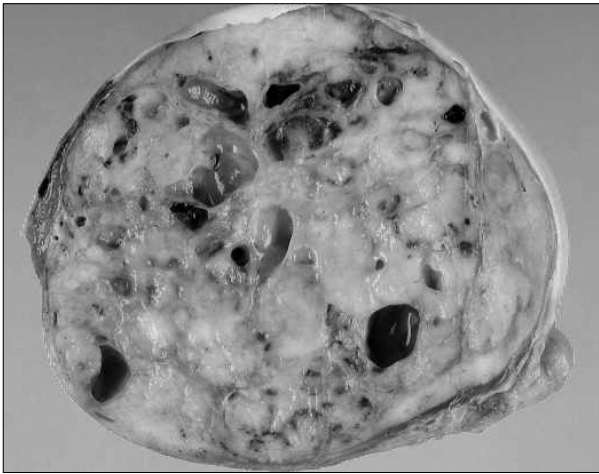
A healthy 35-year-old man presented with a painless right testicular mass started to develop from more than 10 years ago. He denied any past history of trauma, infection, lower urinary tract symptom, surgery, or use of any prescription drug. He was married and had no child. On physical examination, the patient had a 10x8 cm, hard, painless mass and hydrocele on the right testis. The left epididymis and testis were not remarkable. He had no evidence of gynecomastia or endocrine dysfunction. Serum level of human chorionic gonadotropin, alpha-fetoprotein, and lactate dehydrogenase were within normal ranges. The scrotal ultrasonography showed a 10x8x7 cm mass with hetero-

geneous hypoechoic echotexture and multiple variable sized cysts. Doppler color flow within the mass was evident. There was a reactive hydrocele within scrotal sac (Fig. 1). Abdominal CT showed no retroperitoneal lymphadenopathy.

Inguinal exploration and radical orchiectomy was performed without complication. The specimen consisted of a right testis measuring 10x8x7 cm with spermatic cord and weighing 378 g in total. Its external surface was covered with tunica vagi-



**Fig. 1.** Ultrasonography shows a mass with heterogeneous hypoechoic echotexture and multiple variable sized cysts in mass.



**Fig. 2.** The cut surface revealed a huge gray brown to yellow solid tumor that involved almost the whole testis, with multifocal cystic changes and hemorrhages.

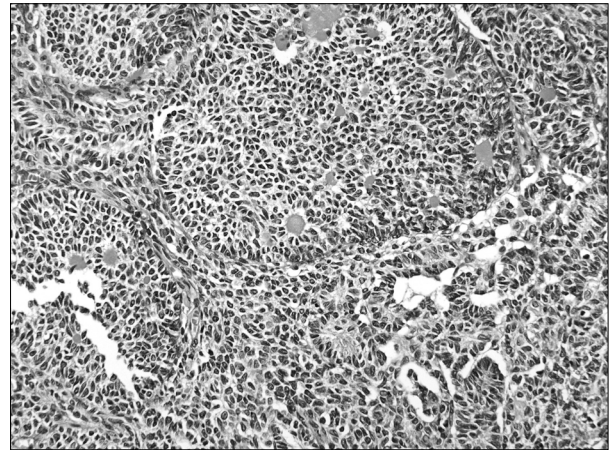
nalis. On section, the cut surface revealed huge gray brown to yellow solid tumor, involving almost the whole testis, with multifocal cystic changes and hemorrhages. The remaining testis was small and depressed (Fig. 2). Microscopically the tumor consisted of a homogeneous population of basophilic bipolar spindle cells with angular grooved nuclei. Call-Exner bodies imparting a microfollicular pattern were focally present throughout the tumor (Fig. 3). The tumor was limited to the testis and there was no vascular and lymphatic invasion. Immunohistochemical tests were positive for vimentin and smooth muscle cell actin (SMA) but negative for epithelial membrane antigen (EMA). A few tumor cells were positive for Ki-67, but in areas of theca cell differentiation many tumor cells were positive for Ki-67. These findings strongly suggested the diagnosis of a GCT of the testis.

On the fifth hospital day, the patient was discharged home. He was doing well without recurrent disease at 12 months of follow-up.

## DISCUSSION

GCTs of the testis are often discovered incidentally, of unknown duration, and exhibited no endocrine related symptoms.<sup>5</sup> Only a few cases of testicular GCT were reported with associated gynecomastia or chromosomal anomalies.<sup>6</sup>

The differential diagnosis of adult type GCT includes unclassified sex cord-stromal tumor, lymphoma, metastatic



**Fig. 3.** The tumor consisted of a homogeneous population of basophilic, bipolar, cells with angular grooved nuclei. Call-Exner bodies imparting a microfollicular pattern were focally present throughout the tumor (x200).

carcinoma with spindle cell differentiation, primary sarcoma, and metastatic melanoma.<sup>7</sup> Ultrasonography can add more information and can be helpful in the differential diagnosis. The neoplasm can appear as a hypoechoic mass with few internal echoes.<sup>8</sup> However, testicular malignancy cannot be ruled out by radiologic findings alone. Inguinal orchiectomy should be the initial management of choice both for eradication of the tumor and pathologic diagnosis.

Most testicular GCTs are well circumscribed, yellow to gray, with a solid to partially cystic appearance. Microscopically, they have patterns of ovarian GCT and Call-Exner bodies are present in some cases.<sup>6</sup> A panel of immunohistochemical tests usually include strong immunoreactivity for vimentin, variable results for cytokeratin, and negative for epithelial membrane antigen (EMA).<sup>5</sup> Histological features that suggest malignancy are as follow: tumor greater than 7 cm, increased mitotic activity, necrosis, and lymphovascular invasion.<sup>6</sup> Our case showed many areas with Call-Exner body-like structures and no vascular and lymphatic invasion.

The clinical behavior of GCT is usually benign and indolent. It is generally believed that testicular GCT has a better prognosis than ovarian one, but it is sometimes unpredictable.<sup>1,9</sup> Although of presumed low malignant potential, two cases of death from metastatic disease have been reported, one at 5 months and the other at 134 months after the initial diagnosis.<sup>5,10</sup> Therefore, it is mandatory to rule out the presence of metastatic spread after orchiectomy through careful investigation.<sup>5</sup> The

duration and periodicity of follow-up are still not well defined because GCT of the testis is rare and its biological behavior is unpredictable. So precise clinical and pathological diagnosis is important for guiding treatment decisions.

In summary, our case and a review of the literature indicate that GCT of the adult testis is a rare and slow growing neoplasm. Clinically, it may have uncertain potential to form distant metastasis. Although no specific guidelines are available for the management of this rare tumor, we believe that long-term follow-up is warranted because recurrence or distant metastasis may occur late in the clinical course.

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