

Medicine for Managers

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Pancreatic Disease

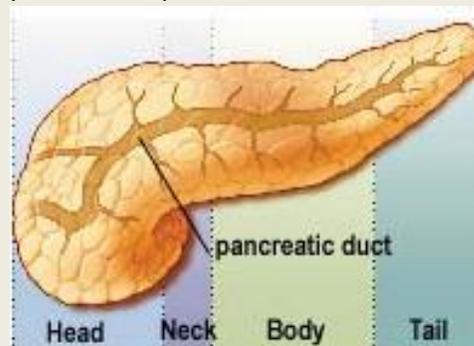
The pancreas is an elongated organ which extends from right to left across the back of the abdomen. On the right side is the head, the widest part of the pancreas and it narrows down to the tail on the left. It nestles in the curve of the duodenum. Its exit is the pancreatic duct which joins the bile duct which itself opens into the duodenum. It produces enzymes and hormones.

It is a jolly important gland. It produces enzymes which help break down carbohydrate, fat and protein in the duodenum. The enzymes manufactured in the pancreas are inactive when secreted into the duodenum but are activated when they mix with the bowel contents. The cells which manufacture the enzymes also produce bicarbonate which neutralises the stomach acid when it reaches the duodenum.

The pancreas is also an endocrine gland and secretes hormones. The two best known are insulin and glucagon, which together regulate the level of blood glucose. Insulin reduces blood sugar by promoting storage in the liver and in other places as glycogen, whereas glucagon tends to raise blood sugar by mobilising stores. There is also a third hormone called somatostatin which is important in regulating the other two hormones

Diseases of the pancreas are very important and frequently serious. Diagnostically they are often a problem because they may be of insidious onset and, because the gland is wrapped in fat and tucked away between other organs, its symptoms are often initially vague and ill-defined. In the case of cancer of the pancreas it may often have spread before it is even suspected.

Perhaps the best known disease of the pancreas is pancreatitis



It may be acute or chronic and is commonly associated with gallstones that block the pancreatic duct and alcohol abuse. It may also occur as a result of abdominal injury or

surgery, secondary to tumour development and secondary to some types of infections.

In cases of **acute pancreatitis**, the principal symptom is upper abdominal pain which may be relatively mild or excruciatingly painful. It is normally associated with nausea and vomiting and the development of a fever. In more severe cases there may be confusion and, over a short time, jaundice may start to develop. In acute episodes, acute pancreatitis is present on the differential diagnosis because of the severity and location of the pain.

In **chronic pancreatitis**, abdominal pain is also the main symptom but it may be sudden or mild, severe and persistent or intermittent. Other features include diarrhoea and vomiting, weight loss, backache and the passage of fatty stools. Although the symptoms sound reasonably clear cut, chronic pancreatitis may be difficult to diagnose because it is often vague.

Investigations involve a comprehensive examination and an early blood test to measure serum amylase. Amylase is an enzyme, about 40% of which is made in the pancreas (the remainder is made in the salivary glands) and when the pancreas is injured it leaks into the the blood stream given a raised reading when tested. The blood level may be very high in acute pancreatitis. In many pancreatic disorders including cancer it may be raised, even in circumstances where the disorder is

chronic. Other investigations include plain abdominal X-rays, ultrasound scanning and CT scan. The test that must be a contender for the most difficult name, and known as the ERCP is the **Endoscopic Retrograde CholangioPancreatography**. It assists a gastroenterologist to make a diagnosis of disease affecting the gall bladder, bile ducts and pancreas. The endoscope is passed



down the throat, oesophagus, through the stomach and into the duodenum. It can then be passed up the bile duct (against the flow of bile, hence the word retrograde) and into the pancreatic duct. The gland can be examined by direct vision and a radio-opaque dye can be injected into the duct so that the organ can be outlined on X-ray.

Treatment of pancreatitis depends on the cause, severity and the likely progression of the disease. The mainstay of treatment is to rest the pancreas to allow it to recover. It is often necessary to admit a patient to hospital for observation, rest and intravenous feeding. After investigation the patient may need antibiotic, complete abstinence from alcohol, nil by mouth and drainage of stomach contents by nasogastric tube. Surgery may also be necessary if gall stones are the cause of the inflammation. If the damage is extensive, the patient may require enzyme supplements to assist digestion

and diabetes may develop, resulting in the need for insulin therapy.

