

Testis twists

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THE STORY IN ONE SENTENCE

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“Testicular torsion — sudden bad pain in the scrotum, one testicle sits high, and you have 6 hours to untwist it in surgery before the testicle dies.”

Normal anatomy — the body's job

Each testicle hangs in the scrotum on a spermatic cord (a bundle of blood vessels, nerves, and the sperm tube) that is anchored to the back wall of the scrotum so the testicle cannot twist around.

BODY'S JOB

The spermatic cord carries the testicular artery (brings oxygen-rich blood in), the pampiniform venous plexus (drains used blood out), the vas deferens (the tube that carries sperm), and nerves. The cord is normally fixed to the scrotal wall by a layer of tissue called the tunica vaginalis, which wraps around the testicle and locks it in place. This anchor keeps the testicle from spinning and pinching off its own blood supply.

1. Blood flows down the testicular artery inside the spermatic cord, bringing oxygen and food to the testicle.
2. The testicle makes sperm and hormones (testosterone).
3. Used blood drains back up through the veins in the cord.
4. The tunica vaginalis wraps around the testicle and anchors the cord to the scrotal wall, so the whole setup stays in one place and cannot twist.

What breaks

The testicle is not anchored properly, so the spermatic cord can twist around itself and squeeze shut the blood vessels inside. Without blood, the testicle starts to die within hours.

CLINICAL TERM

Bell-clapper deformity: the tunica vaginalis attaches too high on the cord instead of wrapping around the testicle and anchoring it to the scrotal wall. This lets the testicle hang free and rotate on the cord (intravaginal torsion). When the cord twists, it compresses the testicular artery and pampiniform plexus, causing starved blood flow (ischemia) (not enough blood reaching the tissue to feed it) and then tissue death from blocked blood flow (infarction) (tissue death) if not untwisted within 6 hours. This deformity is often present on both sides, so the other testicle is at risk too.

How the body compensates

The body cannot fix a twisted cord on its own. Pain, vomiting, and muscle spasm are distress signals, not repairs. Time is the enemy: you have about 6 hours to untwist the cord surgically before the testicle dies.

1. The testicle screams with severe, sudden pain because starved blood flow (ischemia) (not enough blood) triggers pain nerves instantly.
2. The body vomits and sweats because the pain is so intense it activates the vagus nerve (a nerve that connects the gut and brain), which makes you feel sick and throw up.
3. The cremasteric muscle (a thin muscle that wraps around the cord) contracts in spasm, pulling the testicle up high toward the belly — this is not helpful, it is just a reaction to pain and dying tissue.
4. The cremasteric reflex (the normal reflex where stroking the inner thigh makes the testicle jump up) disappears because the nerves in the twisted cord are being squeezed and cannot send signals anymore.
5. The scrotum swells because fluid and inflammatory cells leak into the tissue around the dying testicle.
6. Blood pressure and heart rate may stay normal at first, so you cannot wait for vital signs to crash — by then the testicle is already dead.

Domino effect

1. Bell-clapper deformity lets the spermatic cord twist. — The tunica vaginalis (the sac that normally wraps around the testicle and anchors it to the scrotal wall) attaches too high on the cord instead, so the testicle hangs free and can rotate on the cord like a clapper inside a bell.
2. The twisted cord squeezes shut the testicular artery and pampiniform veins. — When the cord twists (usually 180° to 720°), it acts like twisting a garden hose — the artery and veins collapse, so blood cannot flow in or out of the testicle anymore.

3. The testicle becomes blood-starved (ischemic) (starved of blood and oxygen). — Without blood, the testicle does not get oxygen or nutrients, and waste products (like lactic acid) build up. Cells start to die within 4 to 6 hours.
4. The body reacts with sudden, severe scrotal pain, nausea, and vomiting. — Starved blood flow (Ischemia) triggers pain nerves immediately, and the pain is so intense it activates the vagus nerve (a nerve that connects the gut and brain), which makes you feel sick and throw up.
5. The testicle pulls up high toward the belly, and the cremasteric reflex disappears. — The cremasteric muscle (a thin muscle around the cord) contracts in spasm from pain and starved blood flow (ischemia), yanking the testicle upward. The cremasteric reflex (the normal reflex where stroking the inner thigh makes the testicle jump up) vanishes because the nerves in the twisted cord are squeezed and cannot send signals anymore.
6. The scrotum swells and turns red or blue. — Dying tissue leaks fluid and inflammatory chemicals into the scrotum, causing swelling (edema) (swelling). Trapped blood in the veins turns the skin dark blue or purple.
7. If the cord is not untwisted within 6 hours, the testicle dies (infarction). — After 6 hours of starved blood flow (ischemia), most testicular cells are dead and cannot recover, even if you restore blood flow. After 12 hours, almost all testicles are lost. You must operate within 6 hours to save it.
8. Even if the testicle is saved, it may not work normally. — Starved blood flow (Ischemia) can damage the cells that make sperm (Sertoli and germ cells) and testosterone (Leydig cells), so fertility and hormone production may be lower even after successful surgery.

