

Breast Cancer

A lump in the breast that doesn't hurt is the first clue—find it early, figure out the type (hormone-fed, HER2-driven, or triple-negative), and pick the right treatment, because the type decides if the patient lives.

THE ONE-LINE TRUTH

Breast cancer survival depends on catching it early and knowing the exact type, because each type responds to different treatments.

The chain — how it unfolds

1. A painless, hard lump appears in the breast. — why: One cell starts dividing out of control and forms a mass. It doesn't hurt because early tumors don't press on nerves—they just push normal tissue aside. The lump feels firm or hard because cancer cells pack tightly and make extra collagen (desmoplastic reaction), unlike soft, normal breast fat.
2. The skin above the lump dimples or puckers (peau d'orange). — why: As the tumor grows, it invades the Cooper ligaments (fibrous bands that hold the breast shape). Pulling on those ligaments makes the skin dimple inward. If cancer cells clog the lymph channels in the skin, fluid backs up and the skin looks like an orange peel (peau d'orange)—this is inflammatory breast cancer, a fast, aggressive type.
3. The nipple inverts, flattens, or leaks bloody or clear fluid. — why: Cancer growing in or near the ducts pulls the nipple inward (retraction). If the tumor erodes into a duct, blood or serous fluid leaks out. Paget disease of the nipple (cancer cells in the nipple skin) causes a red, scaly rash that looks like eczema but doesn't heal.
4. Lymph nodes under the arm swell and feel firm. — why: Cancer cells travel through lymph vessels into the axillary (armpit) lymph nodes. The nodes swell as they fill with cancer, trying to trap it before it spreads further. A swollen, hard, fixed (stuck-in-place) node is a red flag that cancer has left the breast.
5. Bone pain or a fracture happens without much trauma (pathologic fracture). — why: Cancer cells that reach the bones (usually spine, ribs, pelvis, femur) release signals that wake up osteoclasts (bone-eating cells). The osteoclasts dissolve bone to release calcium, which the cancer uses to grow. The bone becomes weak and brittle, so it breaks from normal activity. High calcium in the blood (hypercalcemia) makes the patient tired, confused, and constipated.

6. Shortness of breath or a dry cough that won't go away. — why: Cancer cells lodge in the tiny blood vessels of the lungs and grow into nodules. These nodules crowd out normal lung tissue, so less oxygen gets into the blood. Fluid can build up around the lung (malignant pleural a fluid collection (effusion)), pressing on the lung and making it collapse partially.
7. Right-sided belly pain, yellowing of the skin and eyes (jaundice) (yellow skin and eyes), or confusion. — why: Cancer spreads to the liver through the bloodstream. Liver metastases block bile ducts, so bilirubin (a yellow waste product) backs up into the blood, turning the skin and eyes yellow. The liver can't clean toxins from the blood, so ammonia builds up and causes confusion (hepatic encephalopathy). Loss of liver function is often fatal.
8. Headache, seizures, weakness on one side, or personality changes. — why: Cancer cells cross the blood-brain barrier and grow in the brain. Brain metastases press on brain tissue, causing swelling (edema) and high pressure inside the skull. Depending on the location, the patient may have headaches, seizures, one-sided weakness, vision problems, or changes in thinking and behavior. Brain mets are a late, life-threatening complication.

Spot it — what you see, and why

- A new lump or thickening in one breast or underarm: Cancer cells grow in a clump and form a mass that feels different from normal breast tissue. The lump is often hard, has uneven edges, and does not move easily when you push it.
- One breast becomes larger or changes shape: The tumor takes up space and pulls on nearby tissue, making the breast look different in size or shape. Swelling can also happen if cancer blocks lymph vessels (tiny tubes that drain fluid away).
- Dimpling, puckering, or skin that looks like an orange peel: Cancer cells pull on the ligaments (stretchy bands) that hold the breast skin in place, making the skin pull inward or look bumpy. When lymph fluid cannot drain, the skin may swell and the pores become obvious, like the surface of an orange.
- Nipple turns inward or changes position: The tumor pulls on the ducts (tiny milk tubes) or other tissue behind the nipple, causing the nipple to retract (pull back inside) or point in a new direction.
- Clear or bloody fluid leaking from the nipple without squeezing: Cancer growing inside a duct can break open tiny blood vessels or make cells produce abnormal fluid that leaks out on its own. Normal discharge is usually milky or clear and only comes when you squeeze.
- Redness, scaliness, or thickening of the nipple or breast skin: Some breast cancers (like inflammatory breast cancer) block the lymph vessels in the skin, causing swelling, redness, and warmth—like an infection but without fever. Other cancers (like Paget disease) grow in the nipple skin itself, making it red, crusty, or scaly.

Red flags — act now

- A hard lump that does not move and has irregular edges
- Skin dimpling, puckering, or orange-peel texture on the breast
- Nipple discharge that is bloody or clear and comes out on its own
- Sudden redness, warmth, and swelling of the breast (inflammatory breast cancer)
- Nipple turning inward or a new change in breast size or shape that does not go away

Treat it — in this order

1. Lumpectomy (remove lump only) plus radiation OR mastectomy (remove whole breast) → Removes the main tumor before cancer cells multiply and spread. Radiation after lumpectomy kills leftover microscopic cancer cells in the breast tissue that surgery cannot see.
2. Sentinel lymph node biopsy or axillary lymph node dissection → Removes lymph nodes under the arm to check if cancer has spread there. Tells us the stage and whether we need more chemotherapy or radiation to the armpit area.
3. Hormone therapy: tamoxifen (premenopausal) or aromatase inhibitor like letrozole (postmenopausal) if ER or PR positive → Blocks estrogen from attaching to cancer cells, so they stop getting the signal to grow and divide. Given for 5 to 10 years to prevent the cancer from coming back.
4. HER2-targeted therapy: trastuzumab plus pertuzumab, often with chemotherapy, if HER2 positive → Blocks the HER2 protein on cancer cells, cutting off the growth signal that makes them divide quickly. Shrinks aggressive tumors and improves survival.
5. Chemotherapy (usually doxorubicin and cyclophosphamide, then paclitaxel) plus pembrolizumab if triple-negative breast cancer → Chemotherapy poisons rapidly dividing cancer cells. Pembrolizumab is an immunotherapy drug that helps the immune system recognize and attack cancer cells.

Your top priorities at the bedside

1. Assess bilateral breasts, lymph nodes under arms and above collarbones, and document size, location, and characteristics of any lumps using clock-face method and centimeters — why: Lymph node involvement (cancer spread to nodes) changes staging from early to advanced and determines whether sentinel node biopsy (remove 1-3 nodes) or axillary dissection (remove 10-40 nodes) is needed, and accurate documentation helps surgeons plan incision location

2. Monitor for signs of inflammatory breast cancer: breast warmth, redness covering one-third or more of breast, peau d'orange (orange-peel skin dimpling), and rapid onset over weeks, and escalate immediately if present — why: Inflammatory breast cancer blocks dermal lymphatics (tiny drainage vessels in skin) causing fluid backup and skin changes, grows fast with high risk of metastasis (spread), and needs urgent chemotherapy first instead of surgery, so delay worsens survival
3. Obtain complete medication history including hormone replacement therapy, oral contraceptives, and herbal supplements, and note duration of use — why: Estrogen exposure from hormones stimulates growth of ER-positive (estrogen-receptor-positive) tumors, must be stopped before hormone therapy like tamoxifen works, and some supplements like black cohosh interfere with treatment effectiveness