

Acute Cholangitis

A plain-English guide for you and your family

WHAT IS HAPPENING

Your liver makes bile every day — a yellow-green fluid that helps digest fats and carries away waste. That bile flows down a tube called the common bile duct into your small intestine. Normally bile keeps moving, so bacteria from the intestine cannot swim upstream and grow. But if a gallstone gets stuck in the duct — or scar tissue pinches it shut, or a tumor blocks it — bile stops flowing and backs up like water behind a dam. Bacteria from the intestine climb up into that stagnant bile and multiply. Pressure builds behind the blockage, and infected bile gets pushed backward into tiny veins in your liver and then into your bloodstream. That is why you spike a fever, turn yellow (jaundice, because the waste pigment bilirubin cannot drain and spills into your skin and eyes), and feel sharp pain under your right ribs where the liver and duct are swelling. If doctors do not open the duct fast to drain the infected bile, bacteria keep flooding your blood and your blood pressure can crash — that is septic shock, when organs start to fail because they are not getting enough oxygen. The key idea: this is not just an infection you can treat with pills alone. The blocked duct is like a walled-off pocket of pus that must be drained, or the source keeps pumping bacteria into your body. Teams use a camera scope through your mouth (ERCP) or a needle through your skin to open the duct, drop the pressure, and let the infection clear.

What you might feel

- Fever (often $>38.5^{\circ}\text{C}$ / 101.3°F) with shaking chills (rigors)
- Right upper quadrant (RUQ) abdominal pain
- Yellowing of the skin and eyes (Jaundice) (yellowing of skin and whites of the eyes)
- Dark urine (tea- or cola-colored)
- Pale or clay-colored stool
- Nausea and vomiting
- Low blood pressure (Hypotension) (low blood pressure, systolic <90 mm Hg)
- Altered mental status or confusion
- A fast heart rate (Tachycardia) (fast heart rate, often >100 beats per minute)

- Itching (Pruritus) (itching skin)

Call the doctor right away if...

- Low blood pressure (Hypotension) (systolic blood pressure <90 mm Hg) or signs of septic shock — bacteria are overwhelming your circulation; needs immediate ICU care, IV fluids, antibiotics, and urgent drainage of the blocked duct.
- Altered mental status or confusion — the brain isn't getting enough oxygen, or toxins are building up; part of Reynolds pentad (five-sign pattern) and warns of high death risk without fast treatment.
- Acute kidney injury (creatinine rising, urine output dropping) — sepsis and low blood pressure starve the kidneys of blood; signals that organs are starting to fail.
- Persistent fever or rising white blood cell count despite antibiotics — means the bile duct is still blocked and acting like a sealed abscess full of germs; drainage (ERCP or a needle through the skin) is essential.
- Impaired blood clotting (Coagulopathy) (INR elevated, platelet count low) — the sick liver can't make clotting proteins well, and sepsis uses up platelets; raises bleeding risk during procedures and means severe disease.

What the care team will do

- Establish large-bore intravenous access (18-gauge or larger) and infuse 1 to 2 liters of normal saline or lactated Ringer solution over the first hour, then titrate (adjust) rate to keep systolic blood pressure ≥ 90 mm Hg and urine output ≥ 0.5 mL per kilogram per hour.
- Administer broad-spectrum intravenous antibiotics within one hour of recognition (common regimens: piperacillin-tazobactam 3.375 to 4.5 grams every 6 hours, OR ceftriaxone 1 to 2 grams every 24 hours PLUS metronidazole 500 milligrams every 8 hours).
- Monitor blood pressure, heart rate, respiratory rate, temperature, and oxygen saturation every 15 to 30 minutes initially, then every 1 to 2 hours once stable; immediately notify the physician if systolic blood pressure falls below 90 mm Hg or mental status changes.
- Keep the patient NPO (nothing by mouth) and place a nasogastric tube if the patient is vomiting, to decompress (empty) the stomach and prevent aspiration (breathing in) of stomach contents into the lungs.
- Draw blood for complete blood count (white cell count), comprehensive metabolic panel (liver enzymes and bilirubin), lactate (a waste product that rises when tissues are starved of oxygen), and blood cultures (two sets from separate sites) before giving the first antibiotic dose.

- Measure and record urine output every hour using a Foley catheter (bladder drainage tube); target output ≥ 0.5 milliliters per kilogram per hour (for a 70-kilogram patient, that is ≥ 35 milliliters per hour).
- Position the patient with the head of the bed elevated 30 to 45 degrees unless blood pressure is critically low, and turn every 2 hours if the patient cannot reposition independently.
- Prepare for urgent biliary drainage within 24 hours (or immediately if the patient has septic shock or altered mental status) by confirming that the gastroenterology or surgery team is notified, consent is obtained, and pre-procedure checklist (coagulation studies, antibiotic timing, IV access) is complete.

