General Data

- Age: 67
- Gender: male
- Marital Status: married

Chief Complaint

- Progressive yellowish discoloration of skin for 4 days.

Present Illness

- The patient suffered from poor appetite for 1 week.
- He denied abdominal pain, but complained of nausea.
- He was told that his eyes got yellowish discoloration by his friend, then he also found his skin became more and more yellow.

Present Illness

- Tea-color urine was noted, but he had no clay-color stool.
- He came to 忠孝 hospital on 5/3, abdominal echo performed there showed GB stone and dilation of right IHD.
- He was transferred to our hospital on 5/4.

Present Illness

- The general surgeon suggested ERCP and PTCD should be performed to evaluate the biliary tree before the operation.
- Throughout the whole course of the present illness, he denied trauma history, cough, body weight loss, chest tightness, diarrhea, dysuria and vomiting.

Family History

- Not contributive.

Personal History

- 1 PPD for 20 years.
- Alcohol: social drinking
- Food allergy: nil
- Drug allergy: nil
- Betel nut chewing: nil
- Life style: active
- Living arrangement: normal

Past History

- Medical history: nil
- Surgical history: nil

Physical Examination

- Eye:
  - Conjunctiva: icteric (+)
- Abdomen: tenderness(+)
- Liver span: 10 cm by percussion on right-mid-clavicular line

Laboratory Data

- 94/05/07
  - WBC: 11.67
  - RBC: 3.80
  - HGB: 11.5
  - HCT: 34.1
  - PLT : 595
  - NEUT : 77.2%
  - LYM : 11.3%
  - MONO : 4.6%
  - Cholesterol :219
  - ALK-P : 795
  - R-GT : 609
  - Lipase (serum) : 60.0

