Pancreatic cancer

Mr Andreas Prachalias MBBS MD is a Consultant Hepatobiliary Surgeon at King's College Hospital and Bupa Cromwell Hospital.

Pancreatic adenocarcinoma is a highly lethal malignancy. The commonly used term “pancreatic cancer” usually refers to a ductal adenocarcinoma of the pancreas, which represents about 85 percent of all pancreatic neoplasms.

Epidemiology

Worldwide, pancreatic cancer is the eighth leading cause of cancer deaths in men (138,100 deaths annually) and the ninth in women (127,900 deaths annually). In general the disease affects more people in the developed world, and whilst it is rare before the age of 45, the incidence rises sharply thereafter. The incidence is greater in men than women (at a ratio of 1.2:1) and in those of African descent compared to Caucasian populations (14.8 per 100,000 of black males compared to 8.5 per 100,000 in the Caucasian male population).

Clinical presentation

The initial presentation of pancreatic cancer is usually pain in the head of the pancreas, while 20–25% of patients present with weight loss. The pain is usually indigestion-like, but it is often intermittent and made worse by eating or lying supine. It frequently waxes and wanes. Doctor’s advice always should raise suspicion of a tumour arising in the body and tail of the pancreas.

Jaundice, which is usually progressive, is most often due to obstruction of the common bile duct by a mass in the head of the pancreas, which causes hyperbilirubinemia, and may be accompanied by pruritus, darkening of the urine, and pale stools. Jaundice secondary to a tumour in the pancreas body or tail typically occurs later in the course of the disease, and may be secondary to liver metastases.

A recent onset of atypical diabetes mellitus may be noted. Unexplained superficial thrombophlebitis, which may be migratory (classic Trousseau’s syndrome), is sometimes present and reflects the hypercoagulable state that frequently accompanies pancreatic cancer. Skin manifestations occur as paraneoplastic phenomena in some patients (circular and bullous pemphigoid). Signs of metastatic disease may be apparent at presentation, and most commonly affect the liver, peritoneum, lungs, and (less frequently) bone.

Diagnostic Approach

It is not possible to reliably diagnose a patient with pancreatic cancer based on symptoms and signs alone. Awareness of risk factors may lead to an earlier and more aggressive evaluation in patients who present with symptoms suspicious for the disease. Specific tests used in the initial evaluation include:

- Transabdominal ultrasound
- Computed tomography (CT) scan
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Magnetic resonance imaging (MRI)
- Positron emission tomography (PET) scan

These tests can help detect the presence of a tumour and assess its extent.
The initial study in patients who present with obstructive jaundice or epigastric pain and weight loss is often transabdominal ultrasound (US). The reported sensitivity for US in diagnosing pancreatic cancer is 95% for tumours greater than 3cm, but it is much less for smaller tumours. Sensitivity is also dependent on the expertise of the ultrasonographer and the presence or absence of bile duct obstruction.

**Abdominal CT**

The typical CT appearance of an exocrine pancreatic cancer is an ill-defined hypodense mass within the pancreas, although smaller lesions may be isodense. Secondary signs of a pancreatic cancer include a pancreatic duct cutoff, dilatation of the pancreatic duct or common bile duct (double duct sign), parenchymal atrophy, and contour abnormalities.

**Endoscopic retrograde cholangiopancreatography (ERCP)**

ERCP has a sensitivity of 92% and specificity of 96% for diagnosing cancer of the pancreas. Findings suggestive of a malignant tumour within the head of the pancreas include superimposable strictures or obstruction of the common bile and pancreatic ducts, a pancreatic duct stricture in excess of 1cm in length, pancreatic duct obstruction, and the absence of changes suggestive of chronic pancreatitis. Furthermore, ERCP provides an opportunity to collect tissue samples for histologic diagnosis.

**MRCP**

MRCP is more effective than CT in defining the anatomy of the biliary tree and pancreatic duct. It has the capability to evaluate the bile ducts both above and below a stricture.

**Tumour markers (Ca 19-9)**

Given the limited sensitivity and specificity, the serum tumour marker CA 19-9 should not be used as a diagnostic test for pancreatic cancer.

**Endoscopic ultrasound (EUS)**

EUS may be more accurate for smaller tumours and for predicting vascular invasion.

Histologic confirmation is required. Patients who are fit for major surgery and who appear to have potentially resectable pancreatic cancer do not necessarily need a preoperative biopsy. When it is indicated, biopsy of a pancreatic mass can be accomplished either percutaneously via radiology or via EUS.

The preferred staging system for pancreatic adenocarcinoma is the tumour-node-metastasis system (TNM).

**Treatment**

Surgical resection is the only potentially curative treatment for pancreatic adenocarcinoma. Unfortunately, because of late presentation, only 15-20% of patients are candidates for pancreatic resection. 40% have distant metastases, and another 30-40% have locally advanced unresectable tumours.

Disease that is limited to the pancreas and peripancreatic nodes is most likely to be cured by resection. Tumours with limited involvement of the major peripancreatic vessels such as the superior mesenteric vein, portal vein, superior mesenteric artery, or celiac artery may be technically resectable.

Some cases are considered “borderline” resectable, although the definition is variable.

Absolute contraindications to resection include the presence of metastases in the liver, peritoneum, omentum, or an extra-abdominal site. Other indications include encasement (more than half of the vessel circumference) or occlusion of the superior mesenteric artery, unreconstructable superior mesenteric vein (SMV) or direct involvement of the inferior vena cava, aorta, or celiac axis.

The conventional operation for cancer of the head or uncinate process of the pancreas is pancreaticoduodenectomy. The conventional form (known as the Whipple procedure) involves removal of the pancreatic head, duodenum, first 15cm of the jejunum, common bile duct and gallbladder, and a partial gastrectomy. Pylorus-preserving pancreaticoduodenectomy meanwhile preserves the gastric antrum, pylorus, and the proximal 3-4cm of the duodenum.

Surgical resection of cancers located in the body or tail of the pancreas consists of a distal subtotal pancreatectomy, usually combined with splenectomy. Total pancreatectomy is sometimes required to achieve a microscopically negative resection margin in patients involving the entire pancreas.

Following the development of combination chemotherapy, many institutions have embraced neoadjuvant combination chemotherapy with or without radiotherapy for patients with locally advanced unresectable disease. Patients with a good response may become potential surgical candidates.

All patients with resected pancreatic cancer, including those with T1NO disease, should be offered adjuvant therapy after resection. Palliative treatment with or without systemic chemotherapy is designed to control the progression of unresectable or recurrent pancreatic cancer, and can provide relief of obstructive jaundice, gastric outlet obstruction, pain, and pancreatic exocrine insufficiency.

**Prognosis**

Five-year survival after pancreaticoduodenectomy is about 25-30% for node-negative and 10% for node-positive disease. The median survival is 8 to 12 months for patients with locally advanced, unresectable pancreatic cancer and only three to six months for those with metastatic disease at presentation.

For further information about our services for GPs please contact our GP Liaison Team on +44 (0)20 7480 5973.