Testicular Cancer

A plain-English guide for you and your family

WHAT IS HAPPENING

The testicles hang in the scrotum and do two big jobs: they make sperm so a man can have children, and they pump out testosterone (the hormone that builds muscle, deepens the voice, and drives sex drive). Most of the time, a testicle feels smooth and slightly squishy, like a peeled hard-boiled egg. Testicular cancer happens when cells inside the testicle start copying themselves wildly and pile up into a lump. The biggest risk is a testicle that never dropped into the scrotum before birth—it stayed stuck up in the belly where it is warmer, and that extra heat raises cancer risk. Other risks include a family history of testicular cancer, already having had cancer in the other testicle, and being between 15 and 35 years old (the peak age window). The first sign is almost always a hard, painless lump in one testicle—painless is the key word, because infections and twists hurt a lot, but cancer usually does not. Some men notice a dull ache or a heavy, pulling-down feeling in the scrotum. If the tumor makes a hormone called hCG (human chorionic gonadotropin, the pregnancy hormone), it can trick the body into growing breast tissue, so the man notices his chest getting tender or puffy. None of this is random. Every clue—the lump, the heaviness, the chest changes—flows backward from one upstream problem: a testicle turning into cancer. The good news is testicular cancer is one of the most curable cancers we know, especially when we catch it early. Treatment starts with surgery to take out the whole testicle (that stops the source), then blood tests and scans tell us if any cancer cells escaped, and chemo or radiation mop up anything left behind.

What you might feel

- A hard lump or swelling in one testicle
- A heavy or dragging feeling in the scrotum
- Dull ache in the lower belly or groin
- The lump does not shine light through (does not transilluminate)
- Breast tenderness or growth (gynecomastia)
- Back pain that will not go away
- Cough or shortness of breath

- Sudden sharp pain in the testicle

Call the doctor right away if...

- A hard, painless lump in the testicle that does not go away
- Breast swelling or tenderness in a young man
- Back pain that lasts more than a few weeks without injury
- Coughing up blood or trouble breathing
- Sudden severe testicular pain with a known mass

What the care team will do

- Arrange urgent scrotal ultrasound with Doppler within 24 hours of presentation
- Draw blood for tumor markers AFP, hCG, and LDH before any surgery or treatment
- Provide sperm banking referral and education before orchiectomy or chemotherapy starts
- Teach patient that the surgeon will remove the testicle through a groin incision, not through the scrotum
- Assess for signs of tumor lysis syndrome if starting chemotherapy, including checking potassium, phosphorus, uric acid, and calcium levels
- Monitor pulmonary function and oxygen saturation closely during bleomycin administration
- Schedule and reinforce surveillance imaging and tumor marker follow-up every 1 to 3 months for the first year
- Provide emotional support and mental health referral for young men facing cancer and fertility concerns

Medicines you may be given — and why

Cisplatin

Cisplatin is a heavy metal drug that slips into fast-growing cancer cells and twists their DNA strands together so tightly that the cell cannot copy itself and dies. Testicular cancer cells multiply very quickly, so cisplatin hits them hard.

Etoposide

Etoposide blocks an enzyme (topoisomerase II, the molecular scissors that cut and re-glue DNA so it can unwind and copy itself) inside cancer cells. Without this enzyme, the DNA strands break and cannot be repaired, and the cancer cell dies. Etoposide is always given with cisplatin and bleomycin in the BEP regimen (the standard three-drug combination) for testicular cancer.

Bleomycin

Bleomycin is a drug (originally made by the bacterium Streptomyces verticillus) that cuts DNA strands inside cancer cells. The breaks pile up faster than the cell can fix them, and the cell dies. Bleomycin is the 'B' in the BEP regimen for testicular cancer.

Carboplatin

Carboplatin is a platinum drug (chemically similar to cisplatin but gentler on the kidneys and nerves) that cross-links DNA strands inside cancer cells, stopping them from dividing. In testicular cancer, one dose of carboplatin after surgery is sometimes used instead of radiation or observation in stage I seminoma (cancer that has not spread beyond the testicle) to lower the chance of the cancer coming back.

Where this information comes from

- NCCN Clinical Practice Guidelines in Oncology: Testicular Cancer 2024
- American Cancer Society
- American Urological Association
- Journal of Clinical Oncology

Last reviewed: 2026-07-07