

Epididymitis and Orchitis

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THE STORY IN ONE SENTENCE

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“Epididymitis is almost always a bacterial infection climbing up from the urethra. Age tells you the bug: under 35 think chlamydia or gonorrhea (sex bugs), over 35 think E. coli (bladder bugs). Treat with antibiotics matched to the likely germ, plus ice and scrotal support.”

Normal anatomy — the body's job

The epididymis is a long, tightly coiled tube—about 20 feet if you stretched it out—sitting like a cap on the back of each testicle. Its job is to store sperm made in the testicle and finish maturing them so they can swim and fertilize an egg.

BODY'S JOB

Sperm leave the testicle immature and weak. They flow into the epididymis and spend about two weeks traveling through the coils, gaining the ability to move their tails and pierce an egg. When ejaculation happens, smooth muscle squeezes the epididymis and pushes mature sperm into the vas deferens (the muscular tube that carries sperm up and out), then through the urethra and out of the body. The epididymis also absorbs extra fluid so sperm stay concentrated and healthy.

1. The testicle makes millions of immature sperm every day inside tiny coiled factories called seminiferous tubules.
2. Immature sperm flow into the epididymis through tiny tubes called efferent ducts.
3. Sperm spend about 2 weeks slowly traveling through the 20-foot coiled epididymis, maturing and learning to swim.
4. Mature sperm wait in the tail of the epididymis (the storage area) until ejaculation.

5. During ejaculation, smooth muscle in the epididymis and vas deferens squeezes, pushing sperm up the vas deferens toward the urethra.
6. Sperm mix with fluid from the prostate and seminal vesicles (small glands that add sugar and chemicals for energy), becoming semen, and leave the body through the urethra.

What breaks

Bacteria climb backward from the urethra or bladder, travel up the vas deferens, and invade the epididymis, causing infection and swelling.

CLINICAL TERM

Epididymitis is ascending bacterial infection: pathogens from the urethra, prostate, or bladder climb retrogradely (backward) through the vas deferens into the epididymis. In men under 35, *Chlamydia trachomatis* and *Neisseria gonorrhoeae* (sexually transmitted) are the most common culprits. In men over 35 or with recent urinary catheterization, prostate enlargement, or bladder outlet obstruction, enteric gram-negative rods—especially *Escherichia coli*, *Pseudomonas aeruginosa*, and *Proteus* species—dominate. Rarely, hematogenous spread (bacteria traveling through the bloodstream) seeds the epididymis in systemic infections such as tuberculosis or brucellosis. The infected epididymis swells with swelling (edema), neutrophils, and fibrin; inflammation may spread to the adjacent testicle (epididymo-orchitis) or organize into an abscess if untreated.

How the body compensates

The body rushes blood, fluid, and immune cells to the infected epididymis to trap and kill bacteria. Fever, swelling, and pain are the visible signs of that fight. Vital signs may stay stable early while inflammation builds, but untreated infection can spiral into abscess, testicular tissue death from blocked blood flow (infarction), chronic pain, infertility, or sepsis.

1. {'what': 'Increased blood flow (hyperemia) to the epididymis', 'why': 'Blood vessels dilate and their walls become leaky, flooding the epididymis with plasma and white blood cells—mostly neutrophils (the first responders that eat bacteria and release enzymes to destroy them). Ultrasound Doppler shows increased blood flow, the hallmark that separates infection (hot and swollen) from torsion (cold and dying).'} }
2. {'what': 'Fever', 'why': 'Infected tissue and activated neutrophils release cytokines—interleukin-1 (IL-1), interleukin-6 (IL-6), and tumor tissue death (necrosis) factor-alpha (TNF- α)—that travel through the blood to the hypothalamus (the brain's thermostat at the base of the brain) and reset it higher. Fever slows bacterial growth and speeds up immune reactions.'} }

