

Testicular Tumors in Children

Çocuklarda Testis Tümörleri

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Özet

Çocuklarda testis tümörleri nadirdir. Teratomlar ve yolk sac tümörleri çocuklarda en sık görülen testis tümörleridir. Testis tümörleri sıklıkla ağrısızdır. Bu yanlışlıkla hidrosel tanısına neden olur. Tanıda tümör belirteçleri ve ultrasonografi kullanılmaktadır. Benign tümörler malign tümörlerden daha sık görülmektedir. Testis tümörlerin temel tedavisi inguinal orşiektomidir.

Anahtar Kelimeler: Testis tümörleri, Çocuk

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Abstract

Testicular tumors in children are rare. Teratomas and yolk sacs tumor are most testicular tumors in children. Masses of testicular tumors are often painless. These may be misdiagnosed as a hydrocele. Tumor markers and ultrasound used in diagnosed. These tumors are more benign than malign. Inguinal orchiectomy is gold standart in treatment of testicular tumors.

Keywords: Testicular Tumors, Child

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Giriş

Testicular tumors children are rare in children, representing 1-2% of all solid tumors in children. There are two peak ages for most childhood testicular tumors. The first peak age is about 2 years, and puberty is the other age that they are present, with 75% occurring before age 2^{1,2}. The etiology of testicular tumors in children is unclear³. Cryptorchidism has long been known as predisposing to testicular tumor but cryptorchidism with tumors is very rare in prepubertal children. Some literature suggests that testicular tumors may be more common among Asians. There also have been a few reports on testicular tumors of children in Asian countries^{3,4}.

Until recent years, the majority of these tumors have been known to be malignant but now we know that testicular tumors are most commonly benign than malign. However, the proportion of malignant tumors in older children (over the age of 13) increased^{4,5,6}.

Physical Examination: Most children with testicular tumors present with an asymptomatic mass or scrotal swelling. These masses are often painless. Some of these children had hydroceles and/or inguinal hernias. They were misdiagnosed as having hydroceles. Hence, the diagnoses are delayed for 6 months on the average^{1,7}. The tumors of the new-born present as a hard mass and must not be misdiagnosed as in utero torsion of the testis^{8,9}.

Some children with testicular tumors are hormonally active, presenting with precocious puberty (Leydig cell tumors) or gynecomastia (Sertoli cell tumors)⁷.

Laboratory and imaging: Tumor markers have become a recognized method in diagnosis. Serum alpha-fetoprotein levels should also be analysed. It is produced by the fetal yolk sac, liver, and proximal gut. Alpha-fetoprotein is a protein that occurs in the fetus but disappears in a short period after birth. Elevated levels may be observed in the new-born and in the first eight months of life¹. It is also produced by endodermal sinus tumors. It is an excellent tumor marker that are elevated in 90% of endodermal sinus tumors^{2,6}. Another tumor marker is β -human chorionic gonadotropin (β -hCG). β -hCG is synthesized by syncytiotrophoblastic cells of the placenta. Both tumor markers can be used both preoperatively and postoperatively to trace the tumor⁷.

Ultrasound should be used to screen the testicular mass. If a child has a scrotal mass in which the testis cannot be felt or if the diagnosis is unclear, an ultrasound should be obtained⁴. Also, Luker G.D. et al reported that Doppler Ultrasound is more useful than grey-scale ultrasound in showing the testicular tumors¹⁰.

In addition, for purposes of detecting metastatic lesions and staging, imaging modalities should obtain a chest x-ray, an ultrasound, a computerized tomographic scan and a magnetic resonance. Radionuclide scans and lymphangiography are other imaging modalities that can be used^{1,2,6}.

Classification of Child Testicular Tumors: The classification is shown in Table 1. The most common type of testicular tumor in children is the germ cell tumors. Endodermal sinus tumor (yolk sac tumor) and teratomas are the most common germ cell tumors among all testis tumors in children^{1,4}. These tumors present with a malignant behaviour sometimes. These tumors spread to the lung, retroperitoneal lymph nodes, bone, or the central nervous system. The most common malignant tumor is usually the endodermal sinus tumor in children⁶.

Teratomas are the most common benign tumors in children. Recent reports found that teratomas were more common than endodermal sinus tumors in children. The gonadal stromal tumors are usually benign, there has been the very rare case of malignant gonadal stromal tumor^{4,5,6}.

Table 1: Classification of Child Testicular Tumors

Germ Cell Tumors
Endodermal sinus tumor
Teratoma
Mixed germ cell
Seminoma
Gonadal Stromal Tumors
Leydig cell
Sertoli cell
Juvenile granulosa cell
Mixed form
Gonadoblastoma
Tumors of Supporting Tissues
Fibroma
Leiomyoma
Hemangioma
Lymphomas and Leukemias
Tumor Like Lesions
Epidermoid cysts
Hyperplastic nodule secondary to congenital adrenal hyperplasia
Secondary Tumors
Tumors of the Adnexia

Almost all types of testicular tumors can be seen in the new-born. However, juvenile granulosa cell tumors are the most common tumors among neonatal tumors. These tumors are benign^{6,8,9}.

Treatment: Surgery is curative in almost all cases. High inguinal orchiectomy has been a standard surgical treatment. Recent reports suggest that testis-sparing surgery has become a popular method in the surgery of benign testicular tumors. However, testis-sparing surgery should be considered when the normal testicular tissue is suitable on ultrasonography and in children with testicular tumor normal AFP levels^{2,4,5}.

Nevertheless, treatment of these tumors changes with tumor metastasis and histological diagnosis. If there are metastatic testicular tumors, these tumors need to be subjected to chemotherapy. If the tumors are resistant to chemotherapy, then radiotherapy can be used^{3,4,5,7}.

As a result, testis tumors feature different tumor characteristics in children than in adults. Children both reveal germ cell tumors and, contrary to past knowledge, are mostly benign tumors. In addition, testis-sparing surgery

in benign testicular tumors of children is a treatment option that has become more and more popular during the recent years.

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