Pancreas

Szabó Endre
The pancreas

MPD: 1-3 mm
gland: 40±10 HU
Peritoneum 1

- anterior pararenal space:
  - peritoneum
  - duodenum
  - Gerota’s fascia

smaller ventral adheres to the larger dorsal part
• the tail is usually intraperitoneal (lig. splenorenale)
Vessels

- AMS with fat, but direct contact with VMS
- lienal v. & a.
- CBD, MPD: max. 5 mm
Structure

- 80 % exocrine
- 2 % islands of Langerhans
- 18 % stroma
Modalities: ?extent ?necrosis

- X-ray
- US
- CT
- MRI
- ERCP/MRCP
- EUS
- nucl. med.
## Indications:

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<th>Tu. diagnosis</th>
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<th>tu. diagnosis, operability?</th>
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<td>endocrine</td>
<td>location</td>
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<td>Oncologic f/u</td>
<td>th. results, recurrence?</td>
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<td>Trauma</td>
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<td>Inflammation</td>
<td>exsudative vs. necrotizing, extent pre-th., ?necrosis, pseudocyst</td>
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Developmental anomalies 1

- double drainage – 30% 2 ducts, 2 papilla
- pancr. divisum – 10% splitted by fat
- ectopic pancreas – <10% gr. curvature, duod. part II.
- hypoplasia/agenesia – 1-1 segment
Developmental anomalies 2
Acute pancreatitis

- **Alcohol**
- **Smoking**
- **Gallstones**
- Metabolic disorders: hereditary pancreatitis, hypercalcemia, hyperlipidemia, malnutrition
- **ERCP**
- Abdominal trauma
- Penetrating ulcers
- Malignancy
- Drugs: Diuretics (e.g., thiazides, furosemide), Tetracycline, Sulfonamides, Estrogens, Azathioprine and mercaptopurine, Pentamidine, Salicylates, Steroids
- Infections: Mumps, viral hepatitis, Coxsackievirus, Cytomegalovirus, Mycoplasma pneumoniae, Ascaris
- Structural abnormalities: Choledochocele, Pancreas divisum
- Radiation X-ray
Acute pancreatitis

- **Less common causes**
  - Scorpion venom
  - pancreas divisum
  - long common duct
  - carcinoma of the head of pancreas, and other cancer
  - ascaris blocking pancreatic outflow
  - chinese liver fluke
  - ischemia from bypass surgery
  - fatty necrosis
  - pregnancy
  - infections other than mumps, including varicella zoster
  - repeated marathon running.
  - hyperparathyroidism
  - cystic fibrosis
Acute pancreatitis

- Dg: oedema, fluid, infiltrated fat
- CT: size, necrosis, ring (absc?), gallstone, pseudyaneurysm, pleural eff., atelectasis
- CTSI=inflammation (?extra glandular)+necrosis
Acut pancreatitis DDx

- infiltrating cc
- perforated duodenal ulcer
- shock pancreas
- lymphoma/met
Pseudocyst

- Dg: cyst + infiltrated fat
- \( \frac{2}{3} \) intrapancreatic: 85% body&tail, 15% head
- \( \frac{1}{3} \) perisplenic, retroperitoneal, pararenal, left liver lobe
- 2-10 cm
- 15% of all AP’s
- 4-6 wks to develop
Chronic pancreatitis

- Dg: atrophy, Ca, dilated MPD
- NECT: as above + cysta, fascial thickening
- CECT: inhomogeneous
- diffuse, 90% alcohol
Traumatic pancreatitis

- Dg: oedema + history of trauma
- CT: oedema + injury to liver-kidney-duodenum-bowel
SCA – serous cystadenoma

Dg: sponge/honeycomb in head = microcystic SCA

• many, tiny (1-20 mm) cyst
• incidental in 10-30%
• 38% contains Ca (vs. 16% MCA)
MCA – mucinous cystadenoma

• Dg: enhancing, septated mass in body or tail
• NECT: hypodense uni/multilocularis tu. +CA
• CECT: enhancing wall & septae
Mucinous cystadenoma

- <6 cyst
- >2 cm in 95%
- Epidemiology: 10% of pancreatic cysts, 1% of all tumours
- Symptoms: silent space occupying lesion
- ↑CEA, ↑CA19-9
Mucinous cystadenoma

- peak age: 50, F:N=1:9
- good prognosis after complete surgical removal
Cc.

• Dg: irregular, inhomogeneous, small enhancement, CBD & MPD occlusion
• head 60%, body 20%, diffuse 15%, tail 5%
• avg.: 2-3 cm, max. 10 cm
• most frequent (75%) exocrine pancreatic tu.
• not a good surgical candidate
Cc.

- Etiology: smoking, DM, CP, fat in diet
- only 2-3% of all cancers, but killer
- may coexist with colon cc (Gardner sy.)
Cc.

- Clinically: poor symptoms, jaundice, weight loss, Courvoisier sign
  - 65% advanced/metastatic
  - 21% localized + regional In.
  - 14% only the pancreas
- ↑CEA, ↑CA19-9
- starts at 55, peak in 7th decade
- F:N=2:1
Cc.

- poor prognosis, 20% 5 y survival with pancreaticoduodenectomy (Whipple’s procedure)

- Th: radiation, GEA, coeliac blockade
ICT – island cell tu.

• in the pancreas 85%
• ectopic in 15% (duodenum, stomach, ovaries)
• 1-10 mm
• 85% hormonally inactive
• ~ 50% malignant
ICT

- NECT: different sizes, ± Ca, could be cystic
- CECT: hypervascular, liver mets.
Secondary malignancies

- Dg: lump, with normal duct
- CT: 78% single, 17% multiple
- hyperdense: 60% homogeneous, 15% inhomogeneous
- hypodense: 20%, isodense 5%
- + liver 36%, +LN 30%, +adrenal 30%
- in ⅓ dilated duct
Met.

- RCC 30% even 5-10 y later!
- bronchus 23%
- breast 12%
- soft tissue sarcoma 8%
- colon, MM 6-6%
- prostata, ovarium
Met.

Clinically: no symptoms or jaundice
F=N
bad prognosis
Th: surgery, if solitary
Lymphoma

• CT: thickened, homogeous lump
• infiltrative, vessel encasement?
• B cell NHL is the most frequent
Lymphoma

- primary <1%
- secondary 30%
- Clinically: ?tender ?jaundice
- M : F=1.4 : 1
- poor prognosis
- Th: chemotherapy
Spleen
Modalities: ?size ?focal

- X-ray (plain)
- US
- CT
- MRI
Developmental

- agenesis
- polysplenia
- lobulations
- accessory
Splenomegaly
Infarct

- double vascular supply
Cyst – Infl. - Hydatid
Tu.

- Hemangioma
- Lymphoma
- Met.: melanoma, breast, lung, colon, ovary, endometrium