3. {'what': 'Scrotal swelling (edema) (swelling) and redness (erythema) (redness)', 'why': 'Leaky blood vessels pour fluid and immune cells into the tissue, causing visible swelling, warmth, and redness over the back and lower pole of the scrotum where the epididymis sits. The scrotal skin may become shiny and tight.'}
4. {'what': 'Pain relief with scrotal elevation (Prehn sign positive)', 'why': 'Lifting the scrotum drains pooled fluid and takes tension off the swollen spermatic cord (the bundle of vas deferens, blood vessels, and nerves), easing the ache. This tells you the pain is from inflammation and fluid weight—not twisted blood supply. Testicular torsion pain stays severe or worsens with elevation because the testicle is twisted and dying.'}
5. {'what': 'Urethral discharge (if STI cause)', 'why': 'Chlamydia trachomatis or Neisseria gonorrhoeae in the urethra trigger acute urethritis. Neutrophils flood the urethra, mix with mucus and dead bacteria, and form pus that drips from the urethral opening—clear to white for chlamydia, thick yellow-green for gonorrhea.'}
6. {'what': 'Pus in the urine (Pyuria) (white blood cells in urine)', 'why': 'Bacteria and inflammation in the epididymis or urethra shed white blood cells into the urine. Urinalysis shows white blood cell (leukocyte) esterase positive and white blood cells under the microscope, even if the bladder itself is not infected.'}
7. {'what': 'The danger: compensation masks the crash', 'why': 'Early on, vital signs stay near normal and the patient walks and talks. But untreated infection can wall off into an abscess (a pocket of pus that antibiotics cannot penetrate), requiring surgical drainage. Severe swelling can compress testicular blood vessels, causing testicular tissue death from blocked blood flow (infarction) (tissue death) and permanent loss of that testicle. Scarring in the epididymis can block sperm flow, causing obstructive infertility. Rarely, bacteria seed the bloodstream, causing sepsis. The window to prevent these disasters is the first few days—antibiotics must start before the infection organizes or spreads.'}

Domino effect

1. Bacteria enter the urethra from sex (*Chlamydia trachomatis*, *Neisseria gonorrhoeae*) or bladder (*Escherichia coli*). — Unprotected sex lets *Chlamydia trachomatis* or *Neisseria gonorrhoeae* colonize the urethral mucosa. In older men or those with catheters, benign prostatic hyperplasia (enlarged prostate), or neurogenic bladder, *Escherichia coli* and other enteric bacteria multiply in stagnant urine and invade the urethra or prostate.
2. Bacteria climb backward up the vas deferens into the epididymis. — During urination, ejaculation, or straining (Valsalva), pressure forces bacteria retrogradely—backward—up the vas deferens, the muscular tube that normally carries sperm out. The bacteria reach the epididymis, a warm, nutrient-rich, low-flow environment where they can multiply unchecked.

