Biliary Cystadenoma/Carcinoma

- Rare premalignant or malignant, unilocular or multilocular cystic tumor arising from biliary epithelium
- Synonyms: Hepatobiliary cystadenoma/carcinoma, biliary cystic tumor, biliary cystic neoplasm, mucinous cystic neoplasm of liver.
- **Consider**
  - Rule out other complex hepatic cystic masses
- **Image Interpretation Pearls**
  - Large, solitary, well-defined, complex multiloculated cystic mass with enhancing wall and septa
  - Coarse calcifications and mural nodularity > 1 cm suggest malignancy

Demographics

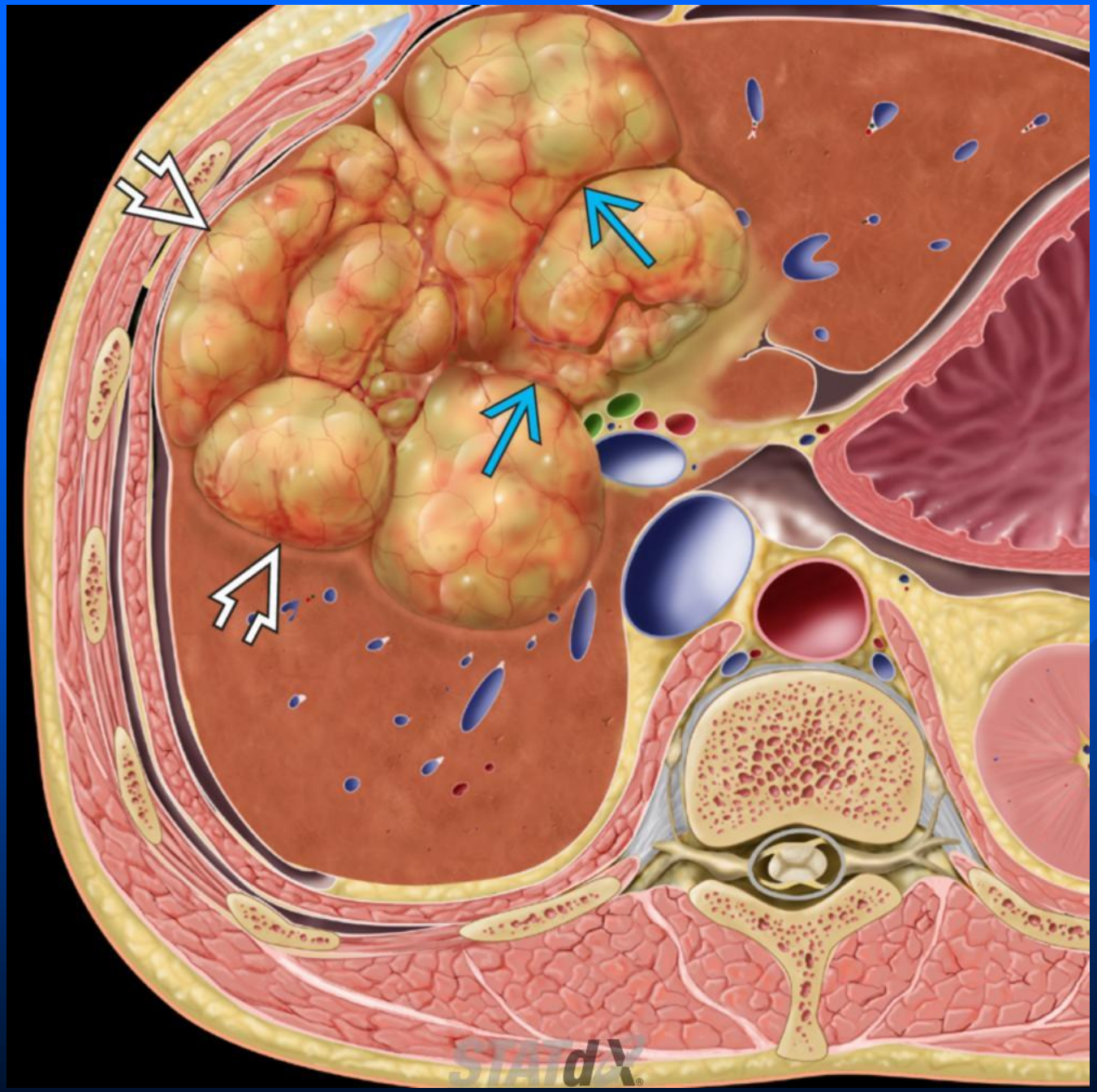
- **Age**
  - Predominantly occurs in middle-aged women (40-60 years old)
- **Gender**
  - Biliary cystadenoma: > 85% of cases occur in women
  - Biliary cystadenocarcinoma: ~ 63% of cases occur in women
    - » Higher suspicion for malignancy if detected in men
- **Ethnicity**
  - Primarily seen in Caucasians
- **Epidemiology**
  - Biliary cystic neoplasms account for < 5% of all reported intrahepatic cysts

