

# Swelling of the prostate

Bacteria invade the prostate and trigger swelling, pain when you pee, pain between the legs, fever, and a tender puffy gland on exam.

---

## THE STORY IN ONE SENTENCE

Bacteria invade the prostate and trigger swelling, pain when you pee, pain between the legs, fever, and a tender puffy gland on exam.

“The prostate gets inflamed—sometimes by bacteria (sudden, needs antibiotics), sometimes from other causes (long-lasting pain, harder to fix).”

## Normal anatomy — the body's job

---

The prostate is a walnut-sized gland that wraps around the urethra (the tube that carries urine out of the bladder). Its job is to make a milky fluid that mixes with sperm during ejaculation to nourish and protect the sperm.

## BODY'S JOB

The prostate adds fluid to semen. This fluid contains enzymes, zinc, and citric acid that keep sperm healthy and help them swim. The gland also has smooth muscle that squeezes to push the fluid into the urethra during ejaculation.

1. The prostate sits just below the bladder, wrapped around the top of the urethra like a donut around a straw.
2. The urethra runs through the center of the prostate, carrying urine from the bladder and semen from the ejaculatory ducts.
3. During ejaculation, the prostate's muscle contracts and squirts its fluid into the urethra, where it mixes with sperm from the testicles.
4. Blood vessels and nerves are packed tightly around the gland, so any swelling in this small space squeezes everything nearby.

## What breaks

---

Bacteria invade the prostate tissue, or inflammation builds up from other causes, and the gland swells, squeezing the urethra and nearby nerves.

### CLINICAL TERM

Acute bacterial prostatitis (sudden infection, usually *E. coli* from the urinary tract or sexually transmitted bacteria like *Neisseria gonorrhoeae* or *Chlamydia trachomatis* in younger men) or chronic prostatitis/chronic pelvic pain syndrome (long-lasting inflammation from prior infection, pelvic floor muscle spasm, nerve sensitization, or unknown causes).

## How the body compensates

---

The body sends white blood cells and extra blood flow to fight infection and wall it off, which causes swelling and pain but also keeps bacteria from spreading into the bloodstream. Early on, vital signs may look normal, but the risk is that infection can break through and cause sepsis or a pus pocket (abscess) in the gland.

1. The immune system floods the prostate with white blood cells to kill bacteria and contains the infection locally.
2. Blood vessels dilate to bring more oxygen and immune fighters to the tissue, causing warmth, redness, and swelling.
3. The body raises its temperature (fever) to make it harder for bacteria to grow and to speed up immune reactions.
4. Pain and urinary symptoms are side effects of the swelling and pressure, not signs of the body failing—they show the immune system is working.
5. If the infection is caught early and treated with antibiotics, the immune response wins and the gland heals.
6. If bacteria are not cleared, the body may wall off a pocket of pus (prostatic abscess), which antibiotics alone cannot reach and may need drainage.
7. If bacteria break through into the bloodstream, sepsis can develop—blood pressure drops, organs begin to fail, and the window to reverse it narrows fast.

