

About the Whipple procedure

*Surgical removal of
the head of the pancreas*

A guide for patients and relatives



Whipple's procedure is a major operation involving removal of a part of the pancreas. If you or someone close to you has been advised to undergo this procedure, this booklet is for you. This booklet has been prepared to tell you about the operation. Information about the benefits and risks involved will help you in giving informed consent.

It is important to remember that each person is different. This booklet cannot replace the professional advice and expertise of a doctor who is familiar with your condition. You may have

questions that this booklet does not cover; you should discuss these issues with your surgeon.

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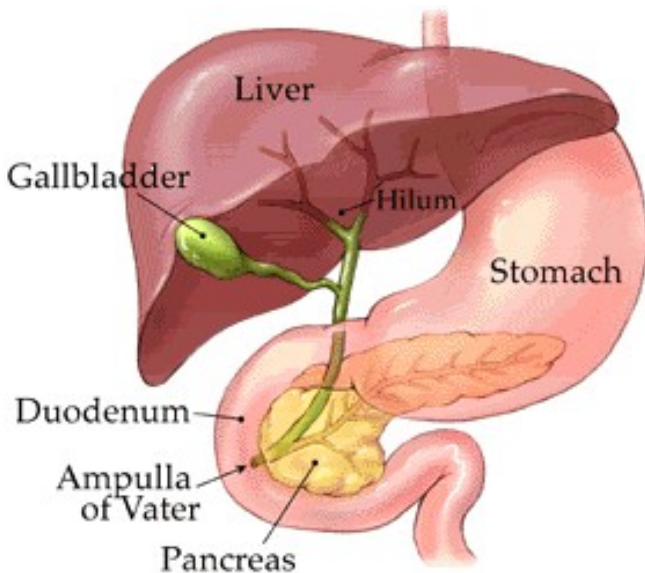
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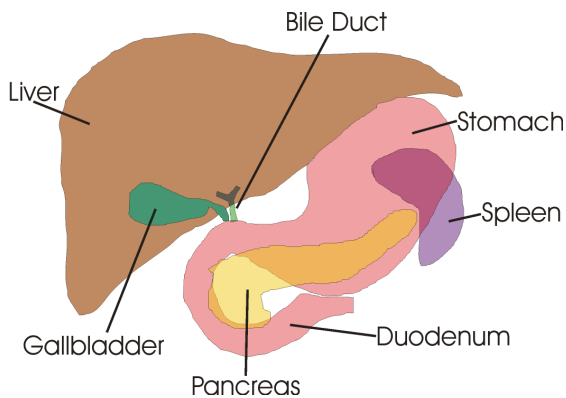
What is the pancreas?

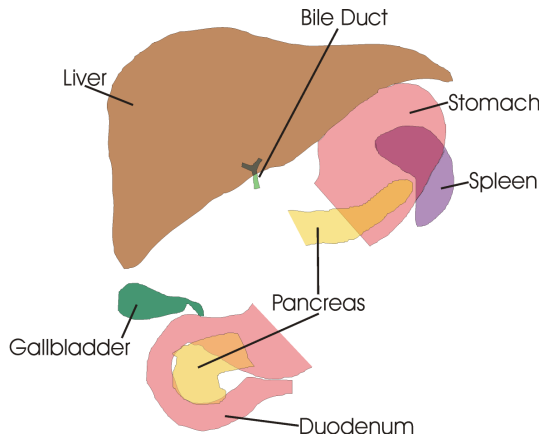
The pancreas is a gland that lies at the back of the upper abdomen, behind the stomach. It is shaped like a tadpole; the globular head lies attached to the duodenum (a part of the small intestine that forms the outlet of the stomach), while the body and tail extend across to the left side. The pancreas produces digestive juices. The duct of the pancreas meets the bile duct and opens into the duodenum at the ampulla of Vater. Pancreatic juice and bile mix with food and help digestion. The pancreas also produces insulin, which controls the level of sugar in the blood. A deficiency of insulin causes diabetes.