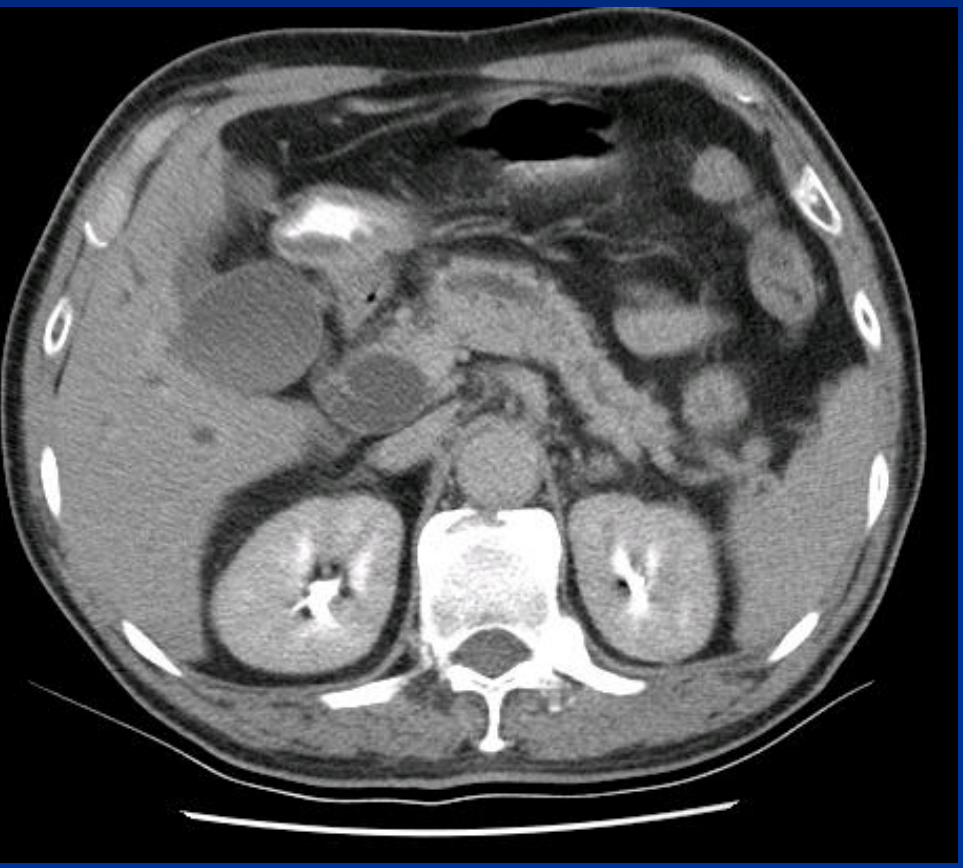
Image Findings: KUB

- Much gas in the intestine.
- Bil. clear psoas shadows.
- Syndesmophyte formation of vertebral bodies and narrowing of bil. sacroiliac joint, suspect ankylosing spondylitis.
- Mild decreased vertebral height at L1 and L2 level.

Image Findings: PTCD

- The PTC reveals dilatation of IHDs and CBD due to obstruction at the distal CBD.