## Domino effect

---

1. Bacteria enter the prostate. — *E. coli* from the bladder or gut, or sexually transmitted bacteria like *Neisseria gonorrhoeae* (gonorrhea) or *Chlamydia trachomatis* (chlamydia), travel through the urethra or bloodstream and lodge in the prostate tissue, where they start to multiply.
2. The immune system sends white blood cells to fight the invaders. — White blood cells release chemicals called cytokines that signal inflammation, kill bacteria, and call for backup. This response causes swelling, heat, and pain in the gland.
3. The prostate swells and squeezes the urethra. — The gland wraps around the urethra like a tight cuff. When it swells, the urethra narrows, so urine has to force its way through—causing a weak stream, hesitancy, and a burning pain when you pee.
4. Swelling presses on nearby nerves. — The prostate is packed with nerves that run to the pelvis, lower back, penis, and rectum. Pressure from the swollen gland irritates these nerves, causing deep aching pain between the legs (the perineum), in the lower back, in the testicles, or during ejaculation.
5. The bladder becomes irritable. — Inflammation spreads to the bladder neck and urethra, making the bladder hypersensitive. It sends urgent signals to pee even when it holds only a small amount of urine, so you feel like you need to go all the time.
6. Fever spikes (in acute bacterial prostatitis). — Bacteria release toxins, and the immune system raises the body's thermostat (by releasing pyrogens that act on the hypothalamus in the brain) to create a hotter environment that slows bacterial growth and speeds up immune reactions.
7. The body walls off the infection to stop it from spreading. — Blood clotting proteins and immune cells form a barrier around the infected tissue, trying to keep bacteria from entering the bloodstream. This containment is helpful but also traps pus and can form an abscess (a walled-off pocket of pus) if antibiotics don't clear the bacteria.
8. If untreated, bacteria can break into the bloodstream and cause sepsis. — Once bacteria escape the prostate and flood the blood, they trigger a body-wide inflammatory response. Blood vessels leak, blood pressure drops, and organs (kidneys, lungs, brain) don't get enough oxygen—a life-threatening cascade that requires emergency treatment.

## Symptoms · what the patient feels, and why

---

- Pain or aching in the lower belly, groin, or the area between the scrotum and anus: The prostate sits deep in the pelvis, just below the bladder and in front of the rectum. When it swells up from infection or irritation, it presses on nearby nerves and tissues, triggering pain that can spread through the whole pelvic floor—the hammock of muscles and ligaments at the bottom of the pelvis.

- Pain or burning when urinating: Urine flows through a tube called the urethra (the pee tube) that runs right through the middle of the prostate. When the prostate is swollen, it squeezes the urethra like a tight sleeve around a straw, irritating the lining and making every drop of urine sting as it passes through.
- Needing to pee more often, especially at night, or feeling a sudden strong urge: The swollen prostate presses on the bladder—the stretchy bag that stores urine—so the bladder cannot hold as much as usual and sends 'full' signals to the brain even when it is only partly filled. The irritation also makes the bladder muscles jumpy, so they squeeze without warning.
- Weak urine stream or trouble starting the flow: Because the swollen prostate is clamping down on the urethra from all sides, less room is left for urine to squeeze through. It is like trying to water a garden through a hose that someone is stepping on—the stream comes out slow and dribbles.
- Pain during or after ejaculation (releasing semen): The prostate makes most of the fluid in semen. When it is inflamed, the glands inside are tender and the ducts (tiny tubes that carry fluid) are tight, so the rhythmic squeezing that happens during ejaculation pulls on swollen tissue and hurts.
- Fever, chills, body aches, and feeling very sick all over: When bacteria invade the prostate, the immune system sends white blood cells and chemical messengers called cytokines (alarm proteins) to fight the infection. Those cytokines travel through the bloodstream and reset the brain's thermostat in the hypothalamus (the body's temperature control center), causing fever. The same signals trigger chills, muscle aches, and that heavy, flu-like feeling.
- Prostate feels very tender, swollen, and warm when the doctor gently presses a gloved finger into the rectum (digital rectal exam): The prostate sits against the front wall of the rectum, so a doctor can feel it through that wall. When the prostate is infected or inflamed, extra blood rushes in (making it warm), fluid and immune cells pile up inside (making it puffy), and nerve endings fire pain signals (making it hurt to touch).
- Blood in the urine or semen: Inflamed tissue has fragile, leaky blood vessels. When urine or semen flows through swollen ducts in the prostate, the pressure can break tiny capillaries (the smallest blood vessels), releasing red blood cells that color the fluid pink, red, or rust.

## Focused exam

---

- Tender, boggy (squishy and swollen) prostate on digital rectal exam: When you gently press through the rectal wall, a swollen prostate feels soft, puffy, and hurts—like a water balloon under pressure. This proves the prostate itself is inflamed, not something nearby. In acute bacterial prostatitis, press gently; vigorous massage can push bacteria into the blood and cause sepsis (infection spreading through the whole body).