3. The epididymis swells with infection; you feel one-sided scrotal pain and a tender lump at the back of the scrotum. — Bacteria multiply in the epididymal tubules, triggering the immune system to flood the area with neutrophils (white blood cells that eat bacteria) and plasma. The epididymis becomes thick, boggy, and exquisitely tender. Pain builds over hours to days—gradual onset, not the sudden twist-and-scream of torsion.
4. Fever develops. — Infected epididymal tissue and activated neutrophils release cytokines—interleukin-1 (IL-1), interleukin-6 (IL-6), and tumor tissue death (necrosis) factor-alpha (TNF- α)—that travel through the blood to the hypothalamus (the brain's thermostat at the base of the brain) and reset it higher, causing fever to slow bacterial growth and accelerate immune responses.
5. Lifting the scrotum eases the pain (Prehn sign positive). — Elevation drains trapped fluid by gravity and takes weight off the inflamed spermatic cord (the bundle of vas deferens, blood vessels, and nerves hanging the testicle), reducing pressure and pain. This sign helps you distinguish epididymitis (pain improves with lift) from testicular torsion (pain stays severe or worsens because the testicle is twisted and its blood supply is cut off).
6. Inflammation may spread to the testicle itself (epididymo-orchitis). — The epididymis sits right against the testicle, separated only by a thin layer of tissue. Infection and inflammation spill over the border, causing the whole hemiscrotum to swell and the testicle to become tender, enlarged, and firm. Now both structures are infected.
7. Untreated infection risks abscess, testicular tissue death from blocked blood flow (infarction), chronic pain, or infertility. — Pus can wall off into an abscess (a pocket of dead white blood cells, bacteria, and liquefied tissue) that antibiotics cannot penetrate, requiring surgical incision and drainage. Severe swelling can compress the testicular artery and veins, choking off blood supply and causing testicular tissue death from blocked blood flow (infarction) (tissue death)—the testicle turns dark and must be removed. Chronic inflammation scars the delicate epididymal tubules, blocking sperm flow and causing obstructive azoospermia (zero sperm in the ejaculate) and infertility. Early antibiotics stop this cascade.
8. Antibiotics matched to the likely germ kill the bacteria and stop the dominoes. — Men under 35 with STI risk get ceftriaxone 500 mg intramuscular once (to kill *Neisseria gonorrhoeae*, which is increasingly resistant to oral antibiotics) plus doxycycline 100 mg twice daily for 10 days (to kill *Chlamydia trachomatis*). Men over 35, or those with catheter or prostate issues, get a fluoroquinolone—levofloxacin 500 mg once daily for 10 days—or trimethoprim-sulfamethoxazole (if local *E. coli* resistance is low) to cover enteric gram-negatives. Killing the bacteria stops inflammation; the immune system clears debris and the swelling resolves over 1 to 2 weeks. Scrotal support (snug underwear or athletic supporter), ice packs, and NSAIDs (ibuprofen or naproxen) ease pain and swelling while antibiotics work.

Symptoms · what the patient feels, and why

- Pain and swelling in one testicle or the back part of the testicle: Infection causes the epididymis (the coiled tube behind the testicle that stores and carries sperm) to swell up with fluid and fill with immune cells fighting the germs, which stretches the tissue and presses on nearby nerves.
- The scrotum feels warm and looks red: Blood vessels widen and extra blood rushes to the area to bring in immune cells, making the skin warmer and redder — just like your cheek gets warm and red when it's irritated.
- Pain when you pee or a frequent urge to pee: The same bacteria that infected the epididymis often start in the urethra (the tube that carries pee out), so the lining there is inflamed and raw, which stings when urine flows over it.
- Discharge (fluid dripping) from the penis: Bacteria in the urethra trigger the lining to leak extra mucus and pus (dead immune cells and germs), which drips out — a clear sign of infection in the tube.
- Fever and chills: When infection is more severe, bacteria or their toxins spill into the bloodstream and the hypothalamus (the brain's thermostat) cranks up body temperature to help immune cells work faster, causing fever and shaking chills.
- Tenderness in the lower belly or pelvis: Infection can spread backward up the vas deferens (the tube that carries sperm from the testicle toward the bladder) and irritate nearby structures in the pelvis, making that whole area sore.
- A lump or firmness you can feel in the testicle: Swelling of the epididymis or the testicle itself (orchitis) forms a mass that you can touch, and sometimes fluid builds up around the testicle in a sac called the tunica vaginalis, making it feel bigger and heavier.
- Blood in the semen: Inflamed blood vessels in the epididymis or prostate can leak red blood cells into the tubes that carry semen, tinting it pink or rust-colored.

Focused exam

- Tender, swollen epididymis on one side of the scrotum: The epididymis is the coiled tube sitting on top of each testicle that stores and ripens sperm. When bacteria swim backward from the urethra (the tube you pee through), they infect this tube and make it swell. Finding pain and puffiness in exactly this spot tells you the infection has reached the epididymis.
- Prehn sign—pain gets better when you gently lift the scrotum: Lifting the scrotum helps veins drain blood away from the swollen epididymis, so pressure drops and pain eases. In testicular torsion (when the testicle twists and its blood supply is choked off), lifting makes pain worse because the twist stays tight. This one clue helps you tell a treatable infection from a surgical emergency.

