CASE REPORT

Incidental Brenner Tumor in a Testis

Authors

Shea Jones, DO

James Cord MD

Affiliation:

Mountain Vista Medical Center General Surgery Residency

Correspondence:

Shea Jones

Email: sgjones710@gmail.com

1 Abstract

Brenner tumor found in the testis is a rare entity; only six cases have been previously published. The diagnosis of this tumor is challenging to clinicians, academically engaging, and its scarcity lends itself to discussion amongst healthcare providers. We present here the seventh case report of Brenner tumor found incidentally in the testis of a 60-year-old male following orchiectomy for scrotal infection. This tumor is primarily found in the ovary and is theorized to have an embryological origin. Brenner tumor represents a unique diagnostic challenge as there are no characteristic radiographic findings due to a large degree of variation. These cases are academically interesting and a rare challenge to clinicians.

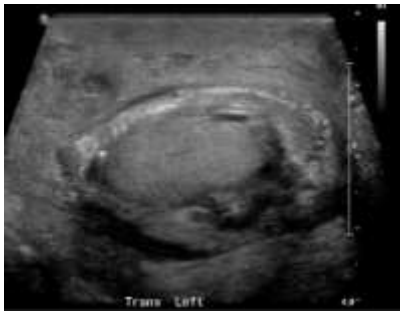
2 Introduction

Brenner tumor is found most often in the ovary. The tumor is exceedingly rare when found in the testis. The embryologic derivation of the tumor is thought to arise from either pelvic mesothelium of the tunica vaginalis testis through cell metaplasia or from remnants of Mullerian ducts in the paratesticular connective tissue. [1,3]. The first case of Brenner tumor of the testis was reported by Vechinski in 1965 [2]. To date only six cases have been published. One clinical feature common to most cases is the presence of a cystic mass [3]. Our case is similar in this feature. Since often found incidentally from specimens resected for other reasons or at autopsy, some have suggested that not all are true neoplasms. However the World Health Organization has categorized the tumor as either benign, borderline, or malignant [4,5]. Presented here is another case of Brenner tumor incidentally found in the testis of a 60-year-old male being treated for an abscess and cellulitis of the scrotum.

3 Case Report

This 60-year-old male presented to the emergency department with complaints of increased swelling and pain of the left side of his scrotum. The duration of symptoms was approximately four days. He first noticed two small lesions that he described as pimples. Over the following few days the swelling and erythema worsened. Upon admission to the hospital he was started on intravenous vancomycin and Unasyn. He had seen a urologist approximately one month prior for symptoms of benign prostatic hypertrophy for which he had cystoscopic examination performed without any other interventions. Imaging of the scrotum performed on hospital day one demonstrated bilateral hydroceles, scrotal wall thickening, edema, and cellulitis with hypervascularity. There was also hypervascularity of bilateral epididymides suspicious for epididymitis. In the scrotal wall there was an 8 mm ovoid heterogenous structure; abscess could not be ruled out. The preoperative ultrasound did not identify an intratesticular lesion (ultrasound of left testis shown below). The patient was then offered surgical intervention but he opted for conservative management at this point with continued intravenous antibiotics, warm compresses, and serial exams. Infectious disease consultation was requested by the primary care team, and his antibiotics were changed to vancomycin and cefepime. On hospital day eight the patient's symptoms had not improved and the patient opted to have the previously offered surgery which included incision and drainage of the left scrotum with a possible orchiectomy. Intraoperatively the scrotum contained a large amount of purulent

material infecting the testis and epididymis. There were no signs of Fournier gangrene. The purulent fluid did extend up the spermatic cord toward the inguinal canal. All purulent fluid was copiously irrigated and a left orchiectomy was performed. The fluid was sent for culture and the testis for pathologic evaluation. The surgical dressing and packing were removed on post-operative day two and the patient was then cleared for discharge from the urology team. The patient was to follow up with the urologist in seven to 10 days. The surgical cultures yielded light growth of Staphylococcus aureus. Pathology of the testis reported an incidental Brenner Tumor measuring 0.7 cm (Fig 1,2, and 3). In addition there were benign cysts and focal interstitial fibrosis within the surrounding parenchyma (Fig 4 and 5). There was also acute inflammation and necrosis of paratesticular soft tissue. Due to the uncommon nature of the finding, a second pathologist reviewed the case and concurred with the diagnosis.