- Fever  $\geq 38^{\circ}\text{C}$  ( $100.4^{\circ}\text{F}$ ) with chills and body aches: Bacteria in the prostate trigger the hypothalamus (the brain's thermostat) to crank up body temperature to help white blood cells fight harder. Fever plus pain in the pelvis plus trouble peeing is acute bacterial prostatitis until proven otherwise. No fever suggests chronic or non-bacterial types instead.
- Suprapubic tenderness (pain when you press just above the pubic bone): The bladder sits right there. A swollen prostate blocks urine flow, so the bladder stays partly full and stretches. The stretch plus inflammation from backed-up urine makes that spot hurt. This tells you the blockage is real, not just feeling.
- Weak urinary stream, dribbling, or hesitancy (trouble starting the flow): The prostate wraps around the urethra (the tube that carries pee out). When the prostate swells, it squeezes the urethra like a hand choking a garden hose. Less space means weaker flow. The bladder muscle has to squeeze harder, and sometimes it takes a few seconds to overcome the pressure and start.
- Perineal pain (deep ache between the scrotum and anus) that may shoot to the lower back or tip of the penis: The prostate sits in the perineum. Swelling stretches the capsule around the gland and presses on the pudendal nerve (the main nerve serving that area). The brain reads those nerve signals as pain right there and sometimes refers it (sends the feeling) to the lower back or penis tip even though those parts are fine.
- Pain or burning during or after ejaculation: The prostate makes most of the fluid in semen. During orgasm, the prostate contracts to push fluid into the urethra. If the gland is inflamed and infected, that squeeze hurts. Painful ejaculation is a hallmark of prostatitis and separates it from simple urinary infections.

## Diagnostics · every test answers a question

---

- Urinalysis and urine culture with antibiotic sensitivity → Are there bacteria in the urine, and which antibiotic will kill them?
- Prostate-specific antigen (PSA) blood test → Is PSA high because of infection, or could there be cancer hiding underneath?
- Complete blood count (CBC) → Is the body mounting a strong infection response, and is sepsis starting?
- Blood cultures (two sets from different sites) if fever  $\geq 38.3^{\circ}\text{C}$  or patient looks sick → Has bacteria escaped the prostate and entered the bloodstream?
- Transrectal ultrasound or CT pelvis with contrast (only if abscess is suspected) → Is there a pocket of pus (abscess) in the prostate that antibiotics alone cannot reach?
- Post-void residual (PVR) bladder scan → Is the bladder emptying completely, or is urine getting trapped and risking more infection?