- Fever, usually low-grade (100–101°F or 37.8–38.3°C): When bacteria invade the epididymis, your immune system cranks up body temperature to help kill the invaders. A fever tells you the infection is real and not just irritation from a bump or tight clothing.
- Slow start of pain and swelling over hours to days, not sudden: Epididymitis builds gradually as bacteria crawl upstream tube by tube. Testicular torsion happens in seconds, like flipping a switch. The speed of symptom onset is your biggest clue to tell infection from twist.
- Age under 35 with discharge from the penis or a partner with symptoms of a sexually transmitted infection: In younger sexually active men, chlamydia (*Chlamydia trachomatis*, a sneaky bacterium that hides inside cells) and gonorrhea (*Neisseria gonorrhoeae*, a fast-spreading germ) are the usual culprits. Knowing the patient's age and sexual history tells you which antibiotics to use.
- Age over 35 with history of slow urine stream, enlarged prostate, or recent catheter or bladder procedure: In older men, bacteria from the bladder—usually *Escherichia coli* (*E. coli*, a common gut bacterium) and other bowel germs—travel backward into the epididymis, especially when urine flow is slowed or blocked. Knowing the patient's age and urinary history tells you which bacteria to expect and which antibiotics to choose.

Diagnostics · every test answers a question

- Urinalysis with microscopy → Are there white blood cells (pyuria) or bacteria in the urine, showing an infection in the urinary tract that could be traveling backward?
- Urine culture and sensitivity → Which specific bacteria are growing in the urine, and which antibiotics will kill them?
- Nucleic acid amplification test (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* on first-catch urine or urethral swab → Is the infection caused by sexually transmitted bacteria that need different antibiotics?
- Scrotal ultrasound with Doppler (sound waves that show blood flow) → Is blood flow to the testicle normal, ruling out testicular torsion, and is there swelling or fluid around the epididymis confirming epididymitis?
- Complete blood count (CBC) → Is the white blood cell count elevated, showing the body is fighting a bacterial infection?
- Blood cultures (if fever $\geq 101.5^\circ\text{F}$ or 38.6°C , shaking chills, or signs the infection is spreading through the body) → Has the infection spilled into the bloodstream, requiring IV antibiotics and hospital care?
- Sexually transmitted infection (STI) panel including HIV and syphilis (if chlamydia or gonorrhea is found) → Are there other sexually transmitted infections that also need treatment?

- Post-void residual urine measurement (ultrasound or catheter after the patient pees) → Is the bladder emptying completely, or is leftover urine pooling and letting bacteria grow?

