

Ovarian Torsion

Ovarian torsion means the ovary spun on the ligaments that hold it in place, cutting off its own blood supply—like twisting a garden hose until water stops flowing.

THE ONE-LINE TRUTH

The ovary twists on its own stalk, kinking its blood vessels and starving itself of oxygen.

The chain — how it unfolds

1. A cyst or other mass makes the ovary heavier, and it rotates on the infundibulopelvic ligament. — why: The added weight (usually a cyst >5 cm) shifts the ovary's center of gravity, so when you move or stand, the ovary flips over on its stalk like a keychain spinning on a lanyard.
2. The ovarian vein kinks first because it has thin walls and low pressure; blood flows in but can't drain out. — why: Arteries have thick, muscular walls and high pressure, so they stay open longer; veins collapse easily under any twist, so venous outflow stops while arterial inflow continues.
3. Trapped blood swells the ovary, turning it dark purple and stretching the capsule; you feel sudden, severe pain on one side of your pelvis. — why: The ovary's outer capsule (a tight fibrous shell) is packed with pain nerves; as blood pools inside, the capsule stretches, firing maximal pain signals up the pelvic nerves to your spinal cord and brain.
4. Pain may come and go if the twist is incomplete or the ovary briefly untwists, then twists again (intermittent torsion). — why: A partial twist kinks the vein but leaves the artery partly open; when you move, the ovary may rotate back, blood drains, swelling drops, and pain eases—then it twists again and pain roars back.
5. Stretching and starved blood flow (ischemia) trigger the vagus nerve, which signals the medulla (the vomiting center in your brainstem), causing nausea and vomiting. — why: The vagus nerve monitors your gut and pelvis for distress; when it senses severe pain or dying tissue, it fires signals to the medulla's chemoreceptor trigger zone, forcing you to vomit as a warning to seek help.

6. As the twist tightens or hours pass, the ovarian artery kinks shut; oxygen stops, cells switch to anaerobic metabolism, lactic acid builds, and tissue begins to die. — why: Without oxygen, mitochondria (the cell's power plants) can't make ATP (energy), so cells burn sugar without oxygen (anaerobic glycolysis), producing lactic acid; acid poisons the cells, membranes break, and tissue turns black (necrosis).
7. After 6–12 hours of starved blood flow (ischemia), dying cells spill their contents, white blood cells flood in, and fever starts; bacteria from the gut or bloodstream can seed the dead tissue, causing infection (peritonitis). — why: Dead cells release damage signals (cytokines like IL-1 and TNF- α) that call neutrophils and macrophages; the hypothalamus raises body temperature (fever) to speed immune work, and the bone marrow dumps white cells into the blood (leukocytosis).
8. If the ovary is untwisted in time (ideally within 4–8 hours), arterial flow returns, oxygen floods back, swelling drops, and the ovary can recover; if too late, the ovary is removed to prevent sepsis and the patient may lose that ovary's eggs and hormone production forever. — why: Untwisting the ligament opens the artery and vein again, reperfusion (blood flow returning) delivers oxygen, cells restart aerobic metabolism, and the ovary heals—but if tissue death (necrosis) is complete, the tissue is dead and must be cut out to stop infection from spreading into the bloodstream (sepsis) or belly (peritonitis).

Spot it — what you see, and why

- Sudden, sharp pain on one side of the lower belly: The ovary has twisted on its stalk (the ovarian ligament and blood vessels), cutting off the blood supply. The tissue stretches and signals pain because it is not getting enough oxygen — like a cramp from a muscle being squeezed too tight.
- Pain that comes and goes in waves, then becomes constant: At first, the ovary may twist and then untwist on its own, causing pain that stops and starts. Over time, if it stays twisted, the tissue stays starved of blood and the pain becomes steady.
- A lump or mass you can feel in the lower belly or pelvis: The twisted ovary swells because blood and fluid back up inside it. The swollen ovary becomes large enough to press outward and be felt through the belly wall or during a pelvic exam.
- Severe nausea and vomiting: The ovary shares nerve pathways with the stomach and gut. When the ovary is in distress, those nerves fire signals that trigger the vomiting center in the brainstem (the lower part of the brain that controls automatic body functions).
- Fever (in some cases): If the ovary has been twisted for hours or days, the trapped tissue may start to die (necrosis). Dead tissue releases chemicals that the immune system reads as danger, raising body temperature to fight what it thinks is an infection.