Ultrasound of left testis

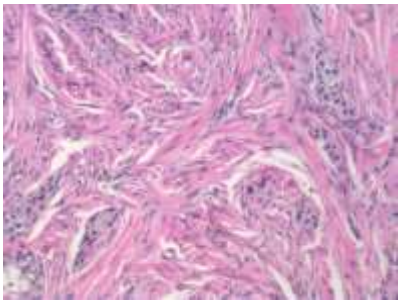


Figure 1

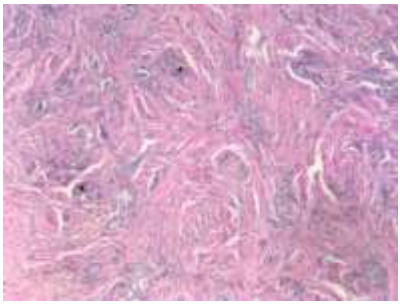


Figure 2

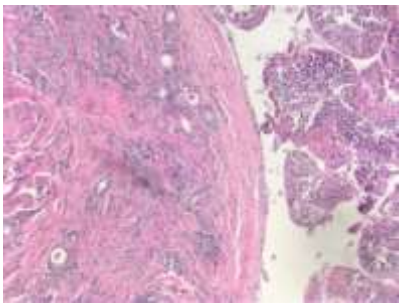


Figure 3

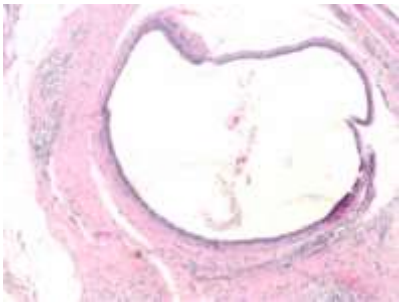


Figure 4

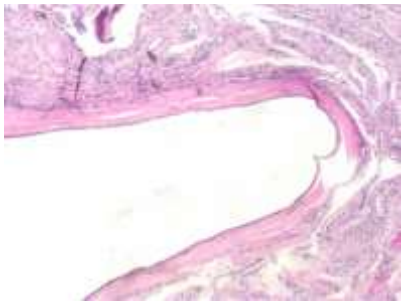


Figure 5

4 Discussion

Brenner tumors are rare tumors infrequently found in the ovary, predominantly solid, asymptomatic, and thought to be derived from either surface epithelium of remnant Mullerian ducts or from mesothelium transitional cell metaplasia[7]. Goldman postulated that due to the paratesticular location of the tumor and the location of the Mullerian remnants, Brenner tumor was likely a derivative of the remnant surface epithelium when found in males[6]. A second hypothesis is that the tumor is a derivative of Wolffian origin, and proponents have argued that the tumor resembles urothelium[10,11].

Brenner tumor remains a difficult diagnosis. Common characteristics of Brenner tumor on CT or MRI include amorphous calcification in a solid lesion or solid component in a cystic mass. There is a large degree of variation in Brenner tumors and no radiologic characteristics differentiate malignant, borderline, or benign lesions [8,9]

Although the potential for malignancy does exist, the tumor is exceedingly rare. A standardized treatment has not been developed. In our case the tumor was amenable to complete surgical resection and the feature of interstitial fibrosis lends itself to a potentially benign lesion [8].

5 Conclusion

In summary, the above case represents the seventh reported case of Brenner tumor of the testis. As this diagnosis is so uncommon, there is not a typical presentation or characteristic radiographic findings that we can rely on for diagnostic purposes. However we are beginning to see that the typical age of presentation is between fifth and seventh decades and the histologic features are quite variable. These cases will remain a rare challenge and an academic curiosity to healthcare providers everywhere.

6 Acknowledgement

Thanks to Ashish Mogal MD, PhD for his assistance with slide photographs.

7 References

1. Tsikouras P, Galazios G, Romanidis K, Pinidis P, Liberis A, et al. Brenner tumour of the ovary--an incidental histological finding. European Journal of Gynaecological Oncology 2016;37(2):267-9.
2. Vechinski TO, Jaeschke WH, Vermund H. Testicular Tumors. American Journal of Roentgenology. 1965;95(2):494–514.
3. Quan J, Jin L, Hu J, He T, Pan X, Ding Y, et al. Brenner tumor of the testis: A case report and review of the literature. Molecular and Clinical Oncology. 2016;6(1):119–21.
4. Caccamo D, Socias M, Truchet C. Malignant Brenner tumor of the testis and epididymis. Arch Pathol Lab Med. 1991;115:524–527.
5. Böcker W. WHO classification of breast tumors and tumors of the female genital organs: Pathology and genetics. Verh Dtsch Ges Pathol. 2002;86:116–119
6. Goldman RL. A brenner tumor of the testis. Cancer. 1970;26:853–856. doi:10.1002/1097-0142(197010)26:4<853::AID-CNCR2820260419>3.0.CO;2-E.
7. Borah T, Mahanta RK, Bora BD, Saikia S. Brenner tumor of ovary: An incidental finding. *Journal of Mid-Life Health*. 2011;2(1):40-41. doi:10.4103/0976-7800.83273.
8. Takahama J, Ascher S, Kichikawa K, et al. Borderline Brenner tumor of the ovary: MRI findings. *Abdominal Imaging* [serial online]. July 2004;29(4):528-530.
9. Moon WJ, Koh BH, Kim SK, Kim YS, Rhim HC, Cho OK, Hahm CK, Byun JY, Cho KS, Kim SH. Brenner tumor of the ovary: CT and MR findings. J Comput Assist Tomogr. 2000;24:72–76. doi: 10.1097/00004728-200001000-00015.
10. Stohr, G : The relationship of Brenner tumor to the rete ovarii. Amer. J. Obstet. Gynec. 1956;72:389-399.
11. Berg, T., and Borglin, N.E.: Brenner tumors- histogenetic and clinical studies. Cancer 1967;20:308-318.

