TESTICULAR OR SCROTAL INJURY
Testicular Trauma, Scrotal Trauma

Damage of the testicles or scrotum which may be temporary or permanent.

⚠️ Risk factor ♂ Male

About Testicular or scrotal injury

Testicular trauma is an injury to one or both testicles. Scrotal trauma accounts for less than 1% of all trauma-related injuries, because of the anatomic location and mobility of the scrotum. Types of injuries include blunt, penetrating and degloving. Because the testes are located within the scrotum, which hangs outside of the body, they do not have the protection of muscles and bones. This makes it easier for testes to be struck, hit, kicked or crushed, which occurs most often during contact sports.

Within the scrotum, the testes are encased within the tough layer of the tunica albuginea (Pic. 1). Surrounding this covering is the thin tunica vaginalis, the pouch of serous membrane that covers the testes. A contusion (bruise) to the scrotum can result in a hematocoele, which is bleeding outside the tunica albuginea but within the layers of the tunica vaginalis. Bleeding deep to the tunica albuginea is termed a scrotal hematoma. When the tunica albuginea ruptures due to trauma, the testicular parenchyma may extrude into the scrotal sac. This defines testicular rupture, which should be differentiated from testicular fracture. The latter is a term, which describes a distinct, often linear, divide between two portions of the testicular parenchyma. In the best-case scenario, testicular fracture can exist in the absence of rupture. However, fracture may also lead to testicular rupture, with protrusion of testicular parenchyma, and a correspondingly worse outcome for the patient.

A thorough history and detailed physical examination are essential for an accurate diagnosis. High-resolution ultrasound with Doppler flow evaluation (to evaluate blood as it flows through a blood vessel) is the investigation of choice for the evaluation of scrotal abnormalities. It is noninvasive and can be used to quickly evaluate scrotal contents, testicular integrity and blood flow. Once ultrasonography rules out the need for surgical intervention, scrotal injuries can be managed conservatively with ice, elevation (in an effort to minimize inflammation and edema), and analgesics.

Symptoms

Trauma to the testes can cause severe pain, bruising, swelling, and/or in severe cases even possible infertility.

Associated diseases

- azoospermia (no sperm count)
- varicocele (an abnormal enlargement of the venous plexus in the scrotum)
- ejaculatory disorders
- hydrocele testis (an accumulation of clear fluid in the tunica vaginalis)

Complications

Testicular rupture

In most cases, the testes - which are spongy - can absorb some impact without serious damage. A rare type of testicular trauma, called testicular rupture, occurs when the testicle receives a direct blow or is squeezed against the hard bones of the pelvis. This injury can cause blood to leak into the scrotum and possibly even infertility and other complications. In severe cases, surgery to repair the rupture - and thus save the testicle - may be necessary. Secondary to blunt trauma, rupture of a varicocele (an abnormal enlargement of the venous
plexus in the scrotum) may also occur.

A missed diagnosis of testicular rupture has serious consequences. In patients who present with gross testicular swelling following trauma, the incidence of testicular rupture has been reported to be greater than 50%. Without surgical repair, the testis is prone to both ischemia (an insufficient blood supply to tissues) and infection and frequently requires orchiectomy (a surgical removal of one or both testicles). Conversely, if surgical intervention occurs within the first 72 hours after injury, testicular salvage rates approach 90%. After 72 hours, this salvage rate decreases to as low as 30%.

Hydrocele

Hydroceles (an accumulation of serous fluid in a body cavity; Pic. 5) may occur in up to 25% of patients with major trauma. Rupture of the bulbous urethra may result in extravasation of urine into the scrotum, which may mimic a hydrocele.

Testicular torsion

Testicular torsion occurs when the spermatic cord (from which the testicle is suspended) twists, cutting off the testicle’s blood supply, a condition called ischemia. The principal symptom is rapid onset of testicular pain. The most common underlying cause is a congenital malformation but it may also be caused by trauma; this is fairly rare.

If left untreated, testicular injuries may be associated with significant complications, such as:

- testicular infarction
- testicular torsion
- testicular or epididymal abscess
- infertility
- testicular necrosis
- testicular atrophy

Risk factors

- contact sports
- vehicle accidents
- assaults
- penetrating injuries

Prevention

Testicles can be protected by wearing athletic cups during sports. To minimize complications and ensure testicular salvage, rapid and accurate diagnosis is necessary to minimize complications and prevent loss of the testis. High-resolution USG is the investigation of choice, as it is readily available, accurate and has been seen to improve outcomes. An understanding of and familiarity with the sonographic appearance of scrotal injuries on the part of the radiologist/sonographer is therefore of key importance.

How it can affect fertility

The blunt trauma injury may cause different levels of testicular tissue and adnexal (surrounding) structures that are associated with male sterility through spermatogenesis disorders (affection sperm production), autoimmune mechanisms or by injury the ejaculatory ducts.

Getting a traumatic injury to testicles can result in a cause of low testosterone level. This may cause weaker and softer erections. Also, low testosterone may cause decrease in sperm amount, such as azoospermia, the condition of a man whose semen contains no sperm. As a result, men fertility may be impaired since men have weak erection or no sperm in semen to fertilize the egg.

Prognosis
It is generally believed that scrotal injuries are not life-threatening and are more concerning for their long-term complications. Scrotal trauma due to blunt force frequently results in significant injury requiring urological evaluation and surgery. Early surgical intervention leads to higher salvage rates, shorter hospitalizations, and a more rapid return to baseline activity.

In cases of testicular injury, blunt scrotal trauma is responsible for 75% of the reported. Regardless of the severity and mechanism of injury, immediate assessment of the genitalia is warranted to rule out testicular torsion or rupture. Other diagnoses of concern include urethral injuries, hematomas and epididymitis (an inflammation of the epididymis). While most traumatic testicular injuries resolve with conservative management, many require surgical exploration and some are life-threatening.

Find more about related issues

Diagnoses

Azoospermia
Complete absence of sperm in the ejaculate of a man.
Learn more at: www.fertiltpedia.org/therapy/diag/azoospermia

Cryptozoospermia
Male infertility diagnosis characterized by extremely low concentration of sperm in semen.
Learn more at: www.fertiltpedia.org/therapy/diag/cryptozoospermia

Ejaculatory disorders
A class of sexual disorders defined as the subjective lack of normal ejaculation.
Learn more at: www.fertiltpedia.org/therapy/diag/ejaculatory-disorders

Hydrocele testis
An accumulation of clear fluid in the tunica vaginalis, the most internal of membranes containing a testicle.
Learn more at: www.fertiltpedia.org/therapy/diag/hydrocele-testis

Sperm autoantibodies
Antibodies that bind to sperm, inhibiting their movement, stopping recognition and entry into the egg.
Learn more at: www.fertiltpedia.org/therapy/diag/sperm-autoantibodies

Testicular failure
The inability of the testicles to produce sperm or testosterone.
Learn more at: www.fertiltpedia.org/therapy/diag/testicular-failure

Varicocele
An abnormal enlargement of the pampiniform venous plexus in the scrotum.
Learn more at: www.fertiltpedia.org/therapy/diag/varicocele
Sources

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