Blunt testicular trauma results in rupture of mixed germ cell tumor

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It is extremely rare that a documented case of blunt trauma results in rupture of a testicular tumor. We present the case of a 24-year-old man who was crushed by a tree who developed spontaneous testicular rupture. At surgical exploration, he was found to ultimately have a mixed germ cell tumor of the testicle. This case illustrates the importance of physical examination, patient clinical history, and scrotal ultrasound in the management of scrotal trauma. In this instance, the testicular mass ruptured and lead to significant testicular hemorrhage.

Key Words: testicular rupture, mixed germ cell tumor, testicular trauma

Case report

A 24-year-old male was first seen as a priority two trauma s/p tree crush injury. The patient was cutting down a tree when, without warning, a tree limb fell down and struck the patient in the groin and lower abdomen. He initially complained of hip and scrotal pain and was immediately transported to the emergency room.

On examination, extreme tenderness to the scrotum, marked edema of the left hemiscrotum, and minor abrasions of the scrotal skin were noted. The left testicle could not be assessed secondarily because of the pain the patient was enduring. Upon further questioning, the patient reported that he had noticed enlargement and mild tenderness of his left scrotum over the last 4 months, but he had chosen not to seek any medical attention at that point. The patient's wife further confirmed the above findings. He denied any voiding complaints or difficulty achieving erections.

A scrotal ultrasound was performed, Figure 1, which identified extensive hemorrhage in the left hemiscrotum; no readily definable left testis; blood flow at the periphery; and with the clinical history given, suspected testicular rupture. Based on this information, surgical exploration was planned. However, an inguinal incision was chosen, rather than the usual scrotal approach, given the scrotal examination findings of progressive scrotal enlargement and tenderness in the months preceding the trauma. Further confirmation of these findings with the patient's wife prior to surgery heightened our suspicion of the possibility of testicular carcinoma in this patient since the left testis was also not

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Figure 1. Scrotal ultrasound with heterogeneous echoes throughout the left testicle consistent with hemorrhage. A definable testis is not clearly visible.

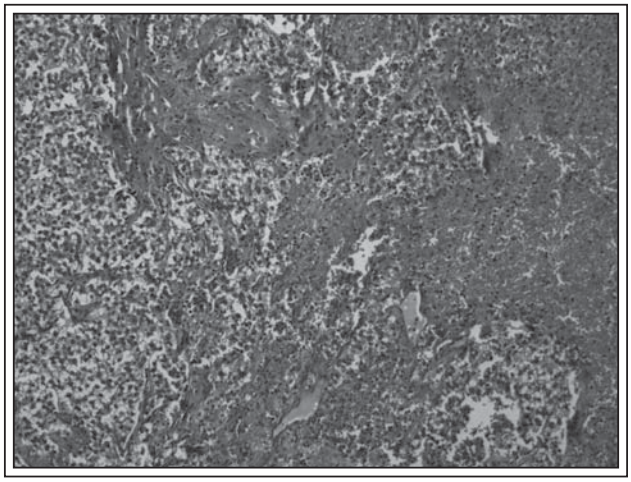

Figure 3. A 10x H&E stained micrograph which reveals classic seminoma with hemorrhage secondary to traumatic rupture of the testes.

clearly visible on ultrasound. To this effect, preoperative tumor markers were drawn and revealed the LDH to be 530, HCG was 2 and AFP was 12.8. The laboratory tests were sent as immediate and the results were available prior to surgery.

After informed consent was obtained, the patient was taken for a left radical orchiectomy. Through a left inguinal incision, clots were noted near the spermatic cord and when the testicle was removed from the left hemiscrotum, a significant amount of clotted blood was present. The testicle itself was completely ruptured and portions of the testicle had become necrotic. An approximately 3 cm mass was firm to palpation on what appeared to be the superior portion of the testicle. The left testicle and its associated spermatic cord were sent for pathologic evaluation.