- A 8.5 Fr. pigtail catheter was inserted into the CBD through right lateral approach. The course was smooth.
- About 70ml of thick and dark-green bile was drained from the PTCD catheter.

Image Findings: Abdominal CT

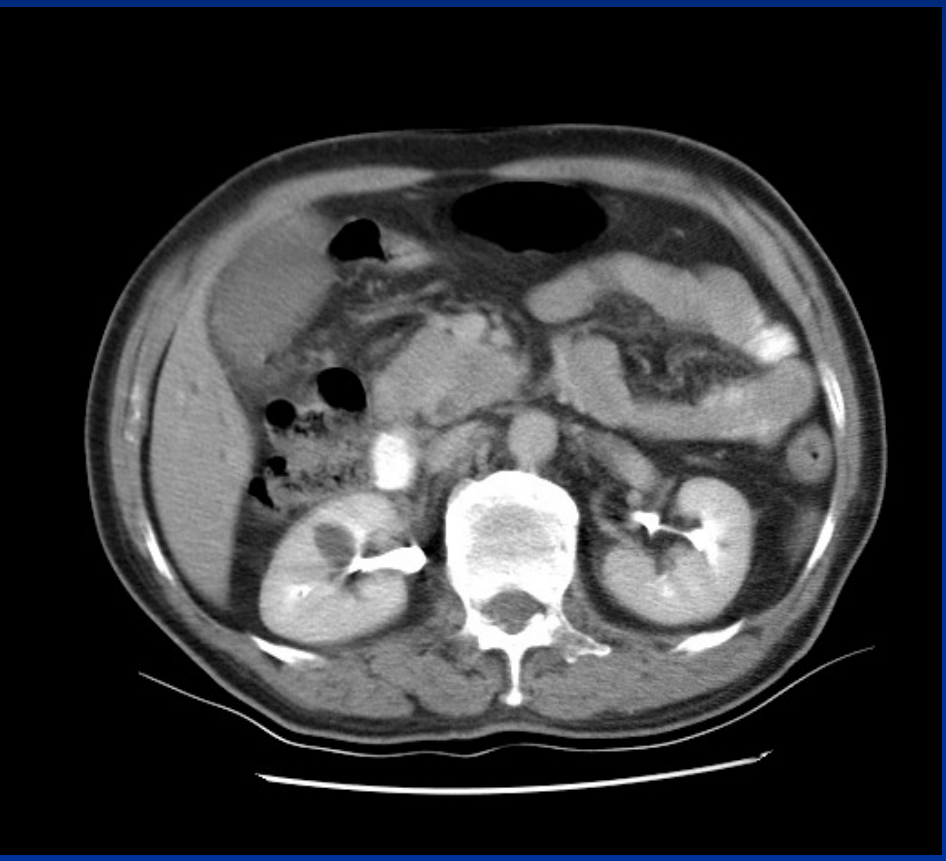


- Remarkable swelling of pancreatic head and dilation of pancreatic duct.
- Dilation of CBD is also seen.

