

Testicular Torsion — Diagnosis and Treatment

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Testicular torsion is the most common cause of acute testicular and scrotal emergency pain. Patients usually have unilateral testicular torsion and the most common etiology is a high abnormal attachment of the tunica vaginalis. Abnormal attachment of the tunica vaginalis results in spermatic cord increased mobility and predisposes to spermatic cord twisting and subsequent testicular torsion. Testicular infarction and necrosis can ensue if the testis is not detwisted in the first 8 hours and is usually complete by 24 hours of torsion onset. Bilateral testicular fixation to the tunica vaginalis is recommended.



Definition of Testicular Torsion

Testicular torsion is a **medical emergency** in which the **spermatic cord** along with the **spermatic artery** inside it undergo torsion. Torsion of the spermatic cord results in impaired blood flow to the **ipsilateral testis** and if left untreated results in **testicular necrosis** and subsequent **infertility**.

Testicular torsion can be either **intravaginal or extravaginal** depending on whether the cord is twisted inside the **tunica vaginalis** or not.

Epidemiology of Testicular Torsion

Intravaginal torsion is a common cause of acute scrotal pain and is defined as the cause of emergency scrotal pain in approximately 16% of the patients. Intravaginal torsion is more common in adolescents but has been described in patients younger than

30 years of age.

Extravaginal torsion occurs in neonates and is responsible for 5% of all torsions. It is associated with a high birth weight and is usually unilateral. Extravaginal torsion happens prenatally in the majority of the cases.

Bilateral testicular torsion is rare and has been reported in approximately 2% of the cases.

The current incidence of testicular torsion in men younger than 25 years of age is estimated to be 1 in 4,000.

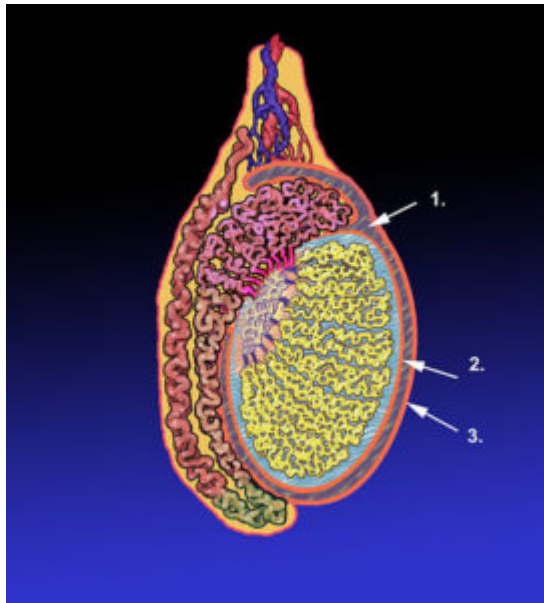


Image: "Diagram of an adult human testicle with the tunica vaginalis pointed out." by KDS444 - Own work. License: [CC BY-SA 3.0](#)

The etiology of testicular torsion is different depending on whether it is extravaginal or intravaginal. In neonates, the **spermatic cord** is still mobile because it is not fixated yet to the tunica vaginalis. Accordingly, the spermatic cord is free to move and can twist around itself, impairing blood supply to the testis. This can happen prenatally or postnatally.

Intravaginal testicular torsion is common in men with poorly fixated spermatic cords where the **tunica vaginalis** is too high or partly mobile. This results in a **mobile spermatic cord** that can also twist around itself in the tunica vaginalis. This congenital abnormality is usually bilateral; hence, **bilateral fixation of the testes** is indicated in patients with unilateral testicular torsion.

Pathophysiology of Testicular Torsion

In neonates, the testis is still not in the scrotum as it is still descending. This means that the testis is still mobile and is not fixated to the tunica vaginalis. The testis can undergo torsion and this will twist the spermatic cord and kink the **spermatic artery**. The consequence would be impaired blood supply to the testis and testicular torsion.

In some men, the tunica vaginalis is abnormally attached and the spermatic cord is not adequately fixated. Again, this results in a **mobile spermatic cord** that can twist and predisposes the patient to testicular torsion.

Abnormal high attachment of the tunica vaginalis is common and is encountered in approximately 12% of men and is bilateral in 40% of the cases. Because of this, patients with **unilateral testicular torsion** should undergo **bilateral testicular fixation surgery**.

Testicular torsion results in **impaired arterial blood supply and venous drainage**. Eventually, the testis undergoes **infarction**. The testis can still be viable after approximately 8 hours of torsion, but if testicular torsion is untreated for more than 24 hours the chances are that the testis has already become necrotic and is no longer viable.

Clinical Presentation of Testicular Torsion

Patients with intravaginal testicular torsion present with **sudden severe unilateral scrotal pain and swelling**. Patients might describe a **recent strenuous exercise or trauma to the testis**.

Patients also can have **nausea, vomiting** and the pain is usually of less than 6 hours of duration. Patients with more gradual onset pain are more likely to have **epididymitis** rather than testicular torsion.

On physical examination, the testis is usually very tender to touch. **Scrotal redness** is also common. When the pain is not too severe, the elevation of the testis can relieve pain in **epididymitis** but not in testicular torsion but again this is usually difficult to do in patients with testicular torsion because the testis is extremely tender to touch.

Diagnostic Work-up for Testicular Torsion

Once the diagnosis of testicular torsion is suspected from clinical examination and history, **emergency surgery** to salvage the testis is indicated and no further workup should be performed.

When the pain is gradual, recurrent or severe, **imaging studies** can be performed. **Color Doppler studies** can be used to evaluate the arterial blood flow to the testis. In testicular torsion, there is decreased blood flow to the testicle, and this is usually enough to go for surgery.

While **Doppler ultrasonography** is unlikely to result in false-negative results, it can have a significant number of **false-positives**. Still, surgery benefits clearly outweigh the risks and any patient with suspected testicular torsion should always undergo **exploratory surgery**.

Treatment of Testicular Torsion

Treatment of testicular torsion is surgical. The main goals of surgical treatment are to do **testicular detorsion**, to save the testis from further **necrosis** and to preserve **fertility**. If treatment is delayed, **orchietomy** is indicated.

During surgery, the testis should undergo **detorsion**. Once this is performed, the testis should go **back to normal color** and a Doppler study should reveal the **return of normal blood flow** to the testis.

If the testis is no longer viable, it should be removed to avoid complications such as **testicular infection**. After detorsion, the testis should be **fixated to the tunica**

vaginalis to avoid recurrent testicular torsion or detorsion syndrome.

It is always advisable to perform **bilateral testicular fixation** because the tunica vaginalis is abnormally attached in approximately 40% of the cases bilaterally.

If the testis is not viable, it should be removed and a **testicular prosthesis** can be implanted for cosmetic reasons. Implantation of the testicular prosthesis should be performed six months after the **orchiectomy** to allow time for scrotal healing and for the inflammatory process to subside.

Complications of Testicular Torsion

Complications include:

- Loss of testes
- Infection of testes
- Infarction of testes
- Infertility
- Cosmetic disfigurement
- Testicular exocrine and endocrine functions are disturbed. Quality of semen is also affected

Prognosis of Testicular Torsion

Prognosis depends upon the immediate testicular restoration and onset of testicular atrophy.

Testicular restoration further is determined by the time elapsed between the onset of torsion and initiation of management. Chances of testicular preservation can be as follows:

- < 6 hours: 90—100 %
- 12—24 hours: 20—50 %
- > 24 hours: 0—10 %

References

[Testicular Torsion](#) via medscape.com

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Notes