## Treatment logic

---

- Fluoroquinolone antibiotic (ciprofloxacin 500 mg twice daily or levofloxacin 500–750 mg once daily) for 4–6 weeks, or trimethoprim-sulfamethoxazole if fluoroquinolone-resistant or contraindicated → Kills the bacteria (usually *E. coli*, *Klebsiella*, or *Enterococcus*) living inside the prostate. Fluoroquinolones penetrate prostate tissue well even though the gland has a protective barrier. As bacteria die, inflammation drops, the prostate shrinks back toward normal size, and pain, fever, and urinary symptoms fade over days to weeks. Long course (4–6 weeks) prevents the infection from coming back as chronic prostatitis.
- Alpha-blocker (tamsulosin 0.4 mg once daily, alfuzosin, or doxazosin) to relax smooth muscle in the prostate and bladder neck → Blocks alpha-1 receptors on smooth muscle cells around the urethra and prostate capsule, making them loosen their grip. This widens the urethra, lets urine flow more easily, and reduces the burning, straining, and hesitancy. Symptoms improve within 2–7 days. Also helps if benign prostatic hyperplasia (BPH) is part of the picture.
- Nonsteroidal anti-inflammatory drug (ibuprofen 400–600 mg every 6–8 hours or naproxen 500 mg twice daily) or acetaminophen 650–1,000 mg every 6 hours for pain and fever → NSAIDs block cyclooxygenase (COX) enzymes that make prostaglandins (chemicals that amplify pain and fever). Less prostaglandin means less pain signal reaching the brain and lower fever. Acetaminophen lowers fever through the hypothalamus but does not reduce inflammation much. Both make the deep pelvic ache and body aches tolerable while antibiotics work.
- Pelvic floor physical therapy, warm sitz baths (sitting in warm water 15–20 minutes 2–3 times daily), and behavior changes (avoid caffeine, alcohol, spicy foods, prolonged sitting, and bicycling until healed) → Warm water increases blood flow to the perineum, relaxes tight muscles, and soothes nerve endings. Physical therapy teaches you to relax the levator ani and other pelvic floor muscles that clench during pain, breaking the pain-spasm-pain cycle. Avoiding bladder irritants (caffeine, alcohol, spice) reduces inflammation signals. These measures lower pain and improve urinary flow over weeks to months.
- Hospital admission with IV fluoroquinolone (ciprofloxacin 400 mg every 12 hours or levofloxacin 750 mg daily) or IV ceftriaxone 1–2 g daily plus IV aminoglycoside (gentamicin or tobramycin), plus IV fluids and sepsis monitoring if fever  $\geq 38.3^{\circ}\text{C}$ , low blood pressure (hypotension), altered mental status, or inability to take pills → Delivers high-dose antibiotics directly into the bloodstream, reaching the prostate and all body tissues fast. IV fluids keep blood pressure up and kidneys flushed. Continuous monitoring catches sepsis (whole-body infection response) early—sepsis can lead to organ failure and death within hours if untreated. Hospital care is lifesaving when infection is severe or spreading.

- Surgical or ultrasound-guided drainage of prostate abscess plus continued IV antibiotics → Physically removes the pocket of pus that antibiotics cannot penetrate. Once the abscess is drained, antibiotics can reach live bacteria in surrounding tissue and finish the job. Drainage drops fever within 24–48 hours and prevents abscess rupture (which can cause life-threatening peritonitis or sepsis).
- Temporary urinary catheter (Foley or suprapubic) if acute urinary retention (cannot pee at all) or post-void residual > 400 mL → Empties the bladder completely, relieving painful bladder stretch and preventing urine from backing up into the kidneys (hydronephrosis). Removes the pool of stagnant urine where bacteria multiply. Immediate relief of retention prevents bladder muscle damage and kidney injury.

## Medications

---

### Ciprofloxacin or levofloxacin · Fluoroquinolone antibiotic

These antibiotics kill bacteria by blocking two machines inside the germ that twist and copy its DNA. Without those machines (called DNA gyrase and topoisomerase IV), the bacteria cannot multiply or fix their genetic instructions, so they die. The antibiotic soaks into the prostate tissue and hunts down the germs causing the swelling.

1. The antibiotic enters the bacterial cell.
2. It locks onto DNA gyrase and topoisomerase IV (the bacteria's DNA-twisting and copying tools).
3. With those tools blocked, the bacteria cannot unwind, copy, or repair their DNA.
4. The bacteria die because they cannot reproduce or maintain themselves.
5. The immune system clears the dead germs, and swelling in the prostate drops as the infection fades.

#### SAFETY WATCH

Can weaken tendons; very rarely, the Achilles tendon (the thick cord at the back of the ankle) can tear, especially in people over sixty or those taking steroid medicine. · May cause nerve pain or tingling (peripheral neuropathy) that can be permanent; stop the drug and call your doctor if you feel new numbness, burning, or pain in hands or feet. · Can trigger confusion, tremors, or mood swings in some people. · May stretch the heart's electrical cycle (QT prolongation), raising the risk of a dangerous heart rhythm; avoid if you already have a long QT or take other QT-stretching drugs. · Can lower blood sugar dangerously in people with diabetes. · Avoid direct sun—can cause severe sunburn (photosensitivity). · Do not take with dairy, calcium, magnesium, aluminum, or iron supplements within two hours; they block absorption.

