

Blunt Pelvic Trauma Resulting in Unilateral Ruptured Testicle: A Case Report and Review of the Literature

F Herrera, R Coimbra

Citation

F Herrera, R Coimbra. *Blunt Pelvic Trauma Resulting in Unilateral Ruptured Testicle: A Case Report and Review of the Literature*. The Internet Journal of Urology. 2008 Volume 6 Number 1.

Abstract

We present a case of testicular rupture after blunt pelvic trauma requiring surgical exploration and repair with salvage of the injured testicle. Testicular rupture is a true urological emergency and early diagnosis and surgical exploration maximized testicular salvage. Ultrasonography proves useful in evaluating the scrotal contents and allowing for early diagnosis of testicular injury.

INTRODUCTION

Testicular trauma is rare due to the flexible anatomy and location of the testes within the scrotum. However when the testicle becomes compressed against the pubic rami significant blunt injury may occur. Most testicular injuries are associated with sporting activities. Other causes include direct trauma secondary to motor cycle accidents and straddle injuries. The diagnosis is made based on history, physical exam, and the aid of ultrasound (US) findings. Testicular rupture is a urologic emergency, and more than 90% of ruptured testes can be salvaged if scrotal exploration is performed early.[1] We present a case report of a rupture testicle secondary to blunt trauma and review the current literature.

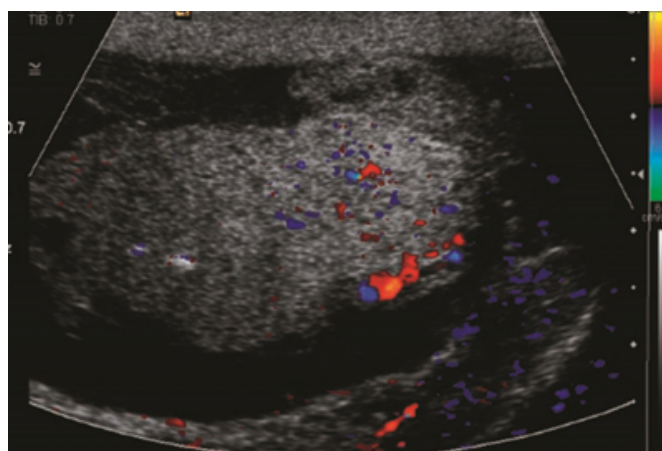
CASE PRESENTATION

We present a case of a 25 year old, otherwise healthy, male who sustained blunt trauma to the pelvis following a motorcycle accident. On arrival to the trauma unit he was found to have a Glasgow coma score of 15 and complaining of diffuse epigastric pain. On examination of his pelvis and genitals he was found to have severe tenderness on elevation of his left testicle and mild swelling. The patient was found to have no other distracting injuries and no evidence of alcohol intoxication. A CT scan of the abdomen was performed to rule out intra-abdominal injuries. This was found to be negative for intra-abdominal injuries; however it did show left hemiscrotal wall thickening and fluid. An ultrasound of the scrotum was then performed, confirming the diagnosis of testicular trauma. On ultrasound he was found to have a ruptured left testicle with no flow to the

superior pole. This was evident on ultrasound by hypoechogenicity, and abnormal contour of the testicle at the upper pole. [Fig 1]

Figure 1

Figure 1: Ultrasound showing hypoechogenicity, and abnormal contour of the Left testicle at the upper pole.



A Urological consultation was obtained and the patient was taken emergently to the operating room for scrotal exploration. At operation the left hemiscrotum was opened down to the level of the tunica vaginalis. The left testicle was delivered into the field and found to have several tears in the tunica albuginea with protruding seminiferous tubules. The wounds were irrigated and closed using 3-0 chromic in an interrupted fashion. The testicle was completely explored for any other injuries and any existing hematoma was removed. The arterial flow to the testicle was confirmed with intra-operative doppler. The wound was then irrigated and

the testicle was replaced into the scrotal sac in proper anatomic position. All layers were closed using 3-0 chromic in an interrupted fashion.

Postoperative care consisted of ice packs, scrotal support and pain control. The patient was doing well and ambulating on postoperative day 2. He was discharged on day 3 and given follow up with urology on discharge.

DISCUSSION

Testicular injuries can be divided into 3 broad categories based on the mechanism of injury; (1) blunt trauma, (2) penetrating trauma, and (3) degloving injuries. Blunt injuries are more common than penetrating injuries and usually result in unilateral injury. Testicular rupture is defined as a rupture of the tunica albuginea with protrusion of the seminiferous tubules. Traumatic testicular rupture was once thought to be an uncommon entity and is now commonly associated with scrotal trauma with an incidence of > 40%.^[1] Before 1968, blunt scrotal trauma was managed conservatively, and frequently without hospitalization. Therefore the true incidence of testicular rupture was largely unknown. A paradigm shift from a conservative approach to that of early operative exploration and reconstruction occurred in the 1970s after Cass and Gross reported their experiences with early operative exploration and repair.^[23] Cass et al. reported a 45% orchiectomy rate in the delayed surgical intervention group (primary conservative management) versus a 9% orchiectomy rate in the early surgical exploration group.^[24] Gross et al reported a decline in salvage rates from 90% to 45 % if time to repair was greater than 72 hrs.^[3]