Imaging

- Solitary, large, well-defined, multiloculated and multilobulated hepatic cyst
  - Thick, irregular wall and enhancing internal septations
  - May show biliary dilation from mass effect
- Biliary cystadenoma
  - Thin and smooth septa
  - May have fine calcifications and subtle mural nodularity (< 1 cm)
  - Absence of mural nodularity makes cystadenoma more likely
- Biliary cystadenocarcinoma more commonly associated with
  - Thick and irregular septa
  - Mural and septal nodularity (> 1 cm) and papillary projections
  - Coarse calcifications
  - Hemorrhagic internal fluid
- Location
  - Intrahepatic biliary ducts (83%), extrahepatic biliary ducts (13%), gallbladder (0.02%)

DDx:

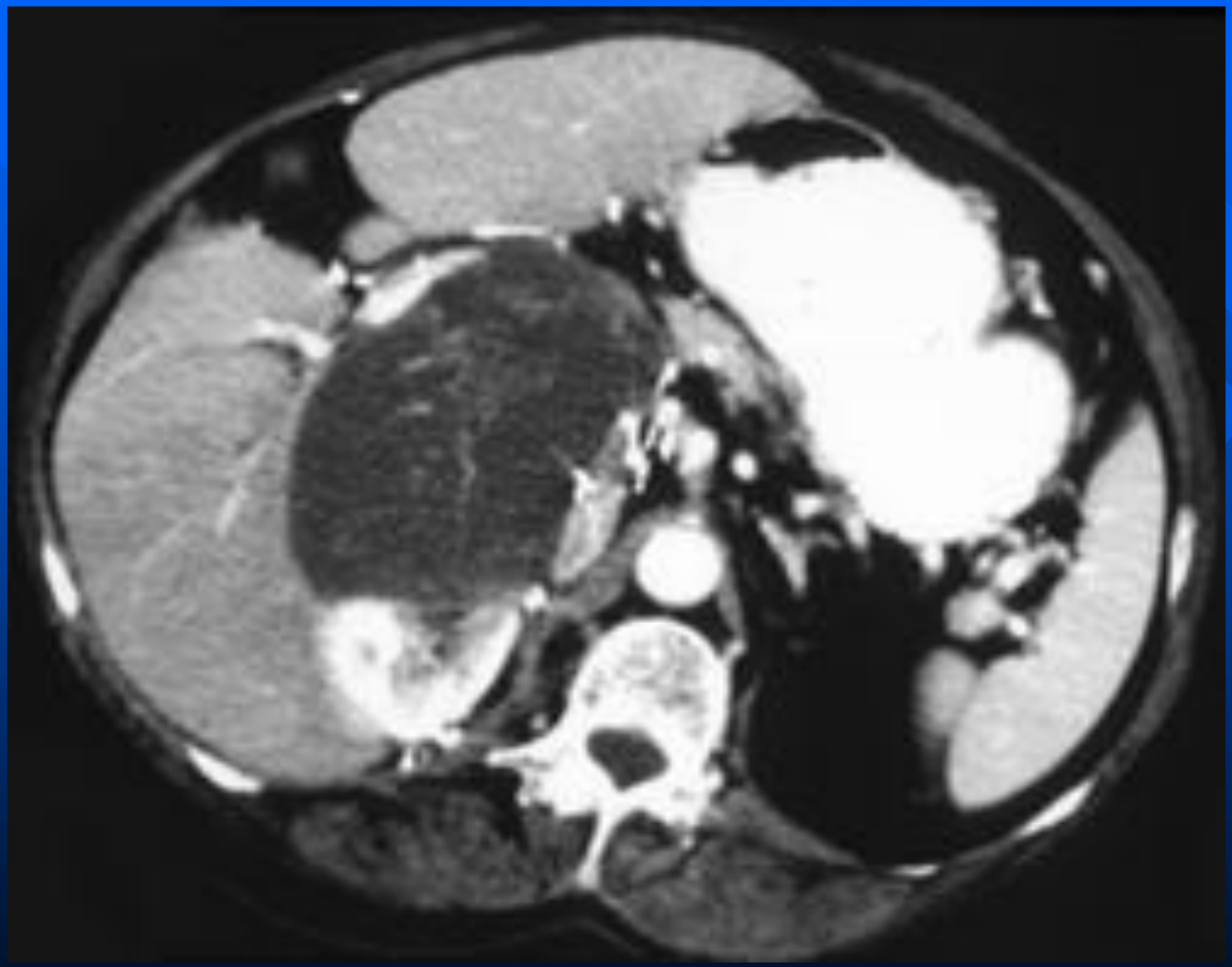
- **Simple/Complex/Complicated Hepatic Cyst**
  - Mostly unilocular homogenous or heterogenous cystic mass ± fluid level
  - May have barely perceptible septations, no mural nodules
- **Hepatic Pyogenic Abscess**
  - Simple pyogenic abscess
    - Well-defined, round, hypodense mass (0-45 HU)
  - "Cluster" sign: Small abscesses aggregate into single large septate cavity
    - Rim