Image Findings: Abdominal CT

- There is remarkable obstructive cholangitis with severe engorgement of gall bladder (over 8.6cm in largest dimension)
- Moderate dilate of bil. branches of IHD and CBD.

Image Findings: Abdominal CT



- There is cystic mass occupy at para-ampullary region, associate remarkable swelling of pancreatic head and pancratic duct.

Differential Diagnosis

- Obstructive jaundice:
  - CBD stone related
  - Malignancy of the pancreas
  - Malignancy of the biliary tract
  - Malignancy of the liver

CBD Stone

- Computed tomography shows a common bile duct stone containing a bright dot of bone density (arrow).

CBD Stone

- Cholangiogram shows an elongated filling defect in the common bile duct.

Cholangiocarcinoma

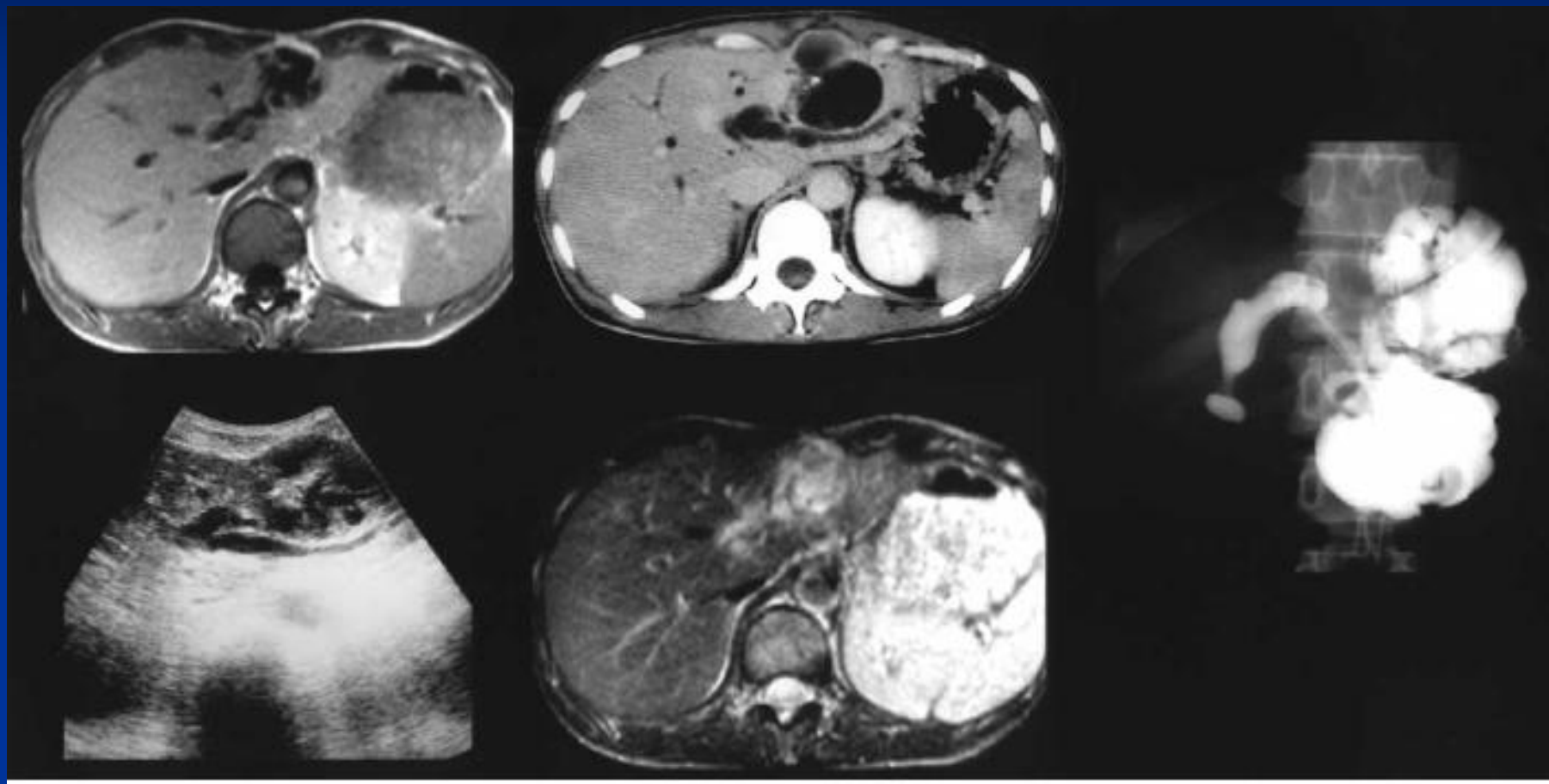


FIG. 1. Mucin-producing peripheral cholangiocarcinoma. Ultrasound (**bottom left**), CT (**top middle**), and MRI (**top left, bottom middle**) in a 43-year-old man show a multilobular cystic mass in the left lateral segment, with dilatation of the intrahepatic ducts. Endoscopic cholangiogram (**right**) shows marked dilatation of the intrahepatic ducts in the left lateral segment and amorphous filling defects in dilated ducts. The resected specimen showed papillary masses and a large amount of mucin in the dilated ducts.

Biliary Cystadenocarcinoma

FIG. 2. Biliary cystadenocarcinoma. (**Left to right**) Ultrasound, CT, and MRI in a 71-year-old man show dilatation of the intrahepatic ducts in the left lateral segment. No specific cause of ductal dilatation could be seen; the resected specimen showed granular and papillary masses in dilated hepatic ducts.

