A rare cause of acute abdomen: tumor rupture of nonpalpable testis

Turan Yıldız¹, Zekeriya İlçe¹, Yasemin Gündüz², Gözde Çakar Çakırsoy³

¹Department of Pediatric Surgery, Sakarya University School of Medicine, Sakarya, Turkey

²Department of Radiology, Sakarya University School of Medicine, Sakarya, Turkey

³Department of Pathology, Sakarya University School of Medicine, Sakarya, Turkey

Abstract

Undescended testicle is the most common congenital anomaly among males. Testicular tumor develops in 3-5% of the boys with a complaint of undescended testicle. The clinical presentation of malignant intra-abdominal testicular tumors ranges from asymptomatic cases to acute abdomen. In this study, we present a child with testicular tumor rupture which is observed very rarely. A 16-year-old boy presented 24 hours after the sudden onset of right lower quadrant pain, nausea, vomiting and fever. On physical examination, extensive tenderness in the abdomen and abdominal guarding were found. The right testicle was not palpable. The serum white blood cell count was elevated. Ultrasonography and abdominal computerized tomography scan demonstrated a perforated, hyperdense mass with free fluid in the abdomen. The preoperative alpha fetoprotein level was found to be increased. We performed surgery with laparoscopy and a perforated right intraabdominal testicle was found in the right iliac fossa. The mass was excised. Histopathological examination revealed a yolk sac tumor. Ruptured nonpalpable testicular tumors are very rare. To our knowledge, this is the first adolescent case reported so far. Testicular tumor rupture should be considered in patients with nonpalpable testicle and acute abdomen. Laparoscopy may be performed in differential diagnosis and treatment of these patients. (Turk Pediatr Ars 2016; 51: 159-61)

Keywords: Acute abdomen, nonpalpable testicles, puberty, rupture, tumor

Introduction

Undescended testicle is the most common congenital anomaly among boys. Patients with undescended testicle should be treated in order to prevent complications including malignancy, infertility and testicular torsion (1). In these patients, the possibility of malignancy increases from the scrotal region towards the intraabdominal region depending on the location of the testicle. Patients with intraabdominal testicle may present with clinical signs and symptoms resembling acute abdomen because of torsion or malignancy. One of the extremely rare causes leading to findings of acute abdomen in patients with undescended testicle is rupture of intraabdominal testicular tumor (2-4).

In this article, a 16-year old boy with testicular tumor rupture who presented with findings of acute abdomen was presented in the light of the literature.

Case

The patient presented to emergency department with complaints of sudden onset right lower quadrant abdom-

inal pain, nausea, vomiting and fever which started 24 hours ago. On physical examination, extensive tenderness in the abdomen and abdominal guarding were found. On genitourinary examination, it was found that the right testicle was not palpable. When the patient's history was detailed, it was learned that undescended testicle operation was recommended at a young age, but the parents did not accept this. The white cell count was found to be 16 200 mm³. The patient was hospitalized after obtaining written informed consent from the parents. Afterwards, abdominal ultrasonography was performed and a solid ruptured mass with sporadic cystic components together with extensive free fluid in the right quadrant was found. Doppler ultrasonography revealed blood flow in the mass. On contrast-enhanced abdominal tomography, a ruptured mass with hypodense areas and with a size of 9x6 cm together with free fluid was visualized (Figure 1a, b). Serum alpha fetoprotein (AFP) which is one of the tumor markers was found to be increased (10 000 µg/L) and the other tumor markers were found to be normal. Laparoscopic surgery was performed for treatment and ruptured right testicular tumor together with free fluid was observed in the right lower quadrant. The mass was excised and the tis-

Address for Correspondence: Turan Yıldız E-mail: tyildiz44@hotmail.com

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Figure 1. Hypodense mass is observed in the right pelvis on axial (a) and coronal (b) sections on contrast-enhanced abdominal tomography

Figure 2. Intracytoplasmic hyaline globules (arrow) in yolk sac tumor

Figure 3. CD 30 positive embryonal carcinoma

sues found in the abdomen were cleaned. No other mass was found on exploration. The patient was postoperatively referred to the pediatric oncology division for continuance of treatment. *Histopathological evaluation:* On macroscopic evaluation, ruptured testicular tissue with a size of 14x10x5 cm was found. A cystic lesion with a diameter of 4 cm was observed on the cross section of the testicle. Hyaline globules were observed in the tumor cells. All tumor cells were stained with AFP. A few gland-like solid foci with irregular borders were observed on CD30 staining of the tumor tissue (Figure 2, 3). Diffuse bleeding and

necrotic areas were observed. The patient was diagnosed with ruptured germ cell tumor with predominant yolk sac tumor and embryonal carcinoma component.