Symptoms · what the patient feels, and why

- Sudden, severe pain in one testicle that starts quickly and doesn't go away: The spermatic cord (the rope-like bundle of blood vessels and tubes feeding the testicle) twists around itself like a twisted garden hose, cutting off the blood supply so the testicle isn't getting the oxygen it needs — this causes immediate, sharp pain.
- The painful testicle sits higher than the other one or is turned at an odd angle: When the spermatic cord twists, it shortens and pulls the testicle upward, making it hang higher in the scrotum and often rotate to a strange position compared to the normal side.
- Swelling and redness of the scrotum (the skin sac holding the testicles): Without fresh blood flowing in and old blood draining out, fluid leaks into the tissue around the testicle, causing the scrotum to puff up, turn red, and feel tender to touch.
- Nausea and vomiting: The sudden, intense pain triggers signals to the brainstem (the part deep in the brain that controls automatic body responses) which activates the vomiting center, making the person feel sick to their stomach.

- Belly pain or lower stomach pain on the same side: The nerves from the testicle share pathways with nerves from the lower belly, so the brain can mistake the testicle pain as coming from the stomach area — this is called referred pain.
- The cremasteric reflex is missing (when you stroke the inner thigh, the testicle on that side normally pulls up slightly but it doesn't in torsion): The twisted spermatic cord pinches the genitofemoral nerve (the nerve that runs along the cord and controls the cremaster muscle), so the muscle that lifts the testicle can't respond to the stroking test anymore.
- Pain does NOT get better when you lift the testicle gently (negative Prehn sign): Lifting the testicle briefly eases pain in epididymitis (infection of the coiled tube behind the testicle) by taking tension off inflamed tissue, but in torsion the blood vessel twist stays tight no matter the position, so pain stays just as bad.
- Most common in teenagers (ages twelve to eighteen) but can happen at any age, including newborns: During puberty, the testicles grow quickly and the tissue anchoring them to the scrotum (the tunica vaginalis) sometimes doesn't attach firmly enough, letting the testicle swing freely and twist more easily — this loose-hanging pattern is called the bell-clapper deformity.

Focused exam

- Sudden, sharp testis pain that started all at once — often woke the person from sleep or happened after a small bump: Testicular torsion pain flips on like a switch, not slowly. This quick, bad pain is the biggest warning that the spermatic cord (the bundle of tubes that feeds the testis) twisted and blood stopped flowing.
- The testis sits higher than the other side and hangs in an odd direction, sometimes sideways: When the spermatic cord twists, it shortens and yanks the testis upward. This high-riding testis is a dead giveaway that the cord twisted and pulled tight.
- The cremasteric reflex is gone — when you gently stroke the inner thigh, the testis should pull up a little, but it does not move: This reflex runs through the genitofemoral nerve that travels along the spermatic cord. When the cord twists, the nerve gets squeezed and the reflex dies. If the reflex works normally, torsion is much less likely.
- The testis is swollen, red or dark, and hurts when touched: The twisted cord chokes off the testicular artery, so fresh blood cannot get in. The tissue swells because old blood backs up and fluid leaks out. Swelling and color get worse the longer the twist stays.
- Nausea and vomiting: The testis shares nerve pathways with the belly through the autonomic nervous system. Severe testis pain triggers these nerves and makes the stomach feel sick and throw up — it is not a stomach problem, it is the testis sending pain signals.

- Negative Prehn sign — lifting the testis does not ease the pain, or makes it worse: In epididymitis (an infection), lifting the testis often helps the pain (positive Prehn). In testicular torsion, lifting does not help because the problem is a twisted cord, not swelling from infection. This clue helps tell the two apart.

Diagnostics · every test answers a question

- Color Doppler ultrasound of the scrotum → Is blood flowing into the testis, or is flow cut off or reduced?
- Physical exam findings (high-riding testis, absent cremasteric reflex, sudden pain) → Do the exam clues together point strongly to torsion, or do they fit another cause like infection?
- Urinalysis → Are there signs of infection (bacteria, white blood cells) that suggest epididymitis instead of torsion?
- Time from symptom start → How long has the cord been twisted, and is the testis still salvageable?

