

Complications of Acute Pancreatitis

Understanding local and systemic complications, and how they are managed

Most people with acute pancreatitis have a mild episode and recover without any complications. However, in a smaller number of people (particularly those with moderately severe or severe disease) complications can develop, either within the pancreas itself or affecting the wider body. This leaflet explains what these complications could be and how they are typically monitored and treated. It is intended as background information alongside our "Acute Pancreatitis" leaflet, and does not replace advice from your own clinical team.

Two types of complication, and when they occur

Doctors generally divide complications of acute pancreatitis into two groups:

- **Local complications:** problems affecting the pancreas itself and the tissue around it, such as fluid collections, necrosis (tissue death) or bleeding.
- **Systemic complications:** problems affecting other organs and the body as a whole, such as the lungs, kidneys or circulation, as a result of the widespread inflammatory response triggered by pancreatitis.

Timing also matters. In the first one to two weeks, systemic complications (driven by the body's inflammatory response) tend to dominate and are the main focus of early, intensive monitoring. From around two weeks onward, local complications such as fluid collections or necrosis become more relevant, which is one reason why scans are often timed later in the illness rather than immediately.

Local complications: problems affecting the pancreas

The illustration below shows the range of local complications that can affect the pancreas and surrounding tissue.

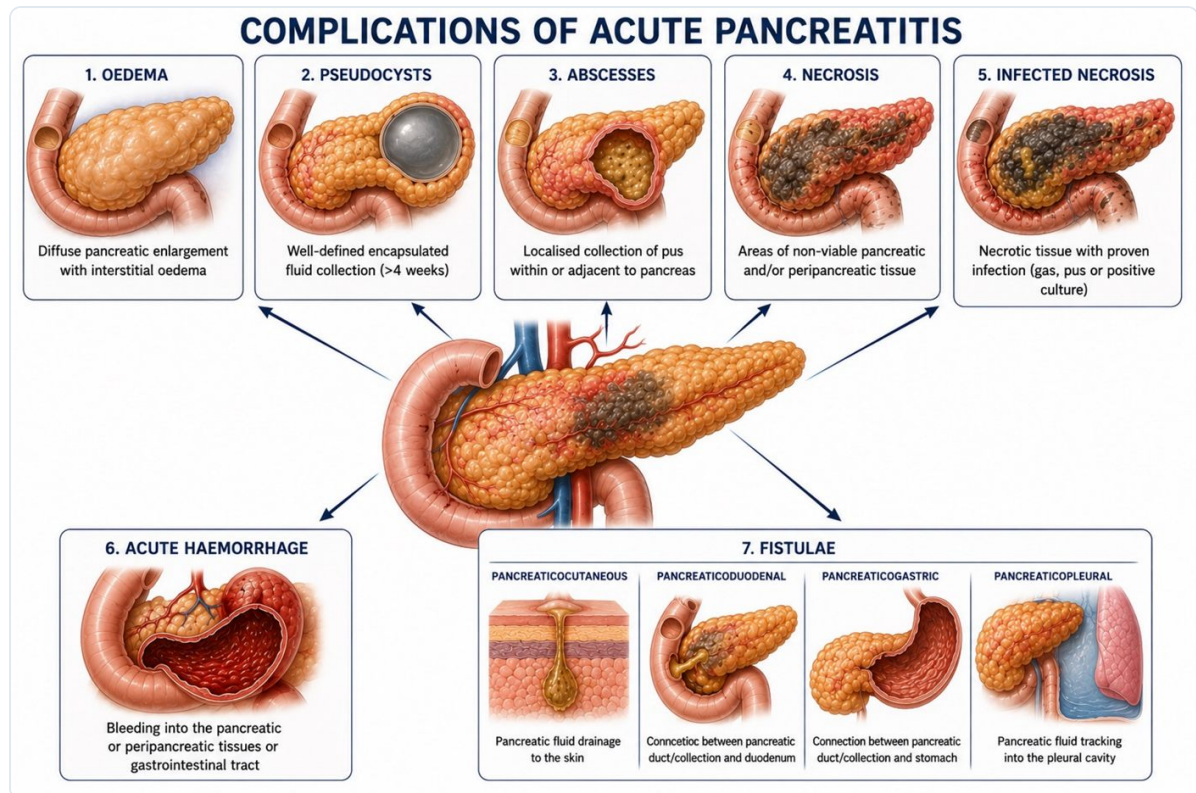


Figure 1: Local complications of acute pancreatitis.

