SURGERY ON THE PANCREAS

This pamphlet has been written to provide information about the surgical procedures that are commonly performed for pancreatic disorders. These procedures are used in the management of several conditions involving the pancreas, such as benign growths, pancreatic cancers and pancreatitis (acute or chronic). Much of the information in this pamphlet is about surgery for pancreatic cancers.

The majority of surgical procedures performed on the pancreas will involve resection (removal) of the portion that is affected.

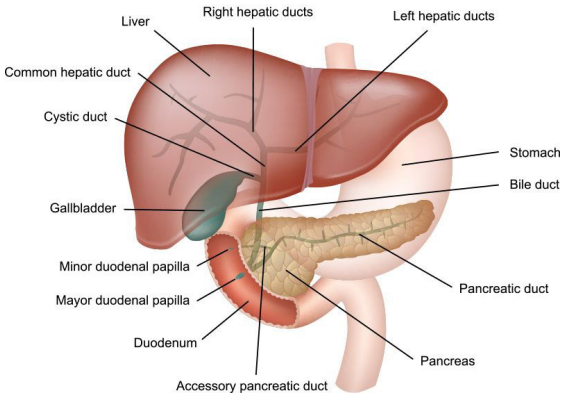
The type of surgical operation for pancreatic tumours depends on the location of the tumour in the pancreas and on the type of the tumour.

What is the pancreas?

The pancreas is a gland that lies at the back of the upper abdomen, behind the stomach. It is shaped like a tadpole; the rounded head lies attached to the duodenum (a part of the small intestine that forms the outlet of the stomach), while the body and tail extend across to the left.

The pancreas produces digestive juices and aids digestion of food. Pancreatic juice and bile mix with food in the intestine and help digestion.

The pancreas also produces insulin, which controls the level of sugar in the blood. Lack of insulin causes diabetes.

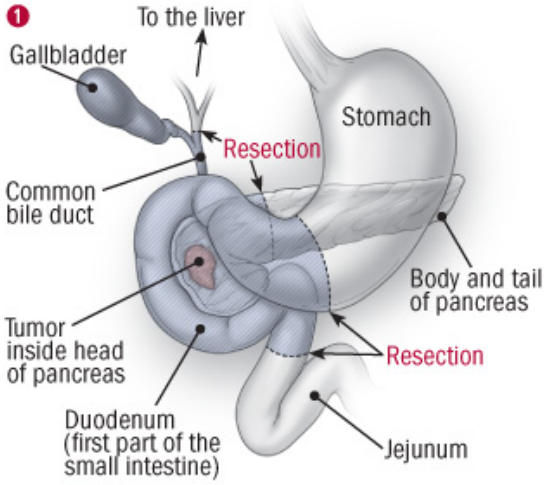


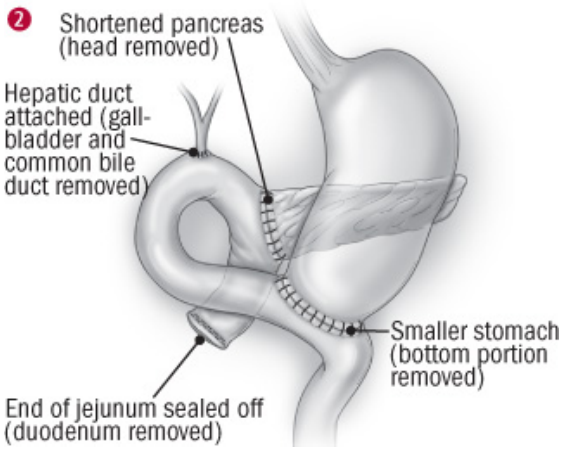
Types of operations

The operation to remove the head of the pancreas is called pancreaticoduodenectomy (Whipple's).

