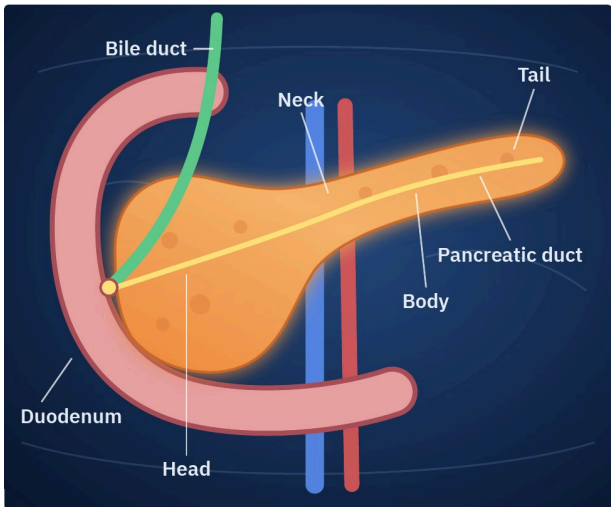
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Pancreatic Surgery

The pancreas lies in the upper abdomen behind the stomach. It stretches horizontally from the **duodenum** (the first part of the small bowel) to the spleen, and is divided anatomically into the **head, neck, body and tail**.

The pancreas has two main functions: a **digestive function**, releasing enzymes that help digest food, and a **hormonal function**, releasing hormones such as insulin that control blood sugar.



Because it lies deep in the body and is closely linked to the bile ducts and major blood vessels, pancreatic surgery is among the **most precise and complex operations**, and requires advanced expertise and specialist centres.

About pancreatic tumours

Pancreatic tumours are divided into several types that differ in their nature and treatment, most notably:

- **Pancreatic ductal adenocarcinoma:** the most common malignant (cancerous) tumour of the pancreas.
- **Neuroendocrine tumours:** arise from hormone-producing cells, and usually grow more slowly.
- **Cystic tumours**, such as IPMN: some are benign, while others may become malignant over time, so they need close follow-up or surgical removal depending on their features.
- **Tumours of the ampulla of Vater** and the lower bile duct, which lie in the area of the pancreatic head and are usually treated with the same operation.

Symptoms

Pancreatic tumours may not cause clear symptoms in their early stages. Symptoms that may appear include:

- **Jaundice** (yellowing of the skin and eyes), especially with tumours of the pancreatic head. It may come with itching, dark urine and pale stools.
- Pain in the upper abdomen that may spread to the back.
- Unexplained weight loss and loss of appetite.
- Newly diagnosed diabetes with no obvious cause.

Diagnosis

Diagnosis is based on a number of tests, most importantly a **pancreas-protocol CT scan** to show the tumour's location, size and relationship to the major blood vessels; **MRI (MRI/MRCP)**; and **endoscopic ultrasound (EUS)**, which allows a biopsy to be taken when needed. Blood tests and tumour markers such as CA 19-9 are also used.

Treatment of pancreatic tumours

Complete surgical removal of the tumour offers the best chance of cure for pancreatic tumours that can be removed. In some cases **chemotherapy is given before surgery** to shrink the tumour and improve the chances of removing it completely, and treatment is often continued after surgery. The type of operation depends on the location and nature of the tumour:

- **Whipple procedure** (pancreatoduodenectomy): for tumours of the pancreatic head, the ampulla of Vater and the lower bile duct. The head of the pancreas is removed together with the duodenum, the gallbladder and the lower part of the bile duct, and the pancreas, bile duct and stomach are then reconnected to the bowel.
- **Distal pancreatectomy:** for tumours of the body and tail of the pancreas. The spleen may also be removed, or kept in some benign cases.
- **Total pancreatectomy:** in selected cases where the disease extends through most of the pancreas.
- **Limited resections**, such as removing the middle part of the pancreas or removing the tumour alone (enucleation): for some benign or small tumours, to keep as much pancreatic tissue and function as possible.

Where the tumour cannot be removed, **bypass operations** may be performed to relieve blockage of the bile duct or the digestive tract, laparoscopically or by open surgery when needed.

Surgery for pancreatitis and its complications

In some cases of **acute or chronic pancreatitis**, complications can develop that need surgical or endoscopic treatment, such as fluid collections and cysts, death of pancreatic tissue (necrosis), or abscesses. Treatment includes **draining these cysts or collections into the stomach or small bowel** and **removing dead tissue** when needed, choosing the best timing and method for each case.

A multidisciplinary approach (MDT)

Before any treatment decision is made, complex cases are discussed by a multidisciplinary team (MDT) which, depending on the case, includes a number of specialists:

- Liver, pancreatic and bile duct (HPB) surgeon.
- Oncologist.
- Radiotherapy specialist.
- Radiologist and interventional radiologist.
- Gastroenterologist and endoscopist.
- Pathologist.

This approach allows each case to be reviewed comprehensively, to reach the most suitable treatment plan for each patient based on scientific evidence and best medical practice.

After surgery and recovery

After pancreatic surgery we follow an **Enhanced Recovery After Surgery (ERAS) programme**, which includes getting up and moving early, starting to eat early and good pain control, to speed up recovery and shorten the hospital stay.

- **Possible complications:** such as a leak from the join of the pancreas (pancreatic fistula), delayed emptying of the stomach, bleeding or infection. These complications are watched for and treated early, and many can be managed without another operation.
- **Pancreatic function after surgery:** some patients may need to take **digestive enzymes** with meals, or need monitoring and treatment of **blood sugar levels**, especially after removal of a large part of the pancreas.
- **Follow-up:** the pathology result of the tumour decides whether further treatment is needed, with regular check-ups including clinical examination, blood tests and scans.

Expertise in minimally invasive pancreatic surgery

Prof. Mohammad Abu Hilal has extensive international experience in laparoscopic and robotic pancreatic surgery, and chairs the **International consortium on Minimally Invasive Pancreatic Surgery (I-MIPS)** and the **European consortium on Minimally Invasive Pancreatic Surgery (E-MIPS)**.

He co-led the development of the **Miami international guidelines**, and organised the international conference that produced the **Brescia Guidelines** for laparoscopic and robotic pancreatic surgery. He also took part in the international **DIPLOMA** trial, which compared minimally invasive and open surgery for removing the tail end of the pancreas (distal pancreatectomy). He received the **UK Department of Health Innovation and Excellence Award** for introducing and developing enhanced recovery protocols in pancreatic surgery.

In suitable cases, minimally invasive pancreatic surgery can offer important benefits, including:

- Less pain after the operation.
- Faster recovery and a shorter hospital stay.
- Smaller incisions, while keeping to the core principles of cancer treatment.

The most suitable surgical technique is chosen according to the nature and location of the tumour and the patient’s condition.