How is pancreatic cancer diagnosed?

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Diagnosis

If your doctor suspects you have pancreatic cancer or a pancreatic NET (neuroendocrine tumour), you will undergo tests to confirm the diagnosis. The tests will also show where in the pancreas the cancer is, and whether it has spread to nearby organs or other parts of the body.

Tests may include blood tests, a CT scan and other imaging tests, endoscopic tests and tissue sampling (biopsy). The tests you have will depend on the symptoms, type and stage of the cancer. You will not have all the tests described below. Some are only used to detect pancreatic NETs.

Blood tests

Blood tests can check your blood count and determine how well your liver and kidneys are working. Blood tests are used together with other test results to diagnose pancreatic cancer.

- Pancreatic cancer may produce a tumour marker called CA19-9, which is a substance that shows up in the blood of some cancer types. Measuring the level of CA19-9 may give your doctor information about the cancer.

- Pancreatic NETs may produce high levels of certain hormones, which can also be detected in the blood. In addition, pancreatic NETs may make a tumour marker called Chromogranin-A. Measuring the level of Chromogranin-A may give your doctor information about the cancer and whether the cancer is responding to treatment.

Scans

Ultrasound

An ultrasound uses soundwaves to create a picture of the inside of your body. An ultrasound of your abdomen will show the pancreas and the surrounding area, including your liver. It can show if a tumour is present and its size. You will lie on your back for the procedure. A gel will be spread onto your abdomen and a small device called a transducer will be moved across the area. The transducer creates soundwaves that echo when they meet something solid, such as an organ or tumour. A computer turns these echoes into pictures.

The ultrasound is painless and takes about 15–20 minutes.
CT scan

A CT (computerised tomography) scan is a type of x-ray that takes pictures of several organs at the same time. These pictures are put together to create a three-dimensional picture of your body. CT scans are usually done at a hospital or a radiology clinic.

Before the scan, dye is injected into a vein to make the pictures clearer. You may feel hot all over and have a strange taste in your mouth for a few minutes. You may also feel that you need to urinate.

The CT scanner is large and round like a doughnut. You will lie on a table that moves in and out of the scanner. It takes about 30 minutes to set up the machine, but the CT scan itself takes only 5–10 minutes.

MRI and MRCP scans

An MRI (magnetic resonance imaging) scan uses magnetic waves to build up detailed cross-sectional pictures of the pancreas and nearby organs. An MRCP (magnetic resonance cholangiopancreatography) is a type of MRI scan that produces more detailed images and can be used to check the common bile duct for blockage (obstruction).

Before the MRI scan, you may be asked not to eat or drink for a few hours. You may also be given an injection of dye to highlight the organs in your body.

An MRI takes about an hour and you will be able to go home when it is over. During the test, the machine makes a series of bangs and clicks and can be quite noisy. The test is painless, but some people feel anxious lying in such a confined space. If you think this will be a problem, let the doctor or nurse know beforehand, as they can give you medication to help you relax.

Endoscopic scans

Endoscopic scans can show blockages or inflammation in the bile ducts, stomach and duodenum. They are done using an endoscope, which is a thin, flexible tube with a light and a camera that is passed down your throat into your digestive system. This is also called an endoscopy.

You will be asked not to eat or drink for several hours before an endoscopy. The doctor will give you a sedative so you are as relaxed and comfortable as possible. Because of the sedative, you shouldn’t drive or operate machinery until the next day.

An endoscopic scan to investigate pancreatic cancer has some risks, including infection, bleeding and inflammation of the pancreas (pancreatitis). Your doctor will explain these risks before asking you to consent to the procedure.

During these scans, the doctor can also take a tissue or fluid sample to help with the diagnosis. This is called a biopsy.

There are two main types of endoscopic scans:

**EUS (Endoscopic Ultrasound)** – This uses an endoscope with an ultrasound probe (transducer) attached. The endoscope is passed through your mouth into the small bowel. The transducer makes soundwaves that create detailed pictures of the pancreas and ducts. This helps to locate small tumours and shows any local spread of cancer.

**ERCP (Endoscopic Retrograde Cholangiopancreatography)** – This test performs an x-ray of the pancreatic bile duct and/or pancreatic duct. The doctor uses the endoscope to guide a catheter into the bile duct, where a small amount of dye is inserted. The x-ray images show blockages or narrowing that might be caused by cancer. ERCP may also be used to place a stent into the duct.
Radionuclide scans

These scans use a mild dose of a radioactive substance, which is injected into a vein to show where tumours may be in the body.

SRS (somatostatin receptor scintigraphy) scan – This scan is an imaging method commonly used to stage pancreatic NETs. Over 90% of pancreatic NET cells have receptors for the hormone somatostatin. In the SRS scan, a radioactive substance that is similar to somatostatin is injected into your body. Over the course of a day, the drug travels to the tumour and attaches itself to the receptors. The scan will highlight the tumour by showing where the drug has attached.

68-Gallium PET scan – This specialised radionuclide scan can determine whether a pancreatic NET tumour has spread. The scan can be performed more quickly than an SRS, and is much more sensitive and specific in detecting pancreatic NETs. The scan is available in all states in Australia. However, it is not available at all hospitals with PET facilities.

It may take several hours to prepare for and complete these scans. Talk to your medical team for more information.

Tissue sampling

Fine needle biopsy

A biopsy means removing cells or tissue samples from an organ for examination under a microscope. This procedure may be done during an endoscopy or endoscopic ultrasound. A fine needle is usually used to remove the cells. An ultrasound or CT scan can help the doctor guide the needle through the abdomen and into the pancreas. You will be awake during the procedure, but you will be given a local anaesthetic so you do not feel any pain.

Laparoscopy

A laparoscopy, also called keyhole surgery, is sometimes used to look inside the abdomen to see if the cancer has spread to other parts of the body. It can also be done to take tissue samples before any further surgery. Another procedure, called peritoneal washing, may be performed at the same time to detect malignant cells within the abdominal cavity. A laparoscopy is performed with an instrument called a laparoscope, which is a long tube with a light and camera attached. You will be asked not to eat or drink for six hours beforehand.

A general anaesthetic is given and a small cut will be made near your belly button through which the laparoscope will be guided inside your body through a tube. The doctor can insert other instruments through other small cuts (about 0.5–1cm each) to take the biopsy.

You will have stitches where the cuts were made, and you may feel sore while you heal. To help control the pain, you will be given medication during and after the operation, and to take home.

There is a small risk of infection or damage to an organ. Your doctor will explain the risks before asking you to agree to the procedure.

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