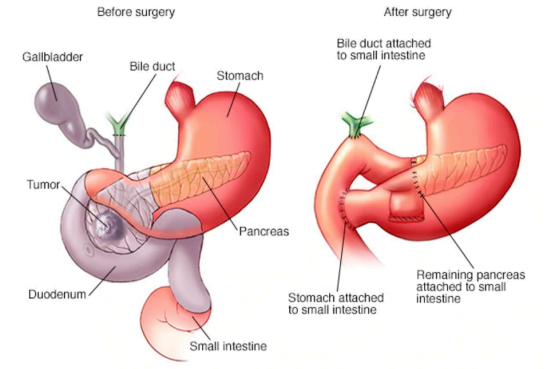
Pancreaticoduodenectomy (Whipple's procedure)

In the Whipple's procedure, the head of the pancreas, lower quarter of the stomach, common bile duct, gallbladder, duodenum (1st part of the small intestine) and surrounding lymph nodes are removed. The remaining pancreas, bile duct and stomach are then re-joined to the small intestine (jejunum). This allows pancreatic juice, bile and food to flow back into the small intestine, so that digestion can carry on as normal. The operation normally takes 6-8 hours.





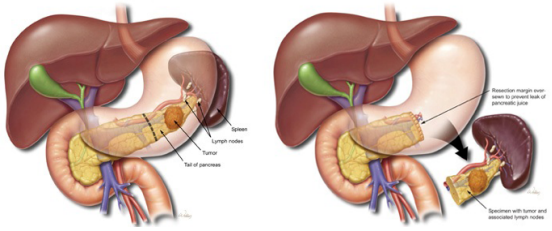
There is a variation of the original Whipple's operation called pylorus-preserving pancreaticoduodenectomy (PPPD) where the lower end of the stomach is not removed. This leaves the valve (pylorus) which controls the flow of food from the stomach. It is otherwise a very similar procedure with similar risks.



A Whipple's operation can be carried out laparoscopically, through small holes in your abdomen (keyhole surgery) in select cases and this may be offered to you.

Distal pancreatectomy

If the problem is in the tail of the pancreas, your surgeon will recommend an operation called distal pancreatectomy (removal of the tail of pancreas). Quite often this operation may also require removal of your spleen. This operation can often be carried out laparoscopically, through small holes in your abdomen (keyhole surgery) and this may be offered to you.



Splenectomy

Splenectomy is removal of the spleen. The spleen helps the body's defence against some infections. Without a spleen your immunity to those bacteria is reduced. If it is likely we will need to remove your spleen during surgery we will write to your GP to ask for you to have specific vaccinations beforehand, to protect you from the following bacteria.

You will be given the following vaccinations: Streptococcus pneumoniae, Haemophilus influenzae B and Neisseria meningitidis. In addition, you will need to take an antibiotic everyday on a long term basis, to help prevent infection.

Total pancreatectomy

This operation involves the removal of the whole pancreas. It is essentially a combination of the pancreaticoduodenectomy and the distal pancreatectomy.

You will become permanently diabetic following removal of the whole pancreas, as the pancreas is where the insulin for your body is produced. You will need to take insulin for the rest of your life.

You will be given more information about being diabetic and will need on-going support from a diabetes nurse or endocrinologist.

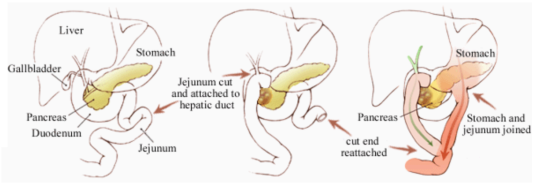
In some cases, people who were expected to have a Whipple's procedure will need to have a total pancreatectomy. This is occasionally necessary if the tumour is more extensive than expected.

Bypass procedure

If your surgery is for suspected cancer, during the surgery your surgeon may find that it is not possible or advisable to remove the growth. Such a situation arises in 7 to 10 cases in 100 (7-10%).

This may be because the tumour has spread to another location, like the liver. It could also be because the tumour has grown beyond the pancreas and become fixed to important blood vessels close by.

In these circumstances your surgeon will not remove the tumour and may carry out a bypass procedure, to improve symptoms and prevent blockage of the bile duct or stomach in the future. This is done via a 'Y' shaped bowel reconstruction called a Roux-en-Y bypass.



What are the benefits of surgery?