Hepatocellular Carcinoma

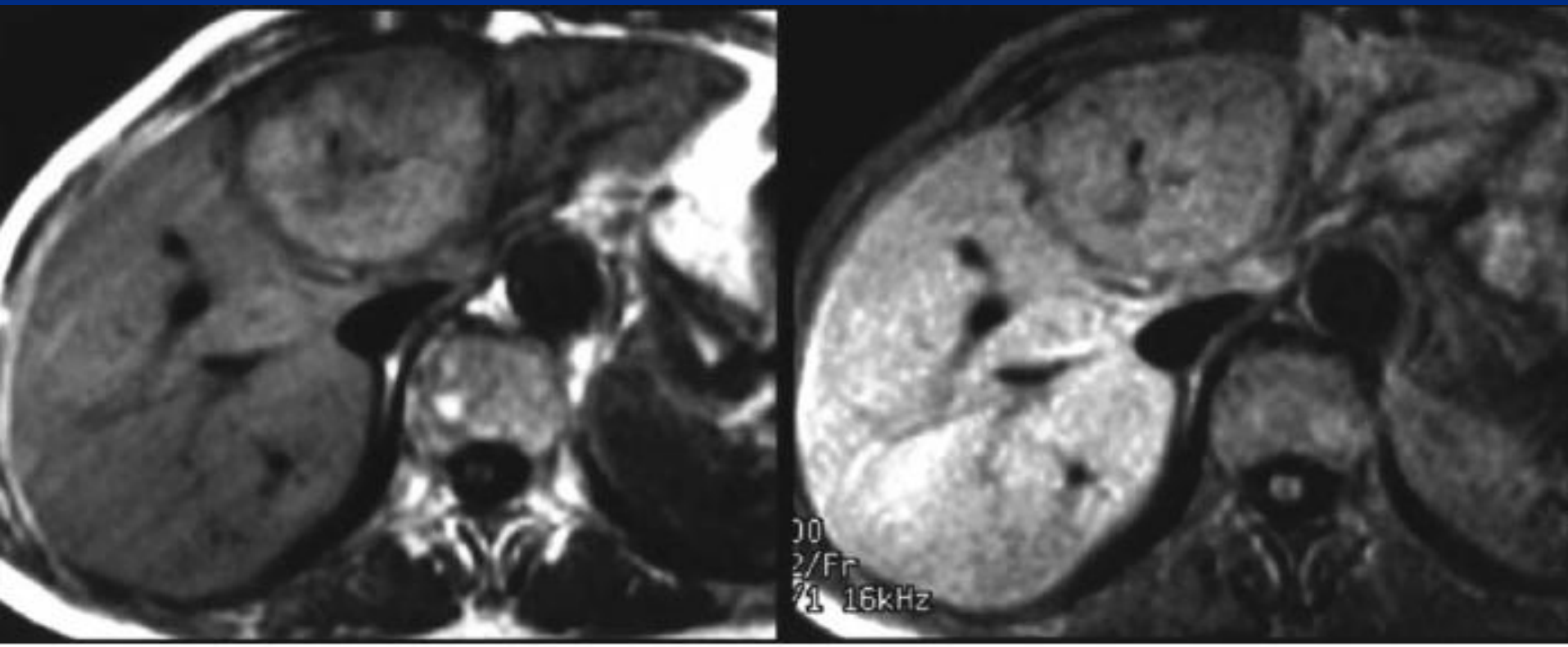


FIG. 5. Hepatocellular carcinoma. Fat-suppression MR images in a 68-year-old woman show the mass in the left lobe. The lesion has a thick capsule and there is dilatation of the left bile duct, suggesting intratumoral fatty degeneration. The resected specimen showed a capsule and intratumoral septa, with dilatation of the left bile ducts.

Hepatocellular Carcinoma

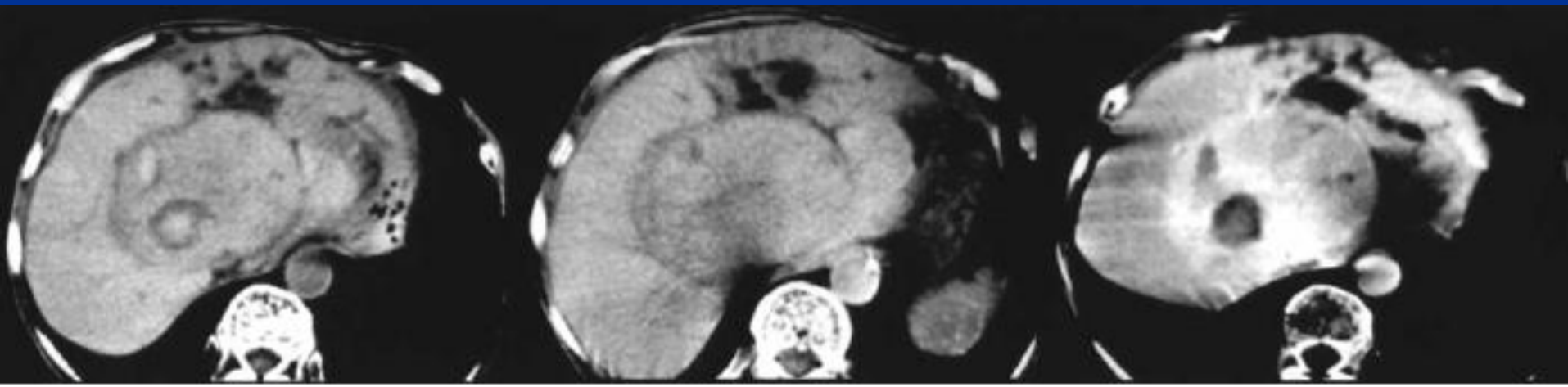


FIG. 6. Hepatocellular carcinoma. CT scans in an 88-year-old woman show a large mass with intratumoral hemorrhage in the caudate lobe. There is dilatation of the left bile ducts and hemorrhagic ascites.

