Information for parents about

Testicular (spermatic cord) Torsion

Testicular torsion occurs when the testicle and the spermatic cord twist spontaneously, and then become locked in this abnormal position by contraction of the surrounding spermatic cord muscle (cremaster muscle). This condition can occur at any age (incidence 1:4000) and is usually associated with scrotal pain, redness and swelling, but children often report only nausea with lower abdominal or inguinal discomfort. At first, the venous return from the testicle is compromised, which promotes venous congestion and increased tissue pressure with diminished arterial perfusion. Eventually all blood flow into the testicle stops. Inadequate blood and oxygen supply to the testicle then results in progressive inflammation and ischemia with testicular atrophy (loss of testicular viability). The scrotal attachment of these testicles is often abnormal (bell-clapper deformity), with incomplete fixation of the testicle on the lower and back walls of the scrotal muscle, which allows laxity and free rotation of the spermatic cord.

Testicular torsion can be confused with other conditions, including torsion of the appendix testis, hydrocele, epididymitis and testicular tumor. Ureteral colic from a urinary stone can also cause severe scrotal pain. Physical examination demonstrates a swollen, tender and firm hemiscrotum with a short and thickened spermatic cord when testicular torsion is present. Scrotal landmarks (testis, epididymis and spermatic cord structures) are obscured and very difficult to delineate with physical examination alone.

Testicular torsion can occur at any age in infants, children or adolescent boys, so a careful examination and accurate evaluation is critical in order to allow a twisted testicle to be saved. If suspicion for testicular torsion is high, then surgical exploration must be arranged urgently in order to relieve testicular ischemia and to allow preservation of testicular viability. Surgical correction of testicular torsion (detorsion) coupled with bilateral scrotal orchiopexy (securing testes to the scrotal wall to prevent recurrent torsion) is the only reliable treatment available. There is an excellent chance for salvage of the testis if exploration is possible within 6 hours of the onset of torsion (90%). Testicular survival decreases rapidly with a delay of more than 6 hours unless the degree of torsion is only partial (< 360 degrees). In rare cases adequate blood flow can maintain some testis viability even after 24 hours of torsion. When the testis appears nonviable (black in color and with no parenchymal bleeding evident), orchiectomy (removal of the testicle) is performed.

The patient must have an empty stomach (NPO) for surgery and anesthesia to be performed safely. Do not stop for food on the way to the hospital.

Scrotal ultrasonography (with color Doppler imaging) can be very helpful in accurately identifying testicular anatomy and blood flow, especially if there has been recent scrotal trauma that can confuse an accurate diagnosis. The normal echotexture of the testis parenchyma should be homogeneous and symmetric in appearance. A normal arterial flow pattern within the testis parenchyma usually indicates that perfusion is preserved and that testicular torsion is not present.
Information for parents about

**Torsion of the Appendix Testis**

The appendix testis refers to a congenital appendage (Müllerian remnant: vestigial girl part) that is located along the upper aspect of the testis. This appendage has no function (other than to cause pain at random), and almost all boys are born with them. There is a considerable variation in size and type of attachment between individuals. Torsion of the appendix testis occurs when the appendage twists on its narrow attachment, effectively terminating its own blood supply.

Symptoms include slow onset of scrotal pain and swelling, often noticed after physical activity. A larger appendix testis is usually associated with more significant swelling and discomfort when torsion occurs. Unlike testicular torsion (which is a surgical emergency), torsion of the appendix testis poses no threat to health, and therefore no invasive treatment is warranted. Torsion of the appendix testis is treated with rest and anti-inflammatory medication (ibuprofen given with food to prevent stomach irritation). Symptoms and swelling usually resolve spontaneously over the first ten days.

The initial presentation may be very similar to the symptoms of testicular torsion, and often physical examination can be inconclusive if several days have elapsed since the onset of pain and if severe scrotal swelling is present. Excessive physical activity in the initial inflammatory period can lead to a delay in healing, and can even create severe swelling and pain mimicking testicular torsion. Scrotal ultrasonography can differentiate between torsion of the appendix testis and spermatic cord torsion most of the time, however, surgical exploration may be required to make a definitive diagnosis.

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