Without surgery, the average survival of people with pancreatic cancer is less than one year, and very few survive more than 2 years.

The operation aims to completely remove the cancerous growth and give the best chance of curing the problem. The chance of the cancer recurring depends on the type of tumour that you have.

A successful operation can increase your change of being cured to between 10-50%. This will only be accurately known after the operation, when the pathologist examines the removed pancreas. Your surgeon will receive the full pathology report 2-3 weeks after surgery.

If you are having surgery for another condition, we will talk with you about the potential benefits.

What alternative treatments are available?

If you have cancer, chemotherapy may be able to shrink the cancer or delay its growth. If the cancerous tumour has not spread but cannot be removed surgically because it is extending to nearby structures, then you may be recommended a combination of chemotherapy and radiotherapy. However, without surgery, it is unlikely we will be able to cure this problem.

If you do not have cancer, it is unlikely there will be any alternative treatments.

What anaesthetic will you have?
Our usual anaesthetic technique for pancreatic surgery is a combination of general and spinal anaesthesia. You are put completely to sleep, and a tube is put into your windpipe, so it is not uncommon to get a sore throat after the operation.

You are likely to have several tubes attached to you after your surgery. These will include a narrow tube, called a catheter, for giving pain medication infusion into your wound (local anaesthetic infusion). These tubes will stay in place for 3-5 days. They are very fine, so you will be able to lie on your back and sit and walk comfortably.

After the operation, we will give you a PCA (patient-controlled analgesia) button to control the amount of painkiller that you get through the cannula. The pump is designed to prevent an overdose, so for a few minutes after you have pressed the button it will not deliver another dose.

You will have a chance to meet the anaesthetist on the day of the operation to ask them any questions you might have. Usually your anaesthetist will be in touch with you a few days before the operation to discuss about your medical history.

You may need to be monitored in the Intensive Care Unit (ICU) after surgery.

Possible risks and complications

Pancreatic operations are major procedures with associated risks and complications. Nowadays, the operation has become much safer. This is mainly because pancreatic surgery is now being carried out only by surgeons who have more experience with this type of surgery.

If you have other medical problems, your risks may be higher than average. Complications following pancreatic surgery occur in 20-50 in 100 patients. Possible complications include:

- those related to anaesthesia
- chest infection and problems with breathing
- bleeding, which may result in blood transfusion
- wound infection
- blood clots forming in the legs
- anastomotic leak (1 in 10 patients):
    - After the tumour is removed, the cut ends of the pancreas, bile duct and stomach are sewn to the intestine. Pancreatic juice and or bile can leak into the abdomen (space around the organs). Your surgeon will leave a few drain tubes around the abdomen to remove any leaked pancreatic fluid. Most anastomotic leaks will heal on their own but you will need longer to recover. If it does not stop leaking, you might need a further operation, and the entire pancreas may then need to be removed.
- delayed emptying of the stomach (1 in 10 patients):
    - After the surgery, you will not be allowed to eat until your bowel function has returned. This usually takes 2-3 days. Sometimes the stomach may take longer to recover after surgery. During this time, you may need to receive nutrition through a feeding tube or intravenously (into a vein) for several weeks.
- delayed bleeding
    - If there is an anastomotic leak, the fluid that leaks out can cause erosion of nearby blood vessels. This can cause internal bleeding, around 6-7 days after surgery. This is usually while you are still in hospital and would show as blood in your stool or vomiting of blood, which may look like 'coffee grounds'. This bleeding is usually treated using either tiny metal coils or foam to stop the bleeding. Very rarely, a second surgery is needed.

Long term consequences of the operation

Malabsorption: The pancreas produces enzymes which help digest food. Removal of part of the pancreas decreases production of these enzymes. This can result in poor digestion of food, causing loose stools which are greasy and pale.

You will need long-term treatment with pancreatic enzyme capsules and will be prescribed Creon capsules to be taken just before food. The usual dose is one capsule (25,000 units) with snacks and 2 capsules (50,000 units) with meals. You can vary the dose of enzyme that you take from one day to the next, depending on your diet. Foods that contain a large amount of fat will need more Creon. The dose of Creon can be increased if your stools remain loose and greasy. The enzyme is sourced from porcine (pork) products. Unfortunately, there is currently no alternative to this, so please discuss this with your doctor if you have any concerns.

