Oncology

Testis cancer incidentally found following delayed presentation of traumatic testicular rupture

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1. Introduction

A large number of testicular tumors are discovered after minor scrotal injuries that lead to careful scrotal exam, often with adjunct imaging. Herein, we present a case where scrotal trauma initially obscured diagnosis of a testicular mass.

2. Case presentation

A 31-year-old male with history of obesity, arthritis, and chronic back pain sustained blunt testicular trauma following a bicycling accident. He presented to the emergency department 3 weeks after the initial injury with complaints of right testicular pain and swelling. Scrotal ultrasound was concerning for testicular rupture (Fig. 1). Scrotal exploration with possible orchiectomy was recommended, however, he deferred surgery at that time and left the hospital against medical advice.

Four months later, he returned with complaints of persistent right testicular pain, swelling, and scrotal enlargement. Repeat ultrasound demonstrated an irregular contour of the right testicle with parenchymal heterogeneity and preserved vascular flow. Notably, where there was prior concern for testicular rupture, follow-up ultrasound demonstrated increased vascularity. The differential diagnosis included malignancy, intermittent torsion, and prior testicular rupture (Fig. 2A and B). Tumor markers and urology consult were obtained. Serum βhCG was 37,963 IU/L, alpha-fetoprotein (AFP) was 28 IU/L and lactate dehydrogenase (LDH) was 263 IU/L. Due to the significantly elevated βhCG, computed tomography (CT) of head, chest, abdomen and pelvis was obtained and was negative for metastatic disease or lymph node involvement. An uncomplicated right radical inguinal orchiectomy was performed.

Macroscopically, the specimen weighed 306.84 g and the testis measured 9.0 × 8.0 × 6.5 cm. A tan-white, well-circumscribed, multinodular soft mass measuring 9.0 × 7.0 × 6.0 cm was identified in the testis. The mass abutted the tunica albuginea but spared the tunica vaginalis. There was minimal normal testicular parenchyma. Histology was consistent with pure seminoma with syncytiotrophoblastic cells (Fig. 3A). demonstrates these classic histological findings of large, round-polyhedral seminoma cells with distinct cell membranes, abundant clear cytoplasm, large central nuclei, and prominent nucleoli with syncytiotrophoblasts (hematoxylin and eosin). In this case, immunohistochemistry demonstrated that the cells stained strongly positive for placental alkaline phosphatase, further supporting the diagnosis of seminoma (Fig. 3B). AFP staining was negative. No foci of overt choriocarcinoma or other nonseminomatous elements were

Fig. 1. Right testicular ultrasound demonstrating heterogeneity, which obscured the diagnosis of a testicular mass during patient’s initial presentation.
identified. Vascular invasion and involvement of the rete testis were present.

The patient’s tumor markers were trended: by 70 days after surgery, serum $\beta$HCG decayed to 0.8 IU/L and AFP to 1.84 IU/L. The final pathologic stage was pT2NxMxS0, stage 1B. He was counseled regarding either primary chemotherapy or primary nerve-sparing retroperitoneal lymph node dissection, but deferred either and was subsequently lost to follow-up.

3. Discussion

According to the SEER database, the number of new cases of testis cancer is 5.7 per 100,000 men per year.\(^1\) It is not uncommon for a patient or provider to incidentally discover testis cancer during a careful examination in the setting of recent scrotal trauma. However, in this case, the patient’s initial presentation following trauma obscured the diagnosis of testicular cancer at presentation due to a concomitant associated hematoma.

Classic seminoma generally carries a good prognosis if detected early and treated promptly. It may present with a mild elevation of $\beta$HCG, most often below 500 IU/L, owing to the presence of syncytiotrophoblastic cells.\(^2\)\(^,\)\(^3\) The degree of $\beta$HCG elevation has been reported to be directly proportional to tumor mass and burden (stage and number of metastatic sites).\(^3\) To date, the highest reported elevation of $\beta$HCG in a patient with pure stage 1 seminoma was 29,500 IU/L.\(^2\) The patient discussed above presented with a serum $\beta$HCG level of 37,963 IU/L in the setting of histologically pure stage IB seminoma, however, given concomitant elevated AFP, a diagnosis of nonseminomatous germ cell tumor must be considered. While, by definition, pure seminoma does not cause an elevated serum AFP, molecular studies have demonstrated AFP mRNA in minute quantities in pure seminoma.\(^4\) Several prior case reports have described pure seminoma with borderline elevations in serum AFP (10.4–16 ng/mL).\(^5\)

Despite the impressive elevation of $\beta$HCG, this case report is notable in that the patient’s diagnosis was initially missed following delayed presentation after scrotal trauma. Delayed diagnosis could potentially alter the course of the neoplastic process in an unfavorable manner.

4. Conclusion

It is of utmost importance to maintain a high degree of suspicion for testis cancer in young men with testicular pathology. Furthermore, it is important to stress compliance with recommended follow-up after diagnosis with a testicular malignancy.

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