OP Findings

- A large tumor mass at pancreatic head to uncinate process, hard in consistency, tightly adhered to SMV and SMA with direct invasion.
- Regional LN (+)
- CBD of 1.2cm in diameter with thick adhesions to hepatoduodenal ligament.
- Pancreatic duct 0.8cm in diameter.

Pathology Findings

- Pancreas: ductal adenocarcinoma, moderately to poorly differentiated with positive surgical margin.
- CBD: adenocarcinoma, invasive with free surgical margin.
- Pancreatic duct: adenocarcinoma, with free surgical margin.
- Duodenum: adenocarcinoma, invasive.

Pathology Findings

- Duodenum, ampulla of Vater: negative for malignancy.
- Stomach: chronic gastritis
- Gall bladder: cholelithiasis with chronic cholecystitis
- Lymph node, lesser curvature: no metastatic carcinoma.
- Lymph node, greater curvature: no metastatic carcinoma.

Final Diagnosis

- Ductal adenocarcinoma of pancreas, T4N1M0, stage IIIB

Discussion: Adenocarcinoma of Pancreas

- Of all the GI malignancies, pancreatic adenocarcinoma is the second most common cause of death from cancer. In clinical practice, pancreatic cancer is synonymous with pancreatic ductal adenocarcinoma, which constitutes 90% of all primary malignant tumors arising from the pancreatic gland.

- The definitive causative factors that indicate an increased incidence of pancreatic cancer are unknown. High-protein and high-fat diets, cigarette smoking, and exposure to industrial carcinogens are implicated as causative factors. An increased incidence has been reported in chemists, workers in metal industries, and coke- and gas-plant employees.

- Hereditary pancreatitis is present in 40% of patients with pancreatic carcinoma. Cigarette smoking increases the risk by 2 times and diabetes by 2 times more than the general population. Alcohol abuse is seen in 4% of patients. Asbestos exposure is not associated with pancreatic carcinoma.

- Undoubtedly, an association exists between pancreatic cancer and diabetes mellitus. Association of alcohol and pancreatic cancer is indirectly related to the development of alcohol-induced pancreatitis. The acquired variety of chronic pancreatitis does not seem to be strongly related to pancreatic cancer. Individuals with the hereditary type of chronic pancreatitis seem to have a predisposition for pancreatic cancer stronger than that of the general population.

Frequency

- The incidence of cancer has tripled over the past 40 years throughout the Western world. It is highly fatal and has one of the lowest survival rates. In England and Wales, pancreatic cancer accounts for approximately 6000 deaths each year.

Staging

- T Staging:
  - Tis (carcinoma in situ) is very early stage pancreatic cancer, which has not had a chance to spread. This is not at all common with this type of cancer.
  - T1 means the size of the tumour in the pancreas is 2cm or less in any direction
  - T2 means the tumour is more than 2cm across in any direction
  - T3 means the cancer has started to grow into surrounding tissues around the pancreas, in the duodenum or the bile duct
  - T4 means the cancer has grown further into the stomach, spleen, large bowel or nearby large blood vessels.

Staging

- N0 means there are no lymph nodes containing cancer. N1 means there are lymph nodes which contain cancer cells and so the cancer is more likely to have spread further than the pancreas itself. N1 is divided into
  - pN1a - there is cancer in a single nearby lymph node
  - pN1b - there is cancer in more than one lymph node
- M0 means the cancer has not spread into distant organs such as the liver or lungs. M1 means the cancer has spread to other organs.

Clinical Details

- Clinical symptoms and signs develop late and depend on the site of the tumor. Tumors in the body and tail produce late symptoms. Pain is the most consistent symptom. Painless jaundice alone is uncommon and is seen in 13% of patients. Approximately 34% present with pain alone, and about 46% with pain and jaundice. Severe pain invariably indicates spread of tumor to perineural lymphatics.

