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Case Report

Testicular hemangioma mimicking a malignant neoplasm

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ABSTRACT

A 34-year-old man who presented with right scrotal pain, and who on subsequent ultrasound examination, was found to have an intratesticular hypoechoic mass. Based on the ultrasound appearance of this mass, a malignant germ cell tumor was thought to be the most likely diagnosis. Preoperative serum tumor markers, including lactate dehydrogenase, alpha-1-fetoprotein, and beta-human chorionic gonadotropin, were negative. Computed tomography imaging of the chest, the abdomen, and the pelvis revealed no evidence of metastasis. The patient underwent right orchiectomy, and final pathology demonstrated a benign hemangioma.

History and physical examination

We report a case of a 34-year-old man who presented to his primary care provider with progressive right scrotal pain for 4 days. The patient denied a history of inciting trauma, infection, or prior surgery. He endorsed mild polyuria but denied other associated symptoms. He also specifically denied any swelling or palpable mass. His medical, social, and family histories were noncontributory. Physical examination revealed a normal-appearing scrotum without focal tenderness or palpable mass.

Laboratory testing and imaging

Initial laboratory studies, including urinalysis, urine culture, complete blood count, and gonorrhea and/or chlamydia probe were negative. Ultrasound examination revealed a $5 \times 3 \times 4$-mm homogenously hypoechoic intratesticular lesion located within the posterior superior pole of the right testicle (Figs. 1A and B) with increased internal flow on color Doppler imaging (Fig. 1C). A small hydrocele was also seen.

Preoperative serum tumor markers, including lactate dehydrogenase, alpha-1-fetoprotein, and beta-human chorionic gonadotropin were negative. Computed tomography images of the chest, the abdomen, and the pelvis revealed no evidence of metastasis or suspicious lymphadenopathy.

Treatment, outcome, and follow-up

The patient subsequently underwent a right radical orchiectomy. The gross surgical specimen demonstrated a 4-mm red intraparenchymal testicular nodule abutting the tunica albuginea. The resection margins were negative. Histologic

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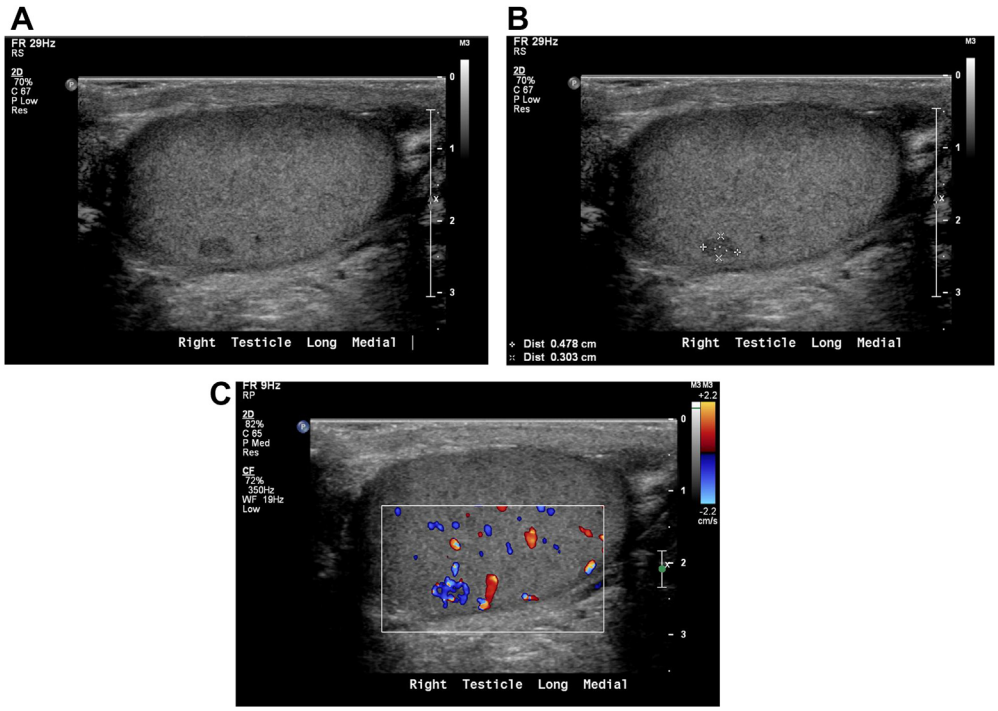

Fig. 1 – Testicular hemangioma in a 34-year-old man. (A and B) Sagittal grayscale ultrasound images of the right testicle show a hypoechoic intratesticular mass located within the posterior superior pole, measuring 5 × 3 mm. (C) Sagittal color Doppler ultrasound image of the right testicle demonstrates blood flow within the intratesticular mass.

evaluation rendered a final diagnosis of benign hemangioma. The patient's postsurgical course was uneventful, without immediate complications or recurrence of symptoms reported.

Discussion

Testicular hemangiomas are rare benign vascular tumors that arise from the inner layer of the tunica albuginea, which serves as the conduit between the testicular parenchyma and its supplying blood vessels and lymphatics [1]. Although hemangiomas are commonly found in other organs of the body, their incidence within the testicle appears quite low, as evidenced by the fewer than 50 published cases in PubMed as of January 2015, despite increasingly widespread use of ultrasound in the clinical setting.

The typical age for developing a testicular hemangioma is not universally agreed on. Previous studies have reported ages of diagnosis ranging from 17 weeks to 77 years, with a large number of cases occurring within the pediatric population younger than 18 years of age [1,2]. Unlike many of these previously reported cases, our case both describes an adult patient and includes multiple ultrasound images from the initial evaluation that demonstrate typical sonographic features and may be helpful to other clinicians who encounter a testicular mass.

The preoperative differentiation of a hemangioma from a malignant tumor, by far the most common being a seminoma, is very difficult based on imaging alone. This may be in part because testicular hemangiomas have not been extensively documented in the literature. Most testicular hemangiomas that have been described exhibit sonographic features similar to malignant tumors, appearing as focal hypoechoic lesions with increased internal blood flow on color Doppler [2]. Less commonly, testicular hemangiomas can appear hyperechoic or heterogeneous on ultrasound, occasionally containing macrocalcifications [1].

Testicular hemangiomas are generally associated with negative serum tumor markers, including beta-human chorionic gonadotropin, lactate dehydrogenase, and alpha-1-fetoprotein [2]; however, these markers are unreliable because only 60% of testicular malignancies have positive markers [3]. Patients' symptoms also vary. Unlike our patient, most hemangiomas present as painless but palpable lesions [4]. Most nonpalpable lesions later detected on ultrasound, as seen in our patient, are actually benign (80%), whereas over 90% of palpable testicular lesions turn out to be malignant [5]. Because of the difficulty in differentiating it from a malignancy on the basis of preoperative imaging, laboratories, and examination; a benign diagnosis, such as testicular hemangioma, is typically only considered following an unnecessary radical orchiectomy when it is evident histologically.

The importance of highlighting hemangioma as a differential diagnosis in a patient with a testicular mass is to draw consideration for testis-sparing surgery when the preoperative diagnosis is unclear or potentially favors a benign mass. Advances in frozen section analysis have allowed pathologists to accurately characterize both benign and malignant testicular masses in the intraoperative setting. If a benign lesion is confirmed intraoperatively, tumor

enucleation can be performed for definitive treatment instead of a radical orchiectomy [6]. This testis-sparing surgery can help to avoid potential long-term sequelae of a radical orchiectomy, such as hypogonadism, infertility, and poor cosmesis [5].

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