What is Whipple's operation?

In the Whipple operation the head of the pancreas, a portion of the bile duct, the gallbladder and the duodenum are removed, usually with part of the stomach. After removal of these structures, the remaining pancreas, bile duct and stomach are rejoined to the intestine. This allows pancreatic juice, bile and food to flow back into the gut, so that digestion can proceed normally. The operation normally lasts for 4-7 hours.





Organs removed during a Whipple operation

When is it done?

The Whipple operation is usually performed for cancers in the head of the pancreas. The operation is also used to treat cancers of the bile duct, duodenum or ampulla. It may also be performed for benign (not cancerous) disorders, such as pancreatitis. The exact problem in your case may or may not be clear, and you may be advised to undergo surgery on the suspicion of a cancer.

Most patients who need a Whipple operation have presented to their doctor with jaundice (when the skin and eyes go yellow). This is caused by a blockage to the bile duct. Most patients will undergo an endoscopy (ERCP) to place a plastic tube (or stent) into the bile duct. This unblocks the bile duct and allows bile to flow normally.

What alternative treatments are available?

Chemotherapy may be able to shrink the cancer or delay its growth. However, no treatment other than surgery is able to cure this problem.

What are the benefits of surgery?

Without surgery, the average survival of patients with pancreatic cancer is less than one year, and very few survive more than 3 years. A successful Whipple operation can improve your chance of cure to 10%-40%. The operation aims to completely remove the cancerous growth, and give you the best chance of curing the problem. That is why a wide area of tissue around the affected part is removed. The chance of the cancer recurring depends on the type of tumour that you have. This will only be accurately known after the operation, when the pathologist examines the removed pancreas. If you wish, your surgeon can discuss the likely outcomes in your case.

What are the risks and possible complications?

The Whipple operation is a major procedure, with associated risks and complications. However the operation has become much safer. At specialised centres like Oxford, where a large number of these procedures are performed by selected surgeons, at least 19 in 20 patients will survive the operation.

Possible complications include:

- Those related to general anaesthesia
- Chest infection and respiratory failure
- Bleeding during or after the operation, 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 back to the intestine. In some patients, these stitches may not heal well. If this happens then pancreatic juice or bile can leak into the abdomen. Your surgeon will leave a drain tube in the abdomen, in order to identify and remove any leakage of these fluids after the surgery. In most patients who develop leakage after the surgery, the leakage heals on its own. Sometimes patients need to be re-operated for this complication.
- **Delayed emptying of the stomach** (1 in 10 patients): After the surgery, you will be provided with fluids by a drip into your vein, and

liquid food via a feeding tube. You will not be allowed to eat or drink until your bowel function has returned. This usually takes 6-7 days. In some patients, the stomach may take 2 to 4 weeks to adapt to the changes after surgery. During this period, they may not be able to tolerate food well.

What anaesthetic will I have?

Our normal anaesthetic technique for this procedure is a combination of general and epidural anaesthesia. During general anaesthesia a tube is put into your windpipe, so it is not uncommon to get a sore throat after the operation.

The epidural is a way of blocking the nerves that supply the area of the operation. An epidural is a fine tube that is the anaesthetist will place in your back, next to the spinal cord nerves, before you go to sleep with the general anaesthetic. It remains in place for 3-5 days after the operation. The tube is very fine, so that you can lie on your back. The epidural helps you to breathe deeply, which would be very difficult to do if you were in a lot of pain. You will also be able to sit and walk with the epidural in place. The epidural is very safe. The chance of any permanent nerve damage from an epidural is very rare, less than 1 in 10,000.

We will give you a PCEA (patient-controlled epidural analgesia) button to control the amount of painkiller that you get. You can press the button whenever you need more pain relief, and a computerised pump will deliver it from a syringe into the epidural. The pump is designed to prevent an overdose, so for a few minutes after one dose, it will not deliver another dose.

Your anaesthetist is also responsible for replacing fluids and blood during the operation. About one in ten patients will need blood transfusions during or after the operation.