Treatment logic

- Ceftriaxone 500 mg intramuscular (IM) shot once PLUS doxycycline 100 mg by mouth twice daily for 10 days (if under 35 or sexually transmitted infection suspected) → Ceftriaxone (a powerful antibiotic that punches through bacterial cell walls) kills gonorrhea (*Neisseria gonorrhoeae*), and doxycycline (an antibiotic that stops bacteria from making proteins they need to live) kills chlamydia (*Chlamydia trachomatis*). Together they stop the bacteria swimming backward from the urethra, halt the infection, and let the swelling go down over the next few days.
- Levofloxacin 500 mg by mouth once daily for 10 days (if over 35 or bladder bacteria suspected and local resistance < 10%) → Levofloxacin (a fluoroquinolone antibiotic that stops bacteria from copying their DNA) kills bladder bacteria like *E. coli* and other gut bacteria (enteric gram-negative rods) that travel backward into the epididymis in older men or those with urinary blockage. Stops the infection and lets inflammation melt away.
- Nonsteroidal anti-inflammatory drug (NSAID) such as ibuprofen 400–600 mg by mouth three times daily with food → Ibuprofen blocks cyclooxygenase (COX, an enzyme that makes pain chemicals) so your body makes less prostaglandins (the messengers that trigger pain, swelling, and heat). This dials down inflammation in the epididymis, cuts pain, and helps blood flow return to normal faster.
- Scrotal elevation and support (athletic supporter, jock strap, rolled towel, or pillow under the scrotum when lying down) → Lifting the scrotum helps veins drain pooled blood away from the swollen epididymis, reduces pressure and stretching, and eases pain. This is why Prehn sign (pain relief with lifting) happens in epididymitis.
- Partner notification, testing, and treatment (if sexually transmitted pathogen found) → Treats the partner's chlamydia or gonorrhea infection (often with the same antibiotics), stops the patient from getting infected again after his treatment finishes, and breaks the transmission chain in the community so fewer people get sick.
- Hospital admission for IV antibiotics and possible surgical drainage (if fever > 101.5°F or 38.6°C, abscess pocket seen on ultrasound, or no improvement after 48–72 hours of oral antibiotics) → IV antibiotics (such as ceftriaxone plus doxycycline, or ampicillin-sulbactam, a combination that covers many bacteria) reach higher blood levels than pills and penetrate walled-off abscess pockets better. Surgical drainage cuts open and drains pus pockets that antibiotics cannot reach, removes dying tissue, and sometimes removes the entire epididymis (epididymectomy) if it is destroyed.

- Urologic follow-up and imaging to check for structural problems (if infection keeps coming back, or if patient is over 35 with no clear cause) → Cystoscopy (a tiny camera inserted through the urethra into the bladder) or CT scan can find blockages, stones, enlarged prostate, or birth defects that trap urine and let bacteria grow. Fixing the structural problem (with medicine or surgery) stops repeat infections.

Medications

Ceftriaxone 500 mg intramuscular (IM) single dose · Third-generation cephalosporin antibiotic

Ceftriaxone kills gonorrhea bacteria (*Neisseria gonorrhoeae*) by punching holes in the bacterial cell wall. Without a sturdy wall, the bacteria burst and die. It is given as a shot because gonorrhea has grown resistant to pills and the injection delivers a high, reliable dose directly into the bloodstream.

1. Ceftriaxone enters the bloodstream and travels to infected tissue.
2. It binds to proteins on the gonorrhea bacteria that build the cell wall.
3. These proteins can no longer make the wall strong, so it weakens and breaks.
4. Water rushes into the bacteria and they explode.
5. The immune system clears the dead bacteria and inflammation fades.

SAFETY WATCH

Allergic reaction: severe penicillin allergy may cross-react; tell your doctor about any past serious antibiotic allergy. · Injection site pain or bruising is common. · Rarely, gallbladder sludge or stones can form (especially in children or people on IV for days; single shot is very safe).

Doxycycline 100 mg by mouth twice daily for 10 days · Tetracycline antibiotic

Doxycycline kills chlamydia bacteria (*Chlamydia trachomatis*) by jamming their protein-making machinery. Bacteria need to make new proteins to grow and divide. When doxycycline locks onto the ribosome (the tiny factory inside bacteria that builds proteins), the bacteria cannot make the building blocks they need, so they stop multiplying and eventually die.

1. Doxycycline is absorbed from the stomach into the bloodstream.
2. It flows to the infected epididymis and surrounding tissue.
3. It slips inside chlamydia bacteria and binds tightly to the ribosome.
4. The ribosome can no longer read the bacteria's genetic instructions and build new proteins.
5. Without proteins, the bacteria cannot grow or repair themselves and they die.

6. The immune system clears the dead bacteria and swelling goes down over several days.

SAFETY WATCH

Sun sensitivity: doxycycline makes skin burn easily in sunlight; wear sunscreen and cover up. · Stomach upset: take with food (but NOT dairy, which blocks absorption). · Do NOT take antacids, iron, or calcium within 2 hours of the dose; they block the medicine. · Tooth staining: do not use in children under 8 or pregnant women (it can discolor growing teeth). · Esophagus irritation: take with a full glass of water and stay upright for 30 minutes after swallowing.

