Testicular trauma resulting in spermatic vessel thrombosis and testicular loss: a case report

Robert Jansen, MD, Stanley J. Kandzari, MD, Stanley Zaslau, MD
Division of Urology, Robert C. Byrd Health Science Center, Morgantown, West Virginia, USA

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Testicular ischemia is typically seen with cases of testicular torsion. Twisting of the spermatic cord and compromise of testicular blood supply can induce testicular loss if not promptly discovered and treated. Non-torsion causes of testicular ischemia are uncommon with rare citations in the literature. Herein, we present a case of testicular ischemia induced by traumatic thrombosis of the spermatic vessels.

Key Words: testicular torsion, ischemia, trauma

Introduction

Testicular ischemia is a clinical scenario mostly seen with cases of testicular torsion. Twisting of the spermatic cord and the resulting impingement of the testicular blood supply can induce testicular loss if not discovered and treated in a timely fashion. Non-torsion causes of testicular ischemia are extremely uncommon and examples are rare in the literature. Spontaneous spermatic vein thrombosis has been reported, but to our knowledge, there is no reported instance of trauma-induced thrombosis of the spermatic artery and vein.[1,2] In this report we present a case of testicular ischemia induced by traumatic thrombosis of the spermatic vessels.

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Address correspondence to Dr. Stanley Zaslau, Division of Urology, Department of Surgery, Robert C. Byrd Health Science Center, PO Box 9251, Morgantown, WV 26505-9238 USA

Case report

A 40-year-old white male presented to our emergency department (ER) complaining of pain and swelling of the right scrotum. He reported that 3 days prior to presentation, his niece jumped on his lap and accidentally landed on his scrotum with her foot. Since that time, he had experienced sharp right groin pain and swelling, unrelieved by ice and heating pads. His symptoms continued to worsen which brought him to the ER. He denied voiding difficulty. Of note, the patient did have a history of a vasectomy in 1997 which was complicated by bilateral granulomas, thought to be a reaction to the Vicryl sutures used in the procedure. He also reported that the blood supply to his right testicle was disrupted during the vasectomy but he refused orchiectomy at that time. Review of the operative findings indicated that hemostasis was difficult to achieve due to persistent bleeding from the spermatic cord. This required several suture ligations to achieve satisfactory hemostasis.

Figure 1. The right testicle was dusky and congested in appearance. Thrombi were noted in the spermatic artery and vein.

During our evaluation, he was in mild distress with visible discomfort and our physical examination was limited by pain. His right scrotum was noted to be significantly swollen with mild erythema. Severe tenderness was elicited and we were unable to palpate the spermatic cord due to pain. His left scrotum was unremarkable. He underwent a color Doppler ultrasound which revealed essentially little, if any blood flow detected throughout the right testicle. There was a prominent portion of the spermatic cord superior to the right testicle that did not exhibit blood flow, however blood flow was present in the inguinal canal region of the cord. He was rushed immediately to the operating room for scrotal exploration.

Intraoperatively, the affected testicle was discovered to be dusky and congested in appearance. No twist in the spermatic cord was noted at surgical exploration.

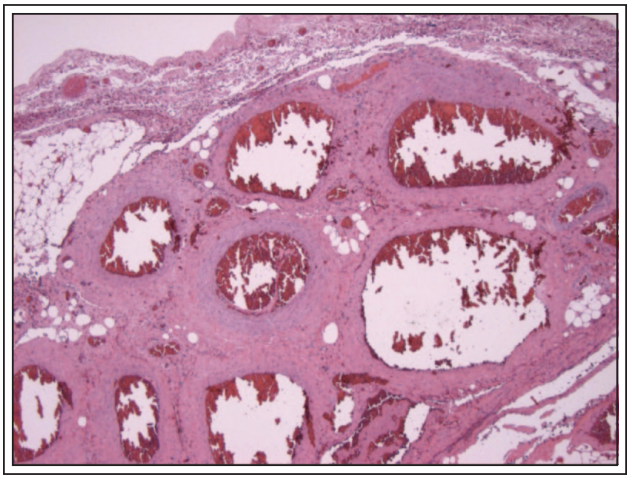

Figure 2. Histologic slide reveals clot in both testicular veins and arteries.

An orchiectomy was performed and upon further examination, thrombi were noted in the spermatic artery and vein, Figure 1. Figure 2 shows a high power histologic slide with clot in the testicular vasculature. The testicle was deemed unsalvageable and an orchiectomy was performed.

Discussion

Testicular ischemia is a time sensitive condition where potential for salvage is indirectly related to the length of ischemia time. Multiple studies of testicular torsion showed that ischemia of greater than 4 hrs has been shown to affect long term viability of the affected testicle and salvage rates have been reported at 90% if detorsion is within 6 hours of the onset of symptoms, 50% at 12 hours and 10%-25% at 24 hours.[3-6] Imaging has taken on a significant role in diagnosing testicular ischemia with modalities such as color Doppler ultrasound allowing the clinician to ascertain the presence/absence of blood flow. In multiple series on testicular torsion, color Doppler ultrasound has been reported to have a sensitivity from 75%-90% and specificity of 90%-97.9%.[7-10] Ultimately, due to the possibility of false negative results, surgical exploration should not be postponed strictly based on the color doppler study findings.

Our patient's color Doppler ultrasound showed essentially no blood flow to the right testicle. The spermatic cord in the inguinal region had blood flow present, but there was a prominent portion of the cord just superior to the testicle without blood flow.

Our patient's situation is unique in its etiology and the presence of thrombus in both the spermatic artery and vein. In our patient's case, it is likely that his sustained trauma created local injury to the cord vessels resulting in the thrombosis and disrupted testicular blood supply. Traumatic injury to the scrotum can result in local testicular injury or infarction, though these injuries may be self-limiting and not result in testicular loss.[5,11] Trauma may also result in testicular torsion, with a 4%-8% incidence reported in the literature, or complete testicular avulsion.[7-10] In this instance, local trauma to the spermatic cord creating an ischemic condition was something unexpected on our initial exam. Our patient's color Doppler ultrasound demonstrated blood flow through the spermatic cord in the inguinal region, but there was a prominent portion of the cord just superior to the testicle with absent blood flow. Though this may have been related to his previous surgeries, it is probable that this was the site of the thrombi discovered intraoperatively.

Though most commonly traumatic in etiology, testicular infarction may be idiopathic, or result from infection or thrombosis.[12,13] Multiple case reports have documented spermatic vessel thrombosis with various etiologies. Maas et al recount a case of an acute scrotum in a neonate, caused by idiopathic left renal vein thrombosis with resulting obstruction of the left spermatic vein.[14] Roach, Messing and Starling also describe two cases of spermatic vein thrombosis with an undetermined etiology.[13] Protein S deficiency is reported twice in the literature as inducing thrombosis of both the spermatic artery and vein,[15,16] and Henoch-Schoenlein Purpura, in rare instances, has been associated with spermatic vein thrombosis.[12,17] Also quite rare, tumor thrombus from renal cell carcinoma may invade the spermatic vein, as described in two reported cases, both occurring with right-sided tumors.[18,19] In certain cases of thrombosis-induced infarction, these underlying conditions may need to be considered.

Conclusion

When evaluating the acute scrotum, physicians must be vigilant due to overlapping symptoms between multiple conditions. Epididymitis, testicular torsion and even a localized scrotal hematoma may present with unilateral scrotal pain, swelling and erythema. A high clinical index of suspicion is needed in these cases to ensure that ischemia does not go undiagnosed, thus avoiding potential loss of a salvageable testicle. □

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