About 90% of sufferers of acute pancreatitis recover without complications. The course of chronic pancreatitis is more variable. Patients may experience several attacks bringing with it greater risk of chronic pain, diarrhoea, liver disease, diabetes and pancreatic cancer.

Pancreatic Cancer is the tenth most common cancer in the United Kingdom accounting for about 3% of new cancers each year. The most common type of pancreatic cancer is called an **adenocarcinoma** and occurs in the lining of the pancreatic duct. It generally affects people in the sixth and seventh decades and heavy smokers increase their risk of the disease threefold. Other risk factors include obesity and diabetes and chronic pancreatitis is also linked to increased incidence. Risks that cannot be influenced include gender (men more commonly than women), race (Africans more commonly diagnosed), a family history of pancreatic cancer and some genetic syndromes.

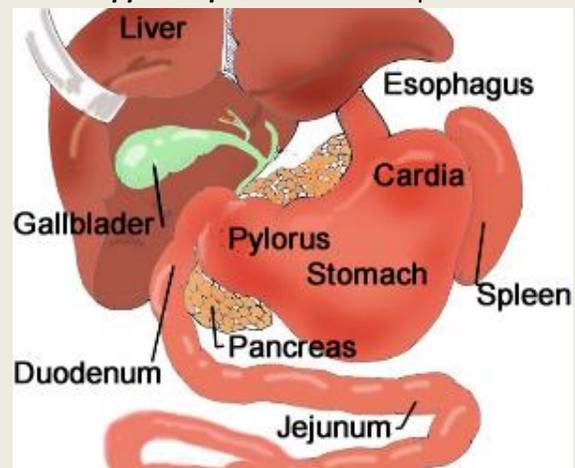
The symptoms are often insidious initially with vague abdominal discomfort, feelings of bloating, some weight loss and indigestion and tiredness. As it progresses there is increased upper abdominal pain, abdominal distension and the development of jaundice. The disease is difficult to diagnose because the symptoms are often non-specific and may be associated with a range of different conditions.

A diagnosis is usually made using techniques similar to those employed for diagnosis of pancreatitis. Blood tests to seek evidence of disease, abdominal ultrasound, CT and MRI scans and a variety of variably intrusive intra-

abdominal tests such as needle biopsies and intra-abdominal ultrasound.

Treatment depends on a variety of factors including, the age and fitness of the sufferer, the location and extent of the disease, tolerance of chemotherapy and preference for the type of approach when the options and success rates are fully explained.

Surgery is used to remove part or all of the tumour and sometimes other associated organs. The **Whipple's Operation** is a complex and



major operation which involves the removal of the head of the pancreas, the gall bladder and much of the bile duct, part of the stomach and lymph nodes surrounding the pancreas. It is commonly performed for cancer of the pancreas. Overall about 15% of patients have disease which may be amenable to such surgery. Sometimes less radical surgery is carried out if, for example, the tumour is only in the tail of the pancreas or if it is very localised.

Palliative surgery may be used if the disease has spread to block adjacent structures such as the gall bladder (bile duct) and is used to produce symptom relief.

Other treatment includes radiotherapy to shrink the tumour by destroying cancer cells.

Radiotherapy may be given alone or may be combined with surgery or chemotherapy

Chemotherapy has made considerable advances in recent years and there are now a variety of drugs which can be used to destroy pancreatic cancer cells. Treatment plans are devised by oncologists tailored to the individual patients characteristics and the nature of the tumour.

Prognosis for pancreatic cancer is poor, because it is commonly diagnosed late. The one year survival is about 20%, five years about 5% and ten years about 1%.

Celebrities who have died of pancreatic cancer include Count Basie, Henry Mancini, Rex Harrison, Luciano Pavarotti, Patrick Swayze, Steve Jobs and Michael Landon.

Other pathology of the pancreas includes cystic fibrosis but other diseases are relatively rare.

The pancreas itself was first discovered by the Greek anatomist Herophilus in about 295BC. It was named the pancreas (meaning 'all flesh') by Rufus of Ephesus. In 1889 Minkowski discovered that removing a dog's pancreas caused it to become diabetic, although it was 30 years later that the research of Banting and Best led to the discovery of Insulin.

Even now many people do not understand the pancreas. I conclude with a quote from Marshall Brickman, an American comedian, screenwriter and director, whose early successes in America included *Candid Camera* and who wrote '*The Jersey Boys*' and frequently collaborated with Woody Allen. He seemed to sum it all up when

he said "I secrete jokes like the pancreas secretes . . whatever the pancreas secretes"

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