- **Oedema:** swelling of the pancreas due to fluid within its tissue. This is a normal feature of the inflammation present in almost all acute pancreatitis, rather than a complication in itself, and usually settles as the episode resolves.
- **Pseudocysts:** a well-defined, fluid-filled collection with a wall around it, typically forming from around four weeks after the onset of pancreatitis. Small pseudocysts often cause no problems and simply resolve on their own; larger or symptomatic ones may need draining.
- **Abscesses:** a localised collection of pus within or next to the pancreas, essentially an infected collection requiring drainage, usually alongside antibiotics.
- **Necrosis:** areas of pancreatic or surrounding tissue that have died due to loss of blood supply and severe inflammation. Necrosis itself is not automatically dangerous; many people with necrosis that stays free of infection ("sterile necrosis") recover with observation alone.
- **Infected necrosis:** necrotic tissue that has become infected, evidenced by gas seen on a scan, pus, or a positive culture. This is one of the most serious local complications, often causing worsening sepsis, and usually needs drainage (increasingly via minimally invasive routes) and antibiotics.
- **Acute haemorrhage:** bleeding into the pancreatic or surrounding tissue, or into the gut, caused by inflammation eroding a nearby blood vessel. This can be life-threatening and may need an emergency procedure to block the bleeding vessel (embolisation) or, less commonly, surgery. A related problem is a pseudoaneurysm, a weakened, 'ballooned' section of an artery near the pancreas, which is usually treated in the same way by interventional radiology.
- **Fistulae:** abnormal connections that can form between the pancreas or a fluid collection and another structure, allowing pancreatic fluid to leak into places it would not normally be. As shown in the illustration, these include connections to the skin (pancreaticocutaneous), the duodenum (pancreaticoduodenal), the stomach (pancreaticogastric), or the space around the lung (pancreaticopleural, which can cause fluid to build up around the lung). Pancreatic or fluid collections

around the tail of the pancreas can fistulate into the colon (pancreaticocolonic) and surgery may be indicated to defunction the bowel to encourage healing. Many fistulae close on their own with supportive treatment; some need an endoscopic or, rarely, surgical procedure to help them heal.

- **Stoma:** occasionally, severe acute pancreatitis can affect the blood supply to the bowel, causing part of the bowel to become damaged. In these circumstances, emergency surgery may be needed to remove the damaged bowel or temporarily divert bowel contents away from the affected area. This surgery may involve creating a stoma (ileostomy/colostomy), where part of the bowel is brought through an opening in the abdominal wall. Bowel contents then pass through the stoma into a specially designed bag worn on the abdomen. In many people with severe acute pancreatitis, a stoma is intended to be temporary, allowing the bowel and the rest of the body time to recover. Once you have recovered from your illness, your surgical team will assess whether it is possible and appropriate to reverse the stoma and reconnect the bowel.
- **Blood clots** in the veins near the pancreas (such as the splenic or portal vein) are another recognised local complication; these are sometimes treated with blood-thinning medication, particularly if they threaten the blood supply to other organs.

Systemic complications: effects on the wider body

In moderately severe or severe pancreatitis, the inflammatory response can affect organs well away from the pancreas. This is the main reason people with more severe disease need close monitoring, often in a high dependency or intensive care environment.

Organ failure

- **Lungs:** inflammation can cause fluid to leak into the lungs, leading to low oxygen levels and, in severe cases, a condition called acute respiratory distress syndrome (ARDS), which may require oxygen therapy or mechanical ventilation.
- **Kidneys:** reduced blood flow and inflammation can cause acute kidney injury, sometimes requiring temporary dialysis (renal replacement therapy) until kidney function recovers.
- **Circulation:** fluid shifts and inflammatory chemicals released into the bloodstream can cause low blood pressure (shock), which is treated with intravenous fluids and, if needed, medicines to support blood pressure.

Organ failure that lasts more than 48 hours (“persistent organ failure”) defines severe acute pancreatitis and carries the highest risk, which is why prompt recognition and treatment in the first few days is so important.

Sepsis and widespread inflammation

Acute pancreatitis can trigger a body-wide inflammatory response (sometimes called SIRS) even without an actual infection being present, especially early on. If this persists beyond 48 hours, it is linked to a significantly higher risk of complications, and if a true infection develops on top of this, it is called sepsis, needing prompt antibiotics and supportive care.

Metabolic disturbances

- **Low blood calcium (hypocalcaemia):** calcium can be “soaked up” by fat tissue damaged during severe pancreatitis, lowering blood calcium levels; this is monitored with blood tests and corrected with calcium supplementation if needed.

- **High blood sugar (hyperglycaemia):** inflammation of the pancreas can temporarily raise blood sugar, sometimes requiring insulin during your admission even if you do not have diabetes.
- **Blood clotting problems:** severe illness can occasionally disturb normal blood clotting, in rare cases causing a condition called disseminated intravascular coagulation (DIC), where clotting and bleeding both occur; this needs specialist haematology input.