Loss of weight: It is normal to lose weight both before and after surgery. We would expect you to start regaining some of the lost weight 3-6 months after surgery.

Alteration in diet: Though there are no specific restrictions to what you can eat, you may find your physical activity to eat is restricted. You may need to have small meals and snack between meals to minimise symptoms of bloating or discomfort. It will take several months for your ability to eat to return to normal.

Diabetes: The pancreas produces insulin, which controls blood glucose. If you were not diabetic before your surgery, you are unlikely to develop diabetes after having half your pancreas removed. If you are already diabetic before your surgery, you are likely to need additional diabetic medication or insulin after surgery. Your blood glucose will be monitored very closely before you go home.

Hernia: It is possible to develop a type of hernia called an incisional hernia after abdominal surgery. This is because of a weakness being created in the wall of the abdominal muscles, allowing a section of bowel to bulge through. This can usually be treated with an abdominal support bandage, but occasionally surgery may be required.

Preparation before surgery

If you smoke, try to stop as soon as possible, to reduce the risk of any breathing problems during and after the operation.

You will also be given instructions about when to stop eating, what extra high-calorie drinks to have and when and what to do on the day of admission to hospital.

You will need to plan for any additional help you may need at home whilst recovering, particularly if you live alone.

Please bring a list of your medication with you to the hospital.

After surgery

After spending some time in the anaesthetic recovery area of the operating suite, you will be taken to ICU. You will usually be transferred back to the ward the next day. The nursing staff will monitor your progress and give you painkillers.

You will be on intravenous drips to give you fluids and certain drugs and you will not be allowed to eat full meals for the first few days. After 2-3 days you should be able to try some soft foods.

You will have a urine catheter in your bladder, a tube in your nose going to your stomach, and a few tubes coming from your abdomen (abdominal drains). After 3-5 days these tubes are usually removed, if we are confident you are making good recovery and there is no evidence of internal leakage.

It is important that we help you get out of bed and move about as soon as possible. The hospital physiotherapist will assist you with breathing exercises, which are important in order to prevent a chest infection.

How long will you be in hospital?

You are likely to be able to go home 7-10 days after the operation, if there has been no complication. The ward nurses will give you painkillers to take home as needed. A follow-up appointment will be made for you to come back to see your surgeon usually in 2 weeks after discharge.

When can you return to normal activities?

On your return home, you will find movements and activity difficult for the first few weeks. You may also feel low in mood, but this will soon get better.

It is important to keep active as much as possible, but also to rest. You will need 2-3 months to return to normal activities. There are usually no restriction on activities after that time, but please do discuss with us if you feel a particular problem is not settling.

Further treatment or follow up

In some cases, the survival rate for people with pancreatic cancer can be improved by having chemotherapy. We will discuss the option of having chemotherapy with you and we will usually refer you to an oncologist, a cancer chemotherapy specialist.

You are likely to need continued monitoring for a few years, to check for any recurrence of cancer. Your check-ups may be shared between your surgeon and your oncologist, so that the need for medical trips could be minimised.

Report to your surgeon

Call your doctor if you:

- develop a fever (38°C or chills)
- notice your scar becoming red and painful or has a smelly discharge
- develop an unusual degree of pain
- develop nausea, vomiting or diarrhoea, or cannot eat properly
- become jaundiced (yellow eyes, dark urine)
- noticed an unusual colour to your drain fluid (if you go home with a drain tube)

Costs of treatment

Here at Melbourne North Specialist Centre, our surgeons do not charge a gap fee for your procedures performed in a private hospital. If you want to have your procedure done at a public hospital, our surgeons can advise you on the appropriate action. We can also provide you with an estimate of costs if you do not hold a private insurance but would like your procedure done in a private hospital. As the actual procedure may differ from the proposed procedure, the final account may vary from the estimate.