Levofloxacin 500 mg by mouth once daily for 10 days (alternative for men ≥ 35 or if urinary bacteria suspected) · Fluoroquinolone antibiotic

Levofloxacin kills urinary-tract bacteria (*E. coli*, *Klebsiella*, *Proteus*, *Pseudomonas*) by breaking their DNA. Bacteria must copy their DNA to divide. Levofloxacin blocks the enzymes (DNA gyrase and topoisomerase IV) that unzip and repair bacterial DNA. When these enzymes are jammed, the DNA snaps and the bacteria die.

1. Levofloxacin is absorbed from the stomach into the bloodstream.
2. It reaches the infected epididymis and surrounding tissue.
3. It enters bacteria and locks onto the DNA-copying enzymes.
4. Without working enzymes, the bacteria cannot unzip or fix their DNA.
5. The DNA breaks apart and the bacteria die.
6. The immune system clears the debris and inflammation fades.

SAFETY WATCH

Tendon rupture: fluoroquinolones can weaken tendons (especially the Achilles at the back of the heel). Stop and call your doctor if you feel sudden heel or leg pain. Risk is higher in people over 60, on steroids, or with a kidney transplant. · Nerve damage (peripheral neuropathy): rarely, tingling, numbness, or burning pain in hands or feet. Stop the drug and tell your doctor immediately. · Worsens myasthenia gravis (a muscle-weakness disease). · Sun sensitivity: wear sunscreen. · Blood sugar swings: can cause low or high blood sugar, especially in diabetics. · Heart rhythm: rarely prolongs the QT interval; tell your doctor if you have heart disease or take other heart drugs.

Trimethoprim-sulfamethoxazole (TMP-SMX) double-strength (160/800 mg) by mouth twice daily for 10 days (alternative for urinary bacteria) · Sulfonamide antibiotic combination

TMP-SMX is a two-drug team that kills urinary-tract bacteria (*E. coli*, *Klebsiella*, *Proteus*) by blocking two steps in a row that bacteria need to make folic acid. Folic acid is essential for building DNA. Sulfamethoxazole blocks the first enzyme, trimethoprim blocks the second. Without folic acid, bacteria cannot copy their DNA or divide, so they die.

1. TMP-SMX is absorbed from the stomach into the bloodstream.
2. It travels to the infected epididymis.
3. Sulfamethoxazole blocks the enzyme that makes the folic acid building block.
4. Trimethoprim blocks the next enzyme that turns that building block into active folic acid.
5. Without folic acid, bacteria cannot make new DNA and they stop multiplying and die.
6. The immune system clears the dead bacteria and swelling improves.

SAFETY WATCH

Allergic reaction: sulfa allergy (rash, hives, or worse) is common; tell your doctor if you have had one before. · Stevens-Johnson syndrome: a rare, life-threatening rash. Stop immediately if you get a new rash, mouth sores, or peeling skin. · Blood cell effects: rarely lowers white cells or platelets; tell your doctor if you bruise easily or get infections. · High potassium: can raise blood potassium, especially in kidney disease or if you take ACE inhibitors or spironolactone. · Sun sensitivity: wear sunscreen.

NSAIDs (e.g. ibuprofen 400-600 mg by mouth every 6-8 hours, or naproxen 500 mg twice daily) · Nonsteroidal anti-inflammatory drug (NSAID)

NSAIDs reduce pain and swelling by blocking an enzyme called COX (cyclooxygenase). COX makes prostaglandins, which are chemical signals that turn on inflammation, make tissue swell, and sensitize nerve endings to hurt more. When you block COX, you make fewer prostaglandins, so swelling and pain both go down.