Treatment logic

- Call urology immediately and go straight to the operating room — do not wait for ultrasound if exam is convincing → Gets the surgeon who can untwist the spermatic cord and restore blood flow before the testis dies. The 6-hour window is critical — delaying for tests wastes precious time and kills tissue.
- Manual detorsion at the bedside (rotate testis outward, like opening a book, usually 1–2 full turns) if surgery will be delayed → Can untwist the cord immediately and restore blood flow without waiting. Success brings instant pain relief. This is a bridge to surgery, not a replacement — the testis must still be surgically fixed in place to prevent re-twisting.
- Start an IV line, give strong pain medicine (opioid like morphine or fentanyl), and give anti-nausea medicine (ondansetron) → Stops suffering, calms vomiting, and keeps the patient hydrated while preparing for surgery. A calmer body helps maintain steady blood pressure, which supports the small amount of blood that might still reach the testis.
- In surgery: untwist the spermatic cord, check if the testis turns pink and healthy, then stitch both testicles to the inside of the scrotum (orchiopexy) → Untwisting restores blood immediately. Stitching both sides prevents future torsion, because the bell-clapper deformity (loose attachment) is usually on both sides. Fixing both cuts re-twist risk to near zero.
- Remove the testis (orchiectomy) only if tissue is clearly black, does not pink up after untwisting, and is obviously dead → Removing dead tissue prevents infection, abscess, and the immune attack that dead tissue can trigger. Keeping a damaged testis that might recover preserves fertility and testosterone production.

- Keep the patient NPO (nothing by mouth) until after surgery, then regular diet as tolerated
→ An empty stomach prevents vomit from getting into the lungs during anesthesia (aspiration). After surgery, eating resumes when the gut wakes up and is ready.

Medications

First do this: no food, IV line, pain medicine, stop-vomit medicine ·

Second call urology doctor now. Third try gentle untwist from inside out, like opening a book. Fourth go to surgery — fix both sides by untwisting, checking if dead, fixing both. Fifth remove if dead tissue. Sixth save the testis over 90 percent of the time in first 6 hours, drops fast after. Each medicine on this list does a body job. Name the job before naming the drug. The medicine is the tool, the broken step is the target. Avoid the reflex of one-symptom-one-drug. Match each agent to bell-clapper deformity lets twisting happen, often both sides can do it and the patients individual physiology.

Red flags

- Sudden testicle pain lasting more than one hour — this is a race-against-time emergency because the testicle starts dying after four to six hours without blood
- Testicle pain with vomiting or severe belly pain — means the pain is bad enough to upset the whole nervous system and raises the chance of true torsion
- A testicle that looks higher, swollen, very red, or positioned oddly compared to the other side — these are visible clues the cord has twisted
- No improvement or worsening pain even after rest or pain medicine — torsion pain doesn't ease until the twist is fixed

Nursing priorities

1. Call the urology surgeon and operating room team immediately upon suspicion of testis twist — The spermatic cord (the bundle of blood vessels and tubes feeding the testicle) is twisted and blocking blood flow, so the testicle tissue dies within 4 to 6 hours without emergency surgery
2. Keep the patient from eating or drinking anything (NPO, nothing by mouth) — The patient needs emergency surgery with general anesthesia (sleep medicine), and food or liquid in the stomach increases the risk of vomiting and breathing stomach contents into the lungs during anesthesia
3. Start an IV line with normal saline running to keep the vein open — The IV allows quick delivery of pain medicine, anti-nausea medicine, and anesthesia drugs, and prevents dehydration since the patient cannot drink

4. Give strong pain medicine through the IV as ordered by the doctor, usually an opioid like morphine or fentanyl — Testis twist causes severe pain because the testicle has many nerve endings and the tissue is dying from lack of oxygen (ischemia), and controlling pain reduces stress hormones that make blood vessels constrict
5. Give anti-vomit medicine through the IV as ordered, such as ondansetron (Zofran) — The twisted spermatic cord irritates nerves that trigger the vomiting center in the brain, and vomiting increases belly pressure that worsens pain and raises aspiration risk before surgery
6. Position the patient comfortably with the scrotum supported, but do not apply ice or try to manually untwist the testicle — Gentle support reduces pulling on the twisted cord, but ice can harm tissue and manual untwisting attempts waste precious time when surgery is the only reliable treatment
7. Monitor vital signs every 15 minutes and watch for signs of shock like fast heart rate, low blood pressure, or pale sweaty skin — Severe pain and vomiting can cause vasovagal response (sudden drop in heart rate and blood pressure from nerve signals) or dehydration, and pain stress releases hormones that speed up the heart
8. Document the exact time the pain started and reassure the patient and family while preparing for immediate transport to the operating room — The time from symptom start to surgery predicts testicle survival, and anxiety increases pain perception and blood pressure, so calm explanation helps the patient cooperate with urgent care

Sources

- AUA Testicular Torsion Guideline 2019
- AAP Clinical Report on Acute Scrotal Pain 2016
- UpToDate Clinical Overview (Wolters Kluwer)
- AAFP American Family Physician Review 2020

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