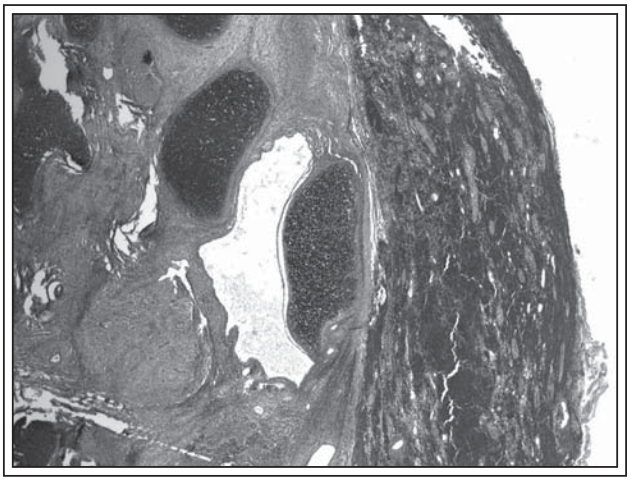

Figure 2. A 2x H&E stained micrograph which reveals teratomatous elements including cartilage, mixoid stroma, and epithelial lined cysts with adjacent subcapsular hemorrhage.

The final pathologic report showed mixed germ cell tumor: 1) 65% mature teratoma; 2) 25% embryonal cell carcinoma; and 3) 10% seminoma. Figure 2 reveals teratomatous elements including cartilage, mixoid stroma, and epithelial lined cysts with adjacent subcapsular hemorrhage. Figure 3 reveals classic seminoma with hemorrhage secondary to traumatic rupture of the testes.

The patient's tumor markers normalized postoperatively. His postoperative CT scan of the abdomen and pelvis did not reveal any retroperitoneal lymphadenopathy. He has elected to undertake a course of surveillance despite being urged to consider retroperitoneal pelvic lymphadenectomy. He is currently well at 1 year follow up.

Discussion

Not since 1956 has there been a documented case of blunt trauma resulting in rupture of a testicular tumor. Carrie documented the case of a 22-year-old with a hematocele and painless rupture of a testicular seminoma 2 weeks after falling down several steps.[1] There have also been three cases of spontaneous rupture: a neonate with cystic teratoma,[2] a 19-year-old with a predominately yolk sac tumor,[3] and an 18-year-old male with testicular teratoma, all of which were unprovoked.[4]

It has been well documented that the proper work up for suspected testicular rupture includes a physical

examination and scrotal ultrasound. Guichard and colleagues reported sensitivity and specificity of 100% and 65% for diagnosing testicular rupture with scrotal ultrasound.[5] Also published was a testicular salvage rate of 80% when surgical exploration was preformed within 3 days.[6] Unfortunately, testicular salvage was not an option in this case.

This case report illustrates the importance of physical examination, patient clinical history, and scrotal ultrasound in the management of scrotal trauma. In this instance, the testicular mass present ruptured, which was not expected. This lead to significant testicular hemorrhage. Equally as important is the vigilance required beyond what is expected in the physical examination and imaging studies.

Further, significant information to select an appropriate surgical approach was available preoperatively in this patient. The patient complained of a several month history of painless scrotal swelling for approximately 4 months prior to the trauma. He was urged to seek medical attention by his wife but chose not to do so. The physical examination and ultrasound findings further suggested the possibility of testicular carcinoma. To this effect, we were able to send testicular tumor markers preoperatively and have the results available prior to surgery. Thus, we were able to select an inguinal approach to the testis which would accomplish exploration and orchiectomy.

LaMontagne reported a patient with tumor markers that failed to normalize after 6 weeks and the patient was treated with three cycles of chemotherapy.[3] We will continue to follow the patient and if tumor markers fail to normalize, chemotherapy, and/or retroperitoneal lymphadenectomy will be considered as future treatment options.

Conclusions

We presented the rare case of blunt trauma resulting in rupture of a testicular tumor. At surgical exploration, our patient was found to ultimately have a mixed germ cell tumor of the testicle. This case reiterates the importance of physical examination, patient clinical history, and scrotal ultrasound in the management of scrotal trauma. □

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