Case Report / Olgu Sunumu

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Should Testis Elastography be Performed in All Patients with Scrotal Swelling? A Case Report

Skrotal Şişlikle Gelen Her Hastaya Testis Elastografi Yapılmalı mı? Olgu Sunumu

Nurullah Hamidi MD[1], Namık Kemal Altınbaş MD[2], Evren Süer MD[1], Sümer Baltacı MD[1]

[1]*Ankara University Faculty of Medicine, Department of Urology, Ankara, Turkey*
[2]*Ankara University Faculty of Medicine, Department of Radiology, Ankara, Turkey*

Summary

Some of testicular tumor cases can present with symptoms like epididymo-orchitis and this condition can cause delay in the diagnosis of testis tumor. Even though scrotal Doppler ultrasound has high sensitivity (up to 100%) in the diagnosis of testicular lesions; it alone may not be sufficient in the differential diagnosis of benign and malign lesions. The delay of the diagnosis can cause progression of stage and consequently worsening prognosis. In this case, it was aimed to present a case that is thought to be testicular tumor according to Elastography which applies with clinical features like epididymo-orchitis and cannot be diagnosed with B-mode scrotal Doppler ultrasound.

Keywords: Elastography, epididymoorchitis, testicular tumour, tissue stiffness grade

Öz

Testis tümör olgularının bir kısmı epididimoorşit benzeri şikayetlerle başvurabilir ve bu durum tanının gecikmesine yol açabilir. Skrotal Dopler ultrasonun testiküler lezyon tanısında sensitivitesi %100'e yakın olsa da malign lezyonları benign testiküler lezyonlardan ayırt etmede tek başına yeterli olmayabilir. Tanının gecikmesi evrenin ilerlemesine ve dolayısıyla prognozun daha kötüleşmesine neden olabilir. Bu olguda epididimoorşit benzeri klinikle başvuran ve B-mode skrotal ultrason ile ayırt edilemeyen ancak testis elastografisindeki bulgulara göre tümör olduğu düşünülen bir olguyu sunmayı amaçladık.

Anahtar Kelimeler: Elastografi, epididimoorşit, testis tümörü, doku sertlik derecesi

Introduction

Testicular cancer (TC) generally affects young men in their third or fourth decade of life. Incidence is 3-10/100.000 among males/per year (1). In general, TCs present with a painless unilateral palpable scrotal mass. In 20% of the cases, the first symptom is scrotal pain (2). In about 10% of the cases, symptoms are like epididymo-orchitis and this causes consequent delay in correct diagnosis (2).

Ultrasound (US) is the primary imaging method to confirm presence of scrotal mass. Due to higher vessel density, TC shows increased perfusion at color Doppler US and/or power doppler US (2). When using the combination of gray-scale and color Doppler US, the sensitivity of testicular lesion (TL) detection increases to 100%. Nevertheless, these techniques do not definitely allow differentiation of TC from benign scrotal masses such as focal orchitis, partial infarction, granuloma, Leydig cell hyperplasia, adrenal rest, hematoma, or lipoma (3). Therefore, we need further radiological imaging methods for differential diagnosis of TLs.

The elasticity of the mass appears in Elastography. Elastography is a new sonographic method that directly discloses the elasticity features of the tissue and allows examination of changes in tissue hardness (4). Elastography has been proposed with promising results for differentiating benign from malignant lesions in some tissues, such as testis (4,5,6,7,8). Due to increasing stiffness of a mass, the risk of malignancy becomes higher and more sensitive to elasticity evaluation than palpation might obtain with recent sonographic devices (5). Our case with hardness features is a sample for neoplasia. The mass was not seen on B-mode US as a separate lesion. So it is difficult to differentiate the lesion from orchitis. But Elastography helped to differentiate the lesions as benign or malign.

