

Pheochromocytoma

A plain-English guide for you and your family

WHAT IS HAPPENING

Inside each adrenal gland—sitting on top of your kidneys like little hats—lives a cluster of chromaffin cells. Their normal job is to make adrenaline (epinephrine) and noradrenaline (norepinephrine) when you are stressed or scared, giving you a quick burst of energy to run or fight. In a pheochromocytoma, those cells turn into a tumor and start dumping those chemicals into your blood in huge, uncontrolled surges—even when you are calm. Each surge makes your heart pound, your blood pressure spike, your skin pour sweat, and your hands shake. Between surges you might feel fine, or the tumor might leak a steady stream that keeps your blood pressure high all the time. Most people get one tumor by chance, but about 1 in 3 are born with a gene change (like MEN2, von Hippel-Lindau, or NF1) that makes these tumors run in the family. The only cure is surgery to remove the tumor, but you must take blocking medicines first to stop the adrenaline surges—otherwise the surgery itself can trigger a life-threatening blood-pressure crisis. Once the tumor is out and the adrenaline tap is shut off, all the symptoms melt away.

What you might feel

- Sudden episodes of pounding headache
- Heavy sweating that comes in waves
- Fast, pounding heartbeat (palpitations)
- Sudden spikes in blood pressure (hypertensive crisis)
- Pale skin during an attack
- Shaking or tremor
- A family history of pheochromocytoma or related tumors
- Finding a lump (mass) on the adrenal gland by accident on a scan (adrenal incidentaloma)

Call the doctor right away if...

- Blood pressure spiking suddenly to dangerously high levels (hypertensive crisis), which can cause stroke or heart attack

- Chest pain or trouble breathing during an attack, suggesting the heart is being overworked
- Severe headache with confusion, vision changes, or weakness, which can mean bleeding in the brain from very high pressure
- Episodes triggered by pressing on the belly, surgery, or certain medicines (beta blockers alone), which can provoke a life-threatening surge

What the care team will do

- Monitor blood pressure every 15 to 30 minutes during with high blood pressure (hypertensive) episodes and notify the provider immediately if systolic pressure goes above 180 or diastolic above 120.
- Verify that the patient is on alpha-blocker medication like phenoxybenzamine or doxazosin for at least 7 to 14 days before any surgery is scheduled, and confirm beta-blockers were started only after alpha-blockade.
- Keep the patient in a calm, quiet environment and avoid sudden position changes, abdominal examining by touch (palpation), or any procedure that puts pressure on the abdomen.
- Administer IV normal saline at the rate ordered (often 2 to 3 liters over 24 hours) before surgery and continue liberal fluids postoperatively for at least 48 hours.
- Monitor continuous cardiac telemetry (heart rhythm monitor) and watch for arrhythmias like atrial fibrillation (an irregular, quivering heartbeat), ventricular a fast heart rate (tachycardia), or premature ventricular contractions.
- Check blood glucose every 4 to 6 hours and treat high blood sugar (hyperglycemia) as ordered, knowing that glucose levels may drop suddenly after tumor removal.
- Teach the patient to avoid tyramine-rich foods like aged cheese, cured meats, and red wine, and to tell all providers about this diagnosis before any procedure or new medication.
- Coordinate genetic counseling and testing for hereditary syndromes like MEN2, von Hippel-Lindau, NF1, and SDH mutations, and document family history for screening recommendations.

Medicines you may be given — and why

Phenoxybenzamine

Blocks alpha receptors (tiny switches on blood vessel walls that tighten the vessel when hit by adrenaline or noradrenaline). By sitting on those switches, it stops the tumor's flood of catecholamines from squeezing blood vessels shut, so blood pressure stays down and blood flow stays smooth.

Doxazosin

Blocks only alpha-1 receptors (the switches on blood vessel muscle that tighten the vessel). By covering those switches, it stops the tumor's adrenaline and noradrenaline from spiking blood pressure, but it leaves alpha-2 receptors alone so some feedback brakes stay on.

Propranolol or metoprolol (beta blocker)

Blocks beta receptors on the heart (beta-1) and sometimes the lungs and blood vessels (beta-2 if non-selective). This slows the heart rate and cuts the force of each heartbeat, calming the pounding and racing caused by the tumor's catecholamine flood. **MUST** be started only **AFTER** alpha blockade is solid.

Amlodipine or nifedipine (calcium channel blocker)

Blocks calcium channels in the smooth muscle of blood vessel walls. Calcium is the key that lets muscle cells squeeze; blocking it keeps the vessels relaxed. Used when alpha and beta blockers alone do not control blood pressure swings.

Intravenous normal saline (liberal fluids and salt)

Refills the bloodstream with salt water. The tumor's chronic high catecholamines squeezed blood vessels so hard that total blood volume shrank (the body sensed high pressure and dumped fluid). Alpha blockade relaxes vessels, and the body needs extra volume to fill the newly opened space and avoid a pressure crash during surgery.

Where this information comes from

- Endocrine Society Clinical Practice Guideline on Pheochromocytoma and Paraganglioma 2014
- National Comprehensive Cancer Network (NCCN) Neuroendocrine and Adrenal Tumors guideline
- UpToDate Clinical Overview of Pheochromocytoma
- American Heart Association (AHA) on Secondary Hypertension

Last reviewed: 2026-07-07