Imaging Features of Frantz Pancreatic Tumors

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BACKGROUND

- Pancreatic solid – pseudo papillary tumor (SPT)

- Known as FRANTS Tumors
  - Described by Virginia.Kneeland.FRANTZ 1959

- Rare entity
  - 0.3-2.7% of all pancreatic neoplasm (Adenocarcinoma +++) (1)


PATHOLOGY

- An uncommon exocrine pancreatic tumor
- Still unknown etiopathogenesis: cellular origin remains unclear
CLINICAL PICTURE

- Young women (20 – 30 years), Black or Asian race
- Asymptomatic or
- Non specific symptoms
  - Pain
  - Dyspepsia – vomiting – nausea
  - Palpable epigastric mass

- Rarely: intra tumoral hemorrhage or intra peritoneal rupture

- Only 20% are symptomatic
- At time of diagnosis, the diameter is usually 5 – 10 cm
Non specific symptoms

- US: abdominal mass
  Large well-defined solido cystic mass
Pancreatic and liver enzyme levels remain normal.

Tumor markers as CA19-9, CEA, alpha fetoprotein remain within their reference ranges.
SUMMARY

- Young woman
- Palpable mass
- US: mixed solido – cystic
SUMMARY

- Young woman
- Palpable mass
- US: mixed solid–cystic
But !!! What about the protocol

Multiphasic protocol:
- Without injection phase
- Arterial phase: 30 – 35 sec
- Portal phase: 60 – 70 sec
- Delayed phase: up to 2 – 3 min
FINDINGS

- Without contrast phase
  - Large inhomogeneous mass
  - Calcification 30%
  - Hyper dense portion: hemorrhage
FINDINGS

- Contrast phase (Arterial and portal)
  - Progressive enhancement
  - Necrosis
  - Solid tissue
FINDINGS

- Contrast phase
- Segmental portal hypertension
FINDINGS

- Contrast phase

- GI tract compression
FINDINGS

- Delayed phase
- Encapsulated
  (Fibrous capsule)
MDCT

- Guide the diagnosis
- Allow the local and distant assessment

- Resectability: Only curative treatment is surgery
- Metastasis: 15%
FINDINGS

- Vascular cartography
- Resectability
MRI

- High Contrast resolution  ➤  Gold standard (2)
  - Key to analyze any cystic pancreatic lesion

- Routine protocol:
  - SE T2
  - In / out phase
  - MR Cholangiopancreatography 2D – 3D
  - Multi phases injection: As CT
    - Arterial phase / Portal phase / Delayed phase

FINDINGS

- SE T1
- Foci of hemorrhage
FINDINGS

- SE T2
  - Solid : Tissue
  - Cyst : necrosis
FINDINGS

- SE T2
- Fibrous capsule
  Hypo intense T1
FINDINGS

- Enhancement
  - Same thing as CT
FINDINGS

- Cholangiopancreatography MRCP
  - Main relationship with main pancreatic duct
LOCALISATION ?

- Pancreatic tail 40% (3)

Contraindicated (4)

- Risk of capsular effraction:
  - Peritoneal diffusion
- Metastatic spread

(3) P. Lévy, P. Hammel, P. Ruszniewski Gastroentérologie Clinique et Biologique, Volume 33, Issues 6–7, June 2009, Pages 501-502
TEATEMENT

- Surgery R0: Only curative treatment
- Duodenopancreatectomy
- Central or caudal pancreatectomy

Lymph node ?? exceptional (5)

Malignancy

Local signs:
- Capsular discontinuity: invasion
- Exophytic
- Main pancreatic duct obstruction

Distant signs:
- Liver metastasis in 15% - peritoneum
Endoscopic – Ultrasound?

- Allow Fine needle aspiration EUS-FNA
- Become the gold standard for diagnosis of pancreatic neoplasms
  - Sensitivity 80 – 90% (6)
  - Specificity 85 – 96% (6)

Endoscopic – Ultrasound?

- So, Unclear imaging SPT diagnosis : EUS - FNA
- Positive predictive value 98%

If doubt : Differential
Differential Diagnosis

- Mucinous cyst:
  - No capsule (large necrosis SPT)
- Pancreatic clear cell carcinoma:
  - Age: older, non gender predilection
- Pancreaticoblastoma:
  - More aggressive, Liver and node metastasis
- Adenocarcinoma:
  - Age: older, non calcification or hemorrhage, metastasis +
TAKE HOME MESSAGE

- Woman
- Large masse well defined, encapsulated
- MRI +++
  - Doubt ?? EUS-FNA
- CT for distant assessment and resectability
- Only curative treatment: Surgery
- 15% malignancy transformation: liver metastatic