Abdominal compartment syndrome

In severe pancreatitis, swelling and fluid within the abdomen can raise the pressure inside it to a level that impairs breathing and blood flow to organs. This is a medical emergency that may require urgent treatment to relieve the pressure.

How are complications identified and monitored?

If you have moderately severe or severe pancreatitis, your team will monitor you closely for signs of the complications above:

- **Regular observations:** your heart rate, blood pressure, oxygen levels, temperature and urine output are checked frequently.
- **Blood tests:** including markers of inflammation (such as CRP), kidney and liver function, calcium, blood sugar and clotting.
- **CT scan with contrast:** the main imaging test for assessing necrosis and local complications; it is often deliberately delayed to around 72 hours or later after symptoms start (unless there is a specific urgent concern), since necrosis is easier to identify accurately once it has had time to declare itself on a scan.
- **MRI:** sometimes used as an alternative to CT, particularly to look at fluid collections or the pancreatic and bile ducts in more detail.
- **Sampling of a collection:** occasionally, fluid from a collection is sampled to check for infection, though gas seen on a scan is often enough to strongly suggest infected necrosis without needing this.

How are complications treated?

Treatment depends on which complication develops and how severe it is, but some general principles apply:

- **Supportive care first:** many local complications, including sterile (uninfected) necrosis and small fluid collections, are simply monitored, since they can resolve without any procedure.
- **A “step-up” approach:** when a collection or area of necrosis does need treating (for example because it is infected or causing symptoms) the modern approach favours starting with the least invasive option, typically drainage through a small tube placed by a radiologist or endoscopist, and only moving to surgery if this is not enough. This step-up approach has been shown to reduce complications compared with early major surgery.
- **Antibiotics used selectively:** antibiotics are not given routinely to prevent infection in sterile necrosis, as this does not improve outcomes; they are used to treat confirmed or strongly suspected infection, such as infected necrosis, cholangitis, or a chest or urine infection.
- **Organ support:** oxygen or ventilation for the lungs, fluids and sometimes dialysis for the kidneys, and medication to support blood pressure, delivered on a high dependency or intensive care unit if needed.

- **Emergency treatment for bleeding:** acute haemorrhage or a pseudoaneurysm is usually treated urgently with embolisation (blocking the bleeding vessel from inside using a catheter), with surgery reserved for when this is not possible or successful.
- **Fistula management:** most fistulae are managed conservatively at first, with nutritional support and sometimes a medicine (octreotide) to reduce pancreatic secretions; an endoscopic stent can help some fistulae heal, and surgery is reserved for those that do not close with these measures.

What does this mean for my recovery?

It's worth restating that most people with acute pancreatitis (around 4 in 5) never develop these complications and recover within about a week. When complications do occur, they usually mean a longer hospital stay and more intensive treatment, but the majority of people still go on to make a good recovery. The complications that carry the greatest risk are persistent organ failure and infected necrosis, which is why these are the focus of the most intensive monitoring and treatment in specialist centres.

When to seek urgent medical help

- Worsening abdominal pain, swelling, or a firm, tense abdomen
- Breathlessness or a fast heart rate
- High fever, shivering, or feeling suddenly much more unwell
- Vomiting blood or passing black, tarry stools
- New confusion, severe drowsiness, or very low urine output
- Fluid leaking from a wound or drain site, or a new lump or swelling

Key points to remember

- Most people with acute pancreatitis do not develop complications and recover within about a week.
- Complications are grouped into local (affecting the pancreas and nearby tissue) and systemic (affecting other organs and the whole body).
- Systemic complications, such as organ failure, tend to dominate the first one to two weeks; local complications, such as fluid collections and necrosis, become more relevant from around two weeks onward.
- Not all local complications need treatment; many, including sterile necrosis and small collections, are simply monitored.
- When treatment is needed, a step-up approach (starting with minimally invasive drainage before considering surgery) is now standard, and antibiotics are reserved for confirmed or strongly suspected infection.
- Persistent organ failure and infected necrosis are the complications that carry the greatest risk, and receive the most intensive monitoring and treatment.
- If you have any questions about your own risk of complications or your treatment, please ask your care team.

This leaflet is for general information only and does not replace individual advice from your doctor or specialist team, who will explain which complications, if any, are relevant to your own illness. If you are worried about any symptoms, please contact your care team or emergency services.

Pancreatitis Scotland, a Scottish Charitable Incorporated Organisation (SCIO), Registered Scottish Charity No. SC055241
pancreatitis-scotland.org.uk • info@pancreatitis-scotland.org.uk • [@pancscotland](https://twitter.com/pancscotland)

Written and reviewed by the Pancreatitis Scotland clinical team. Version 1.0, August 2026.