Clinical Details

- Weight loss and anorexia are observed in 7% of patients. Hematemesis and melena occasionally occur in late cases, and these may be caused by direct invasion of the adjacent duodenum or stomach or as a result of portal hypertension from splenic and portal vein obstruction.

Physical Examination

- A palpable gall bladder (Courvoisier sign) is observed in approximately 25% of patients with operable tumors. Tumors in the body and tail appear late, as they do not cause any immediate pressure effects on ducts. They present with pain when large. Hepatomegaly is seen in 65% of patients and may indicate liver metastasis, although the sign is nonspecific.

Physical Examination

- Positive clinical signs indicate incurable disease, and a palpable abdominal mass is observed in 10% and ascites in 5%, which suggests advanced disease. Obstructive jaundice is seen in 75% of patients. Other signs include new onset of diabetes in 25-50% of patients, thrombophlebitis, and fatigue. More than 90% of patients present at a late stage in the disease process.

Laboratory tests

- Laboratory tests reveal elevated bilirubin concentrations. The total bilirubin level tends to be greater with malignant obstruction, as compared with the increase in bilirubin levels due to ductal obstruction caused by choledocholithiasis.

Laboratory tests

- Conjugated bilirubin and alkaline phosphatase levels are higher in patients with obstructive jaundice than in those with liver parenchymal disease. Elevation of serum amylase values is less common and seen in about 5% of patients with pancreatic cancer.

Image: X-Ray

- Plain radiographs have no role in establishing a firm diagnosis of pancreatic carcinoma. Pancreatic calcifications may be seen concurrently in approximately 2% of patients who have chronic pancreatitis complicated by pancreatic carcinoma.

Image: CT scan

- Features suggestive of underlying pancreatic cancer include the following: alterations in morphology of the gland with abnormalities of CT attenuation values, obliteration of peripancreatic fat, loss of sharp margins with surrounding structures, involvement of adjacent vessels and regional lymph nodes, pancreatic ductal dilatation, pancreatic atrophy, and obstruction of the common bile duct.

Image: MRI

- The role of MRI in the management of pancreatic adenocarcinoma has yet to be firmly established. Compared with other modalities, MRI appears to be more valuable for staging the extent and spread of pancreatic carcinoma than for tumor detection of lesions smaller than 2 cm. The ability of MRI to demonstrate pancreatic adenocarcinoma largely depends on the demonstration of deformity of the gland, as reflected in its size, shape, contour, and signal intensity characteristics.

Image: PET

- The detection of a pancreatic tumor and distinguishing its appearances from those of other focal pancreatic diseases has remained a challenging diagnostic problem.

Image: PET

- Positron emission tomography (PET) is based on functional changes in the pancreatic cancer cells caused by enhanced glucose utilization as in any other malignant tissue. With 2-[fluorine 18]-fluoro-2-deoxy-D-glucose (FDG), PET can be used to identify pancreatic cancer and differentiate it from chronic pancreatitis with a sensitivity of 85-98% and a specificity of 53-93%.

Image: Angiography

- Angiography is an invasive procedure that demands considerable operator skill and high-quality radiographic technique. Selective arteriograms obtained with an injection of iodinated contrast through the celiac axis and superior mesenteric artery with some magnification techniques may be required to demonstrate detail.

Treatment

- Surgical resection is the treatment of choice for symptomatic tumors and tumors that show continuous growth. Many of these tumors may require a Whipple procedure or distal pancreatectomy, depending on the anatomic location.

Prognosis

- In the United States, pancreatic cancer accounts for an estimated 8.4 deaths per 100,000 persons. Adenocarcinoma of the pancreatic head has a 3-year survival rate of only 2%, and the 5-year survival rate after resection is about 20%. The overall survival rate is 0.5%. Approximately 80-90% of patients have regional and distant metastases by the time the disease is diagnosed and are not suitable for curative resection. Only 4-16% of the tumors are resectable at diagnosis.

Thank you for your attention!