- Pain that gets worse with movement or activity: Moving the body shifts the position of the twisted ovary and tugs on the already-stretched blood vessels and ligaments, sending fresh pain signals to the brain.

Red flags — act now

- Sudden, severe one-sided lower belly pain in a girl or young woman — do not assume it is a kidney stone, urinary infection, or pelvic infection without imaging the ovaries.
- Pain plus vomiting that does not stop — the ovary may be dying and needs surgery within hours.
- Fever with one-sided belly pain and a known ovarian cyst or mass — the tissue may already be dead (necrotic) and at risk for infection or rupture.

Treat it — in this order

1. Emergency gynecology consultation and urgent laparoscopy with detorsion (untwisting the ovary) → Untwisting the ovary opens the kinked blood vessels and lets oxygenated blood flow back in. This stops starved blood flow (ischemia), reduces swelling, and saves the ovary. Even ovaries that look dark purple or black during surgery often recover full function when blood returns within 4–8 hours. The fallopian tube is usually detorsed at the same time.
2. IV crystalloid fluids (normal saline or lactated Ringer's) and anti-nausea medication (ondansetron 4–8 mg IV or metoclopramide 10 mg IV) → Fluids replace volume lost from vomiting and keep blood pressure stable so the heart can pump blood to the brain, kidneys, and other organs while waiting for surgery. Anti-nausea drugs block serotonin or dopamine receptors in the vomiting center of the brainstem, stopping the reflex triggered by the twisted ovary.
3. IV opioid pain medication (morphine 2–4 mg IV or hydromorphone 0.5–1 mg IV, repeated as needed) → Opioids bind to receptors in the spinal cord and brain, blocking the severe visceral pain signals coming from the blood-starved (ischemic) ovary. This calms the patient, lowers the stress response (which can worsen starved blood flow (ischemia) by raising cortisol and adrenaline), and makes it easier to examine the belly and transport to the OR.
4. Cystectomy (removing the cyst) or drainage of the mass that caused the ovary to twist, performed during the same surgery → Taking out the cyst or mass shrinks the ovary back to normal size and removes the mechanical reason it twisted in the first place. A smaller, lighter ovary is much less likely to twist again.

5. Oophoropexy (stitching the ovary to the pelvic sidewall) if the surgeon thinks torsion will happen again → Anchoring the ovary with a few sutures stops it from spinning freely on its ligament, lowering the risk of future torsion on the same side or the opposite side (if both ovaries are fixed). This is especially helpful in patients with long, floppy ligaments or a history of torsion before.

Your top priorities at the bedside

1. Establish large-bore IV access and start normal saline fluid bolus at 500 to 1000 milliliters over one hour — why: Pain and vomiting cause dehydration that drops blood pressure, and the body needs good blood flow to all organs while the twisted ovary is already starving for oxygen
2. Give IV opioid pain medicine like morphine 4 to 10 milligrams or hydromorphone 0.5 to 2 milligrams and measure pain level every 15 minutes — why: Ovarian torsion causes severe pain from stretched nerves and dying tissue, and untreated pain raises heart rate and blood pressure which wastes energy the body needs for healing
3. Administer anti-nausea medicine like ondansetron 4 milligrams IV or metoclopramide 10 milligrams IV — why: Vomiting worsens dehydration and prevents the stomach from absorbing any medicines given by mouth, and repeated vomiting can tear the esophagus