1. NSAID is absorbed from the stomach into the bloodstream.
2. It travels to the inflamed epididymis and surrounding tissue.
3. It blocks COX enzymes in those tissues.
4. Fewer prostaglandins are made.
5. Swelling decreases, blood vessels tighten a bit, and nerve pain signals quiet down.
6. You feel less pain and the scrotum looks less red and puffy.

SAFETY WATCH

Stomach irritation or ulcers: take with food; stop if you get black stools or stomach pain. · Kidney damage: especially risky if you are dehydrated or already have kidney disease. · Heart risk: long-term high-dose use can raise risk of heart attack or stroke. · Bleeding: NSAIDs thin blood slightly; tell your surgeon if you take them regularly. · Asthma flare: some people with asthma get worse; stop if breathing worsens.

Red flags

- Sudden, severe testicle pain that comes on in minutes — may be testicular torsion (the testicle twisted on its cord and is losing blood supply), a surgical emergency.
- Fever above 101°F (38.3°C) with shaking chills — suggests infection is spreading into the bloodstream or forming an abscess (a pocket of pus).
- Unable to pee or very little urine comes out — may mean severe swelling is blocking the urethra or infection has spread to the bladder and kidneys.
- Testicle feels extremely hard, does not get better with antibiotics after 48 hours, or you see pus draining from the scrotum — may be an abscess that needs draining or a different diagnosis like cancer.
- Nausea, vomiting, or confusion along with testicle pain and fever — signs the infection may be severe (sepsis, meaning bacteria in the blood poisoning the whole body) and affecting your organs.

Nursing priorities

1. Give the first dose of ceftriaxone 500 mg intramuscular injection and doxycycline 100 mg by mouth in the clinic or emergency department before discharge. — Early antibiotics stop bacterial reproduction within hours, reducing tissue damage and preventing abscess formation or spread of sexually transmitted infection to partners.
2. Teach the patient to elevate the scrotum on a rolled towel or wear a snug athletic supporter continuously for the first 48 hours. — Elevation uses gravity to reduce blood pooling and lymph fluid buildup in the inflamed epididymis, lowering swelling pressure on pain nerves and speeding healing.
3. Administer ibuprofen 400–600 mg by mouth with food and teach the patient to take it every 8 hours for at least 3 days. — Nonsteroidal anti-inflammatory drugs block prostaglandins (chemicals that cause swelling and pain) at the injury site, shrinking inflammation faster than pain medicines alone.

4. Check temperature, heart rate, and blood pressure; notify the provider immediately if temperature is above 101°F (38.3°C) or heart rate is above 100. — Fever and fast heart rate signal that bacteria may be entering the bloodstream (bacteremia) or forming an abscess, both requiring hospital admission and intravenous antibiotics.
5. Teach the patient to finish all 10 days of doxycycline even when pain improves, and to avoid sexual contact until both he and his partner complete treatment. — Stopping antibiotics early leaves surviving bacteria that become resistant and cause reinfection; untreated partners reinfect the patient through sex within days.
6. Document the size and firmness of the swollen epididymis by gently palpating (feeling) behind the testicle, and compare both sides. — Tracking swelling size over 48–72 hours shows whether antibiotics are working; growing firmness or size means treatment failure or abscess requiring ultrasound and different antibiotics.
7. Ask about drug allergies before giving ceftriaxone, especially previous severe reactions to penicillin or cephalosporin antibiotics like hives or throat swelling. — Ceftriaxone belongs to the cephalosporin family; patients with severe penicillin allergy have a 2–5% chance of life-threatening anaphylaxis (airway closure and shock) from ceftriaxone.
8. Provide written instructions for the patient to return immediately if pain worsens, the testicle changes color to blue or black, or he cannot urinate. — Worsening pain or color change may mean the spermatic cord twisted (torsion) or blood supply died (infarction); inability to urinate signals urinary obstruction from severe swelling blocking the urethra.

Sources

- CDC Sexually Transmitted Infections Treatment Guidelines 2021
- American Urological Association
- UpToDate Clinical Reference
- Cochrane Library

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