Leydig Cell Tumor of the Testis: A Case with Incidental Diagnosis

Testisin Leydig Hücreli Tümörü: İnsidental Tanı Alan Bir Olgu

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Abstract

Leydig cell tumors account for approximately 1-3% of adult testicular tumors. These tumors are the most common type of gonadal stromal tumors and most commonly seen in the third to sixth decades of life, and about 10% of them are malignant. This case is about an incidentally diagnosed Leydig cell testis tumor in a patient who was investigated for primary infertility. A 28-year-old male patient presented with primary infertility and scrotal ultrasonography examination revealed a heterogeneous hypoechoic mass in the left testicle. He underwent left radical orchiectomy and pathological diagnosis was testicular Leydig cell tumor. There was no distant metastasis and the patient is being followed for metastasis.

Keywords: Infertility, Leydig cell tumor, Testicular neoplasms, Inguinal orchiectomy

Öz


Anahtar Kelimeler: İnfertilite, Leydig hücreli tümör, Testiküler neoplaziler, İnguinal orşiektomi

Introduction

Leydig cell tumors account for 1-3% of all adult testicular tumors. These tumors are the most common type of gonadal stromal tumors and most commonly seen in the third to sixth decades (1). New developments in ultrasound imaging have increased the number of Leydig cell tumors discovered (2).

In this report, we present a case of Leydig cell testis tumor incidentally diagnosed during primary infertility investigation.

Case Presentation

A 28-year-old married male patient presented to our clinic with the complaint of primary infertility. The patient had no additional diseases, such as undescended testes, and history of surgery or trauma. Physical examination was unremarkable. On scrotal examination, the left testis was 7x5x4 cm in size with a mass measuring approximately 15x20 mm in the middle part of the left testicle, and the right testis was normal. No other
signs, including gynecomastia and enlarged or superficial lymph nodes, were observed.

FSH, LH, testosterone, prolactin, cortisol, progesterone, and estrogen levels and testicular tumor markers (alpha-feto protein, beta-human chorionic gonadotropin and lactate dehydrogenase) were normal and no abnormality was detected in the spermogram (Table 1). Scrotal ultrasonography revealed that the left testicle was measured 7x4x3 cm with a heterogeneous hypoechoic mass of 14x22 mm in size in the middle part of the left testicle.

He underwent left radical orchiectomy after sperm cryopreservation was performed. The patient was discharged on the postoperative 2nd day. Pathological investigation revealed a testicular Leydig cell tumor measuring 15 mm in diameter, diffuse positive for inhibin and calretinin while surgical margins were negative and no tumor necrosis, nuclear atypia or vascular invasion was detected (Figure 1). There was no distant metastasis on thoracic and abdominal contrast-enhanced computed tomography (CT). Subsequently, the patient was referred to the in vitro fertilization center for assisted reproductive techniques.

The patient is still followed regularly at 6-month intervals with thoracic and abdominal contrast-enhanced CT. No distant metastases were seen during the follow-up period. Written informed consent was obtained from the patient.

**Discussion**

Leydig cell tumors are relatively rare testicular tumors accounting for 1-3% of all testicular tumors in adults (1). They are usually diagnosed incidentally as a palpable mass during manual testicular exam or during ultrasonography.

These tumors usually produce hormones. Suardi et al. (3) reported that 80% of 37 patients with Leydig cell tumor had low testosterone and high estrogen, estradiol, LH and FSH levels while no patient showed increased testicular markers. In our case, testicular tumor markers were negative and LH, FSH, testosterone and estrogen levels were normal (Table 1).

It is estimated that about 30% of patients with Leydig cell tumors have endocrine symptoms due to abnormal hormone levels (4). Scrotal ultrasonography is the primary imaging method used in the diagnosis, however, investigation of tumor markers, hormones (testosterone, LH, FSH, estrogen, estradiol, progesterone and cortisol) and CT examination of chest and abdomen for distant metastasis should be performed. As in our patient, cases of Leydig cell tumors incidentally diagnosed during infertility investigation have been reported in the literature (5,6).

Malignant transformation of Leydig cell tumors occurs in approximately 10% of patients. Orchiectomy is the standard treatment. Histopathological and clinical findings of malignant Leydig cell tumors include increased mitotic activity, vascular invasion, large size (>5 cm), necrosis, cytological atypia, extension beyond the testicular parenchyma, increased MIB-1 expression, infiltrative margins and DNA aneuploidy (7). However, the strongest indicator of malignancy is the presence of metastases (8). Malignant tumors occur exclusively in adults and are unaccompanied by endocrine changes (1,9). In our case, the tumors size was 15 mm, the patient was young, there were no vascular invasion, cytological atypia or necrosis and surgical margins were negative and no distant metastasis was found. Thus, this case should not be considered malignant.

In all high-risk patients, physical examination, scrotal and abdominal ultrasonography, evaluation of hormones and CT of the chest and abdomen are recommended every 3–6 months for follow-up (3).
The rate of metastatic tumors among all reported cases is less than 10%. In three older series, 18 metastatic tumors were found in 83 cases (21.7%) (1,2,10), while 5 recently published studies reported only 2 metastatic tumors in 156 cases (1.3%) (3,11,12,13,14). The most common sites of metastasis are the regional lymph nodes, followed by the liver, lungs, and bones (1). The metastases respond poorly to radiation or chemotherapy and overall survival is poor (15). There is no recommended option for the treatment of metastatic Leydig cell tumors yet. In this case, the patient was followed with every 3-6 month controls and no distant metastasis was seen in radiological exams.

In conclusion, Leydig cell tumors are rare tumors developing from gonadal stroma. They are usually diagnosed incidentally. These tumors are important for their endocrine effects because they often produce hormones. However, normal hormone profile does not exclude Leydig cell tumor. Radical orchiectomy should be performed for the treatment and the patient should be closely monitored for metastasis.

**Ethics**

**Informed Consent:** Written informed consent was obtained from the patient.

**Peer-review:** Externally peer-reviewed.

**Authorship Contributions**


**Conflict of Interest:** No conflict of interest was declared by the authors.

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**References**