You will have a chance to meet the anaesthetist and ask any questions on the day of the operation.

When is surgical removal of the cancer not possible?

The investigations that you have had indicate that the cancer is localised and has not spread. Sometimes, problems are discovered during the operation that could not be identified before surgery. This includes spread of the cancer to other organs, or that the cancer is fixed to important structures. Such findings occur in 1 out of 10 patients. In these cases, the cancer is not removed. Your surgeon may then choose to perform a bypass operation, so that future blockage of the bile duct or stomach is prevented.

How do I prepare for surgery?

Try to stop smoking as soon as you know that you need an operation. You will also need to plan for any additional help you may need at home while convalescing, particularly if you live alone. You will be called to the preassessment clinic before the operation. Please bring a list of your medication with you to the hospital. The preassessment clinic will give you further instructions regarding your admission.

What happens after the operation?

You will return to the ward after spending some time in the recovery area of the operating suite. The nursing staff will monitor your progress and administer painkillers. You will be on intravenous drips and will not be allowed to eat for the first 5-6 days.

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

How long will I be in hospital after the operation?

Most patients are able to go home 7-14 days after the operation. The ward nursing staff will give you painkiller medication to take at home as needed, and arrange a follow up visit at the surgical out-patient clinic.

When can I return to normal activities?

On your return home, you will find movements and activity difficult for the first few weeks, and you are likely to require help. Your ability to eat will also take several months to improve. You may also feel low in mood, but this will resolve shortly. It is important to keep as active as possible, but also to rest. You may return to normal activities after 2-3 months. There are usually no restrictions on activities after that time.

Will I require any further treatment for my cancer?

In some cases, the survival rate can be improved by adding chemotherapy to surgery. We will discuss the option of having chemotherapy with you. You may be referred to see an oncologist, a specialist at medical treatment of cancers with chemotherapy.

Will I become diabetic after a Whipple operation?

The pancreas produces insulin that is required for control of blood sugar. There is a risk of developing diabetes after this operation. In our experience, patients who are not diabetic before surgery are unlikely to develop diabetes afterwards. Patients who are diabetic before surgery are likely to need additional diabetic medication or insulin after surgery.

What are long-term consequences of the operation?

Some of the long-term consequences of the Whipple operation are:

- **Malabsorption:** The pancreas produces enzymes required for digestion of food. Removal of part of the pancreas will decrease production of these enzymes. Some patients complain of loose stools that are greasy, pale and tend to float. They will need long-term treatment with pancreatic enzyme capsules with meals.
- **Alteration in diet:** There is no restriction to your diet after the operation, though you may be able to eat only small amounts at one time. You may need to have small meals and snack between meals to minimise symptoms of bloating or getting full. The dietician can give you advice about your diet and supplements that you can have between meals to improve your nutrition.
- **Loss of weight:** It is common for patients to lose weight compared to their weight before their illness. We would expect you to start regaining some of the lost weight in the 2nd and 3rd months.

When should I call my doctor after surgery?

Call your doctor if you:

- develop a fever
- develop an unusual degree of pain
- develop nausea, vomiting or diarrhoea, or cannot eat properly
- become jaundiced (yellow eyes, dark urine)
- your scar becomes red and painful, or has a smelly discharge

For further information:

- www.cancerbacup.org.uk, tel: 0800 181199
- www.cancerhelp.org.uk
- www.pancreaticcancer.org.uk
- www.macmillan.org.uk, tel: 0845 6016161
- National Cancer Information Service, tel: 0207 6132121
- Cancer Information Centre (Churchill Hospital), tel: 01865 225688

Useful contact numbers:

John Radcliffe Hospital: 01865 741166

Churchill Hospital: 01865 741841

Secretaries to Mr Soonawalla/Prof Friend: 01865 220929

Pancreatic nurse specialists: 01865 857948

or call 01865741166 and ask for bleep 1891/1977

Preassessment clinic appointments: 01865 857635

Ward 6F: 01865 221840

Intensive care unit: 01865 220626

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