## Trimethoprim-sulfamethoxazole (TMP-SMX) · Sulfonamide combination antibiotic

This antibiotic is actually two drugs working as a team. Trimethoprim and sulfamethoxazole each block a different step in the bacteria's factory for making folate (a vitamin-like molecule germs need to build DNA). By hitting two steps in a row, the combo stops the bacteria from making new DNA, so they cannot multiply and eventually die.

1. Sulfamethoxazole mimics a building block (para-aminobenzoic acid) that bacteria use to make folate, blocking the first enzyme in the folate factory.
2. Trimethoprim blocks the second enzyme (dihydrofolate reductase) that finishes making active folate.
3. With both steps jammed, the bacteria cannot produce the folate they need to build DNA.
4. Unable to make DNA, the germs stop multiplying and die.
5. The immune system sweeps away dead bacteria, and prostate swelling gradually goes down.

### SAFETY WATCH

Can cause a severe skin rash (Stevens-Johnson syndrome or toxic epidermal necrolysis) that peels the skin; stop immediately and get emergency care if you see a spreading rash, mouth sores, or blisters. · May drop blood counts (white cells, red cells, or platelets); your doctor may check a blood test if you take it for weeks. · Can raise potassium levels, especially in people with kidney disease or those taking ACE inhibitors, ARBs, or potassium-sparing diuretics. · May cause sun sensitivity—use sunscreen. · Avoid if allergic to sulfa drugs.

## Tamsulosin · Alpha-1A blocker

Tamsulosin relaxes the smooth muscle wrapped around the prostate and the neck of the bladder by blocking alpha-1A receptors (tiny switches on muscle cells that tell them to squeeze). When those switches are blocked, the muscle eases up, the urethra (the tube that drains urine) opens wider, and urine flows more easily. This does not kill bacteria or shrink the prostate; it simply makes peeing less difficult while the infection heals.

1. Tamsulosin enters the bloodstream and travels to the prostate and bladder neck.
2. It locks onto alpha-1A receptors on the surface of smooth muscle cells.
3. With the receptors blocked, the muscle cells stop getting the 'squeeze' signal from norepinephrine (a natural messenger).
4. The muscle relaxes, the urethra widens, and urine flows with less straining.

5. Symptoms like weak stream, hesitancy, and urgency improve even while the infection is still being treated.

**SAFETY WATCH**

Can cause dizziness or lightheadedness, especially when standing up, because it can also relax blood vessels slightly (orthostatic low blood pressure (hypotension))—stand slowly. · Rare risk of sudden, floppy iris during cataract surgery (intraoperative floppy iris syndrome); tell your eye surgeon if you take or have taken tamsulosin. · May cause runny nose, headache, or retrograde ejaculation (semen goes backward into the bladder instead of out; not harmful but can be surprising).

**Nonsteroidal anti-inflammatory drugs (NSAIDs): ibuprofen or naproxen · Nonsteroidal anti-inflammatory drug (NSAID)**

NSAIDs block an enzyme called cyclooxygenase (COX) that the body uses to make prostaglandins (chemicals that trigger pain, fever, and swelling). By stopping prostaglandin production, NSAIDs turn down the pain signal and reduce inflammation in the swollen prostate and surrounding tissues.

1. The NSAID enters the bloodstream and reaches inflamed tissue in the prostate and pelvis.
2. It binds to COX-1 and COX-2 enzymes, blocking them.
3. Blocked COX enzymes cannot make prostaglandins.
4. Without prostaglandins, pain signals weaken, swelling drops, and fever (if present) falls.
5. Relief is temporary—the drug does not cure infection or change prostate size.

**SAFETY WATCH**

Can irritate the stomach lining and cause ulcers or bleeding, especially with long use or high doses—take with food. · May raise blood pressure. · Can harm the kidneys, especially in people who are dehydrated, elderly, or already have kidney disease. · Increases risk of heart attack and stroke with long-term use or high doses. · Avoid in the third trimester of pregnancy (can harm the baby's heart and kidneys). · Use the lowest dose for the shortest time needed.