Case Report

A 32-year-old fertile man was admitted to our outpatient clinic with heavy pain and swelling on left scrotum for 15 days. He had no fever. On physical examination, painful left epididymis and painful mass on superior testis pole were observed on palpation. Spermatic cord and scrotum skin were normal. After physical examination, urinalysis and urine culture tests were performed with routine complete blood count, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP). A few leukocytes in urinalysis, high serum CRP (8 mg/

Address for Correspondence/ Yazışma Adresi: Nurullah Hamidi MD, Ankara University Faculty of Medicine, Department of Urology, Ankara, Turkey
Phone: +90 312 508 22 58 **E-mail:** dr.nhamidi86@gmail.com
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dL), and high serum ESR (35 mm/h) values were detected. US examination was performed with Logiq S7 Expert (GE Healthcare, Milwaukee, WI) equipped with a 9L-D linear-array probe. B-mode US revealed a left testis larger than the right side (Right testis size: 26x27x40 mm; left testis size: 31x40x46 mm). Right testicular microlithiasis was seen on B-mode US (Figure 1a). Echogenic foci were also seen on the left side (Figure 1b). According to radiological findings, levofloxacin treatment was given to patient. Scrotal swelling continued despite 10 days antibiotic treatment. In his second application to our clinic, alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (beta-hCG) and lactate dehydrogenase (LDH) were measured. AFP (80 ng/mL), beta-hCG (700 miU/mL) values were elevated and LDH was normal.

At the final application, testicular Elastography was performed. In testicular elastographic examination revealed features of hard tissue characteristics with a 5.0 score coded in blue (measurement range: 0-6; high scores and blue color note the hardness) in left testis while right testis has 0.8 score (Figure 1c). The hardness of the left testis was 6.3 times more than the right testis (Figure 1d). This result tends us to diagnose the lesion as malignant. We planned left radical inguinal orchiectomy because of elevated tumor markers and radiological findings. Before operation, we performed computed tomography (CT) of abdomen and pelvis for tumor staging. CT revealed a 4.4×3.4 cm left paraaortic lymphadenopathy close to the left renal artery (Figure 2).

On gross pathological examination a 4×3.5×3 cm heterogeneous testicular mass, exhibiting tan white-yellow to hemorrhagic areas were evident. Histopathology showed a mixed germ cell tumor (embryonal carcinoma 95%, seminoma 5%). Infiltration to rete testis, spermatic cord, surrounding fat tissue and vascular invasion were observed. Tumor was in close proximity to the epididymis.

According to these findings, we planned four cycles bleomycin, etoposide and cisplatin chemotherapy. The required consent for publishing this case was obtained from the patient.

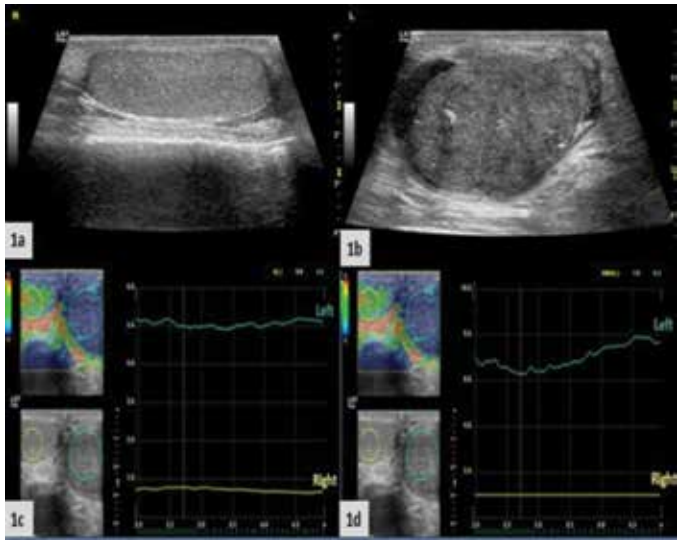

Figure 1. a) Right testicular microlithiasis, b) and left testicular calcifications are seen on B-mode ultrasound, c) Elastographic examination revealed features of hard tissue characteristics with a 5.0 score coded in blue (measurement range: 0-6, high scores and blue color note the hardness) in left testis while right testis has 0.8 score, d) The hardness of the left testis was more than 6.3 times higher than the right testis, (R: Right, L: Left)