Discussion

Undescended testicle is the most common congenital anomaly in boys and found in approximately 1% of the children aged one year (5). It has been reported that nonpalpable or intraabdominal testicle is found in 13% of these patients (6). Complications including cancer, infertility and torsion may be observed in patients with undescended testicle. The prevalence of testicular tumor has been reported to be 0,5-2 / 100 000 in children (4). On the other hand, testicular tumor has been found in 3-5% of the adult patients with a history of undescended testis (2). The risk of development of cancer is higher in high testicular location compared to scrotal testicle. In patients with intraabdominal testicle, the risk of development of cancer is 200-fold higher compared to patients with scrotal testicle (7). Cancer makes a peak at the age of two and in adolescence in children with scrotal testicle and undescended testicle (8). However, the risk of malignancy more frequently increases in the 3rd and 4th decade of life in patients with undescended testicle (6). This patient is a 16-year old boy with a history of nonpalpable testicle who presented with signs of acute abdomen.

The most common type of testicular tumors in children is yolk sac tumor (54-66%). However, most of these malignancies are observed in normal scrotal testicles (4, 8). The histological type observed in patients with undescended testicle is seminoma (43-90%) and yolk sac tumor, teratocarcinoma and choriocarcinoma (10-57%) have also been reported (3, 6). This patient was diagnosed with mixed germ cell tumor with predominant yolk sac tumor and embryonal carcinoma component.

Pain or palpable mass may be present in patients with testicular tumor. However, the clinical picture in patients with intraabdominal testicular tumor may range from asymptomatic state to acute abdomen signs related with bleeding or torsion. The complications of undescended testicular tumor may mimic the clinical picture of appendicitis, strangulated hernia and urinary tract infection (3). Preoperative difficulties and difficulties in radiological diagnosis may be experienced in patients who do not give a history of undescended testicle and who have nonspecific clinical and radiological findings (3, 6). In this patient, nonpalpable testicle was found previously and the parents ignored their son's undescended testicle and did not give

consent for operation. In addition, the parents did not give a history of undescended testicle when the patient presented to emergency department and nonpalpable testicle was found on physical examination.

Acute abdomen and shock related with hemorrhage are rare complications and pictures of presentation of testicular tumor (2). These complications occur as a result of tumor rupture. Ruptured testicular tumors have been reported rarely in children (2, 9). Two patients have been reported in the childhood age group and both of them are in the newborn age group. Histopathologically, yolk sac tumor was found in one of these patients and teratoma was found in the other (9). This patient constitutes the first adolescent case in the literature to the best of our knowledge.

Alpha fetoprotein, beta chorionic gonadotropine and lactate dehydrogenase are used as testicular tumor markers (10). The alpha fetoprotein level was found to be high in this patient, but the other tumor markers were found to be normal. Tumor markers and radiological methods were used for preoperative diagnosis.

In treatment of testicular germ cell tumor, high inguinal orchiectomy is performed primarily as surgical procedure. Additional treatment is specified depending on the histopathological subtype, stage and presence of metastasis. Chemotherapy is needed in most pediatric and adolescent cases as a part of treatment. Radiotherapy may be needed in some resistant cases (4).

This patient was operated urgently because of his clinical picture. Laparoscopy technique was used in treatment. We think that this technique has three superiorities. These include confirmation of the diagnosis of testicular tumor, facilitation of intraabdominal (high inguinal) orchiectomy and enabling detailed abdomen cleaning in ruptured testicular tumors.

Undescended testicular tumor rupture has been reported extremely rarely in children. Patients frequently present with acute abdomen findings. Therefore, testicular examination should be kept in mind in patients presenting with acute abdomen findings and testicular tumor rupture should be considered in the differential diagnosis in

patients with undescended testicle who show acute abdomen findings. In addition, laparoscopy may be preferred as an option both in the diagnosis and in the treatment.

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