**Acetaminophen · Analgesic and antipyretic (pain reliever and fever reducer)**

Acetaminophen blocks COX enzymes mainly in the brain and spinal cord, reducing the perception of pain and resetting the brain's temperature thermostat to lower fever. It does not reduce swelling much because it works weakly on COX enzymes outside the central nervous system.

1. Acetaminophen is absorbed and crosses into the brain and spinal cord.

2. It inhibits COX enzymes there, lowering prostaglandin levels in the central nervous system.
3. With fewer prostaglandins, pain signals are turned down and the brain's temperature set-point drops.
4. You feel less pain and any fever goes down.
5. The drug does not reduce inflammation in tissues outside the brain.

**SAFETY WATCH**

Overdose damages the liver and can be fatal; never exceed 3,000–4,000 mg per day (check labels—many cold and pain medicines already contain acetaminophen). · Use lower doses if you have liver disease or drink alcohol regularly. · Signs of liver injury include nausea, vomiting, upper belly pain, yellowing skin or eyes (jaundice), and dark urine—seek emergency care immediately.

## Red flags

---

- High fever (over 101°F or 38.3°C), shaking chills, confusion, very low blood pressure, or fast heart rate—signs the infection may have spread into the bloodstream (sepsis, a life-threatening emergency)
- Complete inability to urinate even though the bladder feels full and painful—the swollen prostate may be totally blocking the urethra, and the bladder can burst or kidneys can back up if not drained urgently
- Sudden severe pain in the lower back or belly with nausea and vomiting—may signal the infection has climbed up to the kidneys (pyelonephritis) or an abscess (a pocket of pus) is forming in the prostate

## Nursing priorities

---

1. Check vital signs including temperature, heart rate, and blood pressure every 4 hours — Fever above 100.4°F plus fast heart rate or low blood pressure are early signs of sepsis (blood poisoning), which can progress quickly and requires immediate IV antibiotics and fluids
2. Ask the patient to try urinating and measure how much urine comes out each time — The swollen prostate can block the urethra causing urinary retention (inability to empty the bladder), which damages the kidneys and bladder if not caught early
3. Give the prescribed fluoroquinolone antibiotic on time without missing doses — Bacteria causing acute prostatitis can spread into the bloodstream within hours, and antibiotics must reach high enough levels in the prostate tissue to kill the germs and prevent sepsis

4. Teach the patient to apply a warm heating pad or take warm sitz baths to the perineum for 15-20 minutes three times daily — Heat increases blood flow to the inflamed prostate and relaxes the pelvic floor muscles, reducing pain and muscle spasm that make urination difficult
5. Give alpha-blocker medication like tamsulosin at bedtime as prescribed — Alpha-blockers relax the smooth muscle fibers around the prostate and bladder neck, making it easier for urine to flow past the swollen prostate
6. Encourage the patient to drink 8-10 glasses of water daily unless restricted — Extra fluids flush bacteria out of the urinary tract and prevent urine from becoming concentrated, which can irritate the already inflamed prostate and urethra
7. Watch for worsening symptoms like inability to urinate, increased confusion, or shaking chills and notify the provider immediately — These signs mean the infection is overwhelming the body or causing complete bladder blockage, requiring emergency catheter placement or hospital admission for IV therapy
8. Teach the patient to avoid prolonged sitting, caffeine, alcohol, and spicy foods during treatment — Sitting puts direct pressure on the inflamed prostate increasing pain, while caffeine and spicy foods irritate the bladder and prostate making urinary symptoms worse

## Sources

---

- AUA (American Urological Association) Prostatitis Guideline 2021
- CDC (Centers for Disease Control and Prevention) sexually transmitted and genitourinary infections
- IDSA (Infectious Diseases Society of America) urinary tract infection guidelines
- UpToDate clinical decision support (peer-reviewed synthesis)

Last reviewed: 2026-07-07