Discussion

US is primary radiological imaging method on diagnosis of TCs, because it costs low and can be accessed easily. Unfortunately, the diagnosis of TC can be delayed and stage can be increased in patients who admitted with scrotal pain. The differentiation of benign lesions (benign testicular tumor, epididymoorchitis, and hematoma) from malign testis lesions can be difficult with conventional US techniques despite high diagnostic sensitivity (3). In recent years, new radiological imaging methods such as Elastography have been described about diagnosis of malign tissue. In previous studies (about prostate and breast cancer) it has been reported that stiffness grade of tumor tissue higher than in normal tissue by Elastographic examination (6,7,8). Aigner et al. (3) performed testicular Elastography for 50 patients who have TLs detected with gray-scale US. Elastography showed stiff lesions in all cases of TC. They reported that Elastography has high accuracy rate (94%) in the diagnosis of TC (sensitivity 100%, specificity 81%, negative predictive value 100%, and positive predictive value 92%). However, they observed high stiffness grade at Elastography in three cases (one of these had biopsy history, one was scarring after prior orchitis and one was a cyst) of benign intratesticular lesions. To increase the specificity (from 75% to 81%) of testicular US, they suggested to add testis Elastography findings of TLs to gray-scale and color and/or power Doppler US findings.

In another study, Goddi et al. (9) evaluated 144 TLs in 88 testicles according to the elasticity images of Elastography score (Between SC1-5). They reported that 93.7% of all benign lesions showed a complete elastic pattern (SC1) and 87.5% of malignant lesions showed a stiff pattern (SC4-

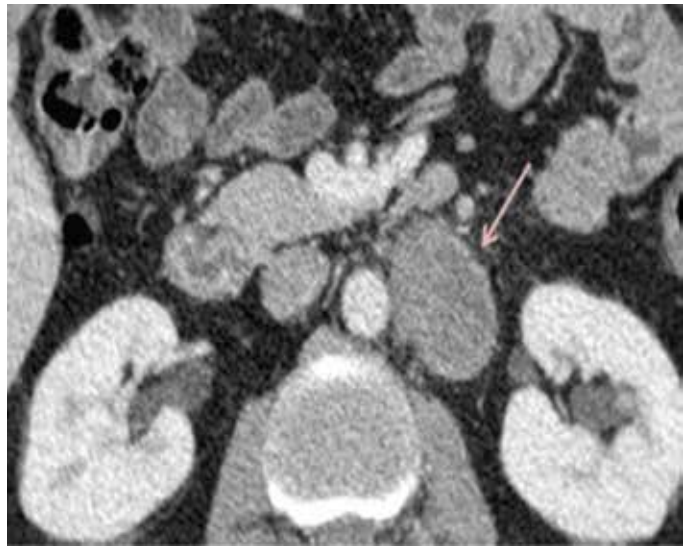

Figure 2. Left paraaortic lymphadenopathy (arrow) is seen on axial computed tomography image

5). Testicular Elastography showed a sensitivity of 87.5%, a specificity of 98.2%, a positive predictive value of 93.3%, a negative predictive value of 96.4% and an accuracy of 95.8% in differentiating malignant from benign lesions.

In this case, we presented a case of TC which was unrecognized with B-mode US. However, we found a hard tissue with Elastography. We delayed in diagnosis of TC and due to this reason the stage may be progressed.

In conclusion, early diagnosis and treatment are important in TC. The combination of color Doppler US and Elastography can be used as primary imaging method, especially on suspicion of benign lesions such as epididymoorchitis and in prepubertal patients which benign testicular tumor are more often seen.

Authorship Contributions

Informed Consent: Consent form was filled out by related patient. Concept: Nurullah Hamidi, Design: Nurullah Hamidi, Sümer Baltacı, Data Collection or Processing: Nurullah Hamidi, Namık Kemal Altınbaş, Analysis or Interpretation: Sümer Baltacı, Evren Süer, Literature Search: Nurullah Hamidi, Namık Kemal Altınbaş, Writing: Nurullah Hamidi, Evren Süer, Peer-review: Externally peer-reviewed, Conflict of Interest: No conflict of interest was declared by the authors, Financial Disclosure: The authors declared that this study has received no financial support.

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