More than half of all testicular ruptures occur as a result of sports injuries and in patients who are struck directly in the groin^[56]. Motor vehicle or motor bike accidents are responsible for between 9% and 17% of testicular injuries^[2]. Falls, straddle injuries, and other miscellaneous causes account for the remainder of blunt testicular injuries. Testicular rupture usually occurs in younger patients, with the majority of injuries occurring in those between 16-to 40 years of age^[7]. Rupture of the testis is a severe and immediately painful event. It has been estimated that approximately 50 kg of pressure is necessary to rupture the tunica albuginea during blunt scrotal trauma.^[8] A thorough history and physical examination is the cornerstone in diagnosing testicular injuries. There is no specific symptom that distinguishes testicular rupture from other acute scrotal injuries; however the diagnosis is usually suggested by a

history of forceful trauma prior to the development of symptoms. Most patients develop acute and severe pain, often associated with nausea and vomiting. Examination reveals a variable amount of scrotal edema, hematoma formation, and exquisite tenderness. There is often ecchymosis of the scrotal skin. The acutely traumatized scrotum is often painful making clinical examination difficult. Ultrasonography provides a rapid method to evaluate the scrotal contents and assists in the diagnosis of testicular injury.^[910] The ability of scrotal ultrasonography to predict correctly the presence of a ruptured testicle in patients with scrotal injuries was over 90% in several reviews^[111213]. The diagnostic findings consistent with testicular rupture include a heterogeneous echo pattern of the testicular parenchyma with loss of contour definition.^[14] The goal in evaluating scrotal trauma is prompt diagnosis of a testicular rupture to allow timely operative exploration and reconstruction. Early diagnosis and intervention lead to high testicular salvage rates^[1315]

Operative indications for blunt testicular trauma include suspicion of rupture, expanding scrotal hematomas, large hematoceles > 5cm, dislocation refractory to manual reduction, avulsion, and scrotal degloving. Early scrotal exploration with repair of acute testicular rupture has been advocated to maximize testicular salvage rate, prevent infection, control bleeding, and reduce recovery time.^[24] With early surgical exploration, more than 80% of ruptured testes can be salvaged^[234]. The potential for orchiectomy should always be discussed with the patient prior to operative exploration. Although radiological studies may be helpful in the diagnosis of testicular rupture, they should not delay surgical exploration when clinical suspicion is high for testicular rupture. Patients with large hematoceles on clinical exam should undergo exploration due to the high incidence of associated testicular rupture.^[15] Small hematoceles, epididymal hematomas, or contusions of the testis generally pose little risk to the patient and do not require surgical exploration. Delayed scrotal exploration may be necessary if there is expansion of the hemiscrotum during an observational period. The morbidity associated with observation of a ruptured testis is much greater than that associated with early surgical repair.

CONCLUSION

Testicular rupture occurs as a result of either blunt or penetrating trauma. Early surgical repair provides the best opportunity for testicular salvage. Orchiectomy is rarely necessary with early surgical exploration. Scrotal

ultrasonography is useful in confirming suspicions of testicular trauma, but should not delay surgical exploration. Injuries associated with normal testicular ultrasonography may be managed conservatively. In the majority of patients the testis can be safely preserved with relatively minimal morbidity.

CORRESPONDENCE TO

Fernando A. Herrera MD University of California, San Diego MC 8402 200 West Arbor Dr San Diego, Ca 92103 fherrera@ucsd.edu

References

1. Buckley JC, McAninch JW. Use of ultrasonography for the diagnosis of testicular injuries in blunt scrotal trauma. *J Urol.* 2006 Jan;175(1):175-8.
2. Cass AS. Testicular trauma. *J Urol.* 1983 Feb;129(2):299-300.
3. Gross M. Rupture of the testicle: The importance of early surgical treatment. *J Urol.* 1969 Feb;101(2):196-7.
4. Cass, A. S. and Luxenberg, M.: Value of early operation in blunt testicular contusion with hematocele. *J Urol,* 139:746, 1988
5. McAleer IM, Kaplan GW, LoSasso BE. Renal and testis injuries in team sports. *J Urol.* 2002 Oct;168(4 Pt 2):1805-7.
6. Joudi FN, Lux MM, Sandlow JJ. Testicular rupture secondary to paint ball injury. *J Urol.* Feb 2004;171(2 Pt 1):797.
7. Buckley JC, McAninch JW. Diagnosis and Management of testicular ruptures. *Urol Clin North Am.* 2006 Feb;33(1):111-6.
8. Cass AS, Luxenberg M. Testicular injuries. *Urology.* 1991 Jun; 37(6): 528-30.
9. Fournier GR, Laing FC, and McAninch JW: Scrotal ultrasonography and the management of testicular trauma. *Urol Clin North Am* 16: 377-385, 1989.
10. McAninch JW, Kahn RI, Jeffrey RB. Major traumatic and septic genital injuries. *J Trauma* 1984 Apr; 24(4): 291-8.
11. Lupetin AR, King W, Rich PJ, et al. The traumatized scrotum. Ultrasound evaluation. *Radiology.* 1983 Jul;148(1):203-7.
12. Corrales JG, Corbel L, Cipolla B, et al. Accuracy of ultrasound diagnosis after blunt testicular trauma. *J Urol.* 1993 Dec;150(6):1834-6.
13. McConnell JD, Peters PC, Lewis SE. Testicular rupture in blunt scrotal trauma: review of 15 cases with recent application of testicular scanning. *J Urol.* 1982 Aug;128(2):309-11.
14. Micallef M, Ahmad I, Ramesh N, et al. 2001. Ultrasound features of blunt testicular injury. *Injury* 32: 23-26.
15. Altarac S: Management of 53 cases of testicular trauma. *Eur Urol* 25: 119-123, 1994.

Author Information

Fernando A. Herrera, MD

Division of Trauma and Critical Care, University of California, San Diego Medical Center

Raul S. Coimbra, MD, PhD, FACS

Division of Trauma and Critical Care, University of California, San Diego Medical Center