Medicines you may be given — and why

Broad-spectrum intravenous antibiotics

Bacteria trapped inside a blocked bile duct multiply fast and release toxins into the bloodstream, causing sepsis (infection spreads through the whole body and blood pressure drops dangerously). Antibiotics are powerful germ-killers given through an IV line so they reach the blood and liver within minutes. We use combinations that kill the three main types of bacteria found in infected bile: gram-negative rods like *E. coli* and *Klebsiella* (shaped like tiny sticks, very common in gut and bile), gram-positive cocci like *Enterococcus* (round bacteria), and anaerobes like *Bacteroides* (bacteria that live without oxygen). Standard first choices are piperacillin-tazobactam (a penicillin plus a helper that stops bacteria from breaking down the penicillin) or a cephalosporin like ceftriaxone or cefepime combined with metronidazole (which specifically kills anaerobes). These drugs punch holes in bacterial cell walls or stop bacteria from building new walls, so the germs burst and die. Antibiotics buy time and stop sepsis from getting worse, but they cannot cure cholangitis alone—the bile duct **MUST** be drained because antibiotics cannot reach high enough levels inside a blocked, pus-filled duct.

Intravenous crystalloid fluids (normal saline or lactated Ringer's)

Sepsis makes blood vessels leaky—fluid seeps out of the bloodstream into tissues, so blood volume drops and blood pressure falls (septic shock). The heart pumps faster but there is not enough fluid left in the vessels to carry oxygen to organs. Kidneys, brain, and liver start to fail. IV crystalloid fluids are sterile saltwater solutions given rapidly through a large IV catheter to refill the bloodstream. Normal saline is water with the same salt concentration as blood; lactated Ringer's also contains potassium, calcium, and lactate (a buffer that helps correct blood acid buildup). We give 30 milliliters per kilogram of body weight in the first 3 hours (for a 70 kg adult, that is about 2 liters)—sometimes more if blood pressure stays low. This fluid pushes blood pressure back up, restarts urine flow (a sign kidneys are working again), clears

confusion (brain gets oxygen), and keeps organs alive until antibiotics and drainage fix the infection.

Biliary drainage via ERCP or percutaneous transhepatic cholangiography (PTC)

A blocked bile duct full of infected bile and pus acts like a closed abscess—antibiotics cannot clear the infection until the blockage is removed and bile drains out. ERCP (endoscopic retrograde cholangiopancreatography) is the first-choice procedure: a flexible camera scope goes through the mouth, down the esophagus and stomach, into the duodenum (first part of the small intestine) where the bile duct opens. The doctor injects dye into the duct to see the blockage on X-ray, then uses tiny tools passed through the scope to remove gallstones, cut open a narrowed duct opening (sphincterotomy), or place a plastic or metal stent (small tube) to hold the duct open so bile flows into the intestine. ERCP should happen within 24 hours of diagnosis; if the patient has septic shock or altered mental status (confusion, sleepiness), drainage must happen within 6 to 12 hours—this is a true emergency. If ERCP fails or cannot be done (twisted anatomy, tumor blocking access, or unstable patient who cannot tolerate sedation for the scope), a radiologist performs percutaneous transhepatic cholangiography (PTC): using ultrasound or CT guidance, they push a needle through the skin into the liver and into a bile duct, then thread a drain catheter that carries infected bile out of the body into a collection bag. Once bile drains, infection pressure drops fast, bacteria counts fall, fever breaks, and antibiotics can finish the job. Surgery (open or laparoscopic bile duct exploration) is a backup if both ERCP and PTC fail, but it carries higher risk in a septic patient.

Vasopressors (norepinephrine, first-line)

When septic shock is so severe that IV fluids alone do not raise blood pressure enough (mean arterial pressure still below 65 mm Hg after 30 mL/kg fluids), vasopressors are added. These are powerful drugs that squeeze blood vessels to push blood pressure up. Norepinephrine is the first-choice vasopressor for septic shock. It works by attaching to alpha-adrenergic receptors on the muscle layer of artery walls. This binding makes the muscle cells contract (tighten), narrowing the vessel like squeezing a garden hose. Narrower vessels mean higher resistance, so the same amount of blood pumped by the heart flows under higher pressure. Norepinephrine also mildly stimulates beta-1 receptors in the heart, slightly increasing heart squeeze strength, but the main effect is vessel constriction. The drug is given as a continuous IV infusion through a central line (a catheter placed into a large vein in the neck, chest, or groin) because it is too strong and irritating for small peripheral arm veins—if it leaks into skin, it can cause tissue death. Vasopressors are a temporary bridge to keep organs perfused (blood flowing to brain, heart, kidneys) while fluids, antibiotics, and biliary drainage fix the underlying sepsis. Once infection is controlled and vessels heal, the drug is slowly turned down and stopped.

Where this information comes from

- Tokyo Guidelines 2018 (TG18) – international consensus on acute cholangitis diagnosis and management
- American College of Gastroenterology (ACG) Clinical Guideline: Management of Acute Cholangitis
- European Society of Gastrointestinal Endoscopy (ESGE) Guideline on Biliary Drainage
- Surviving Sepsis Campaign 2021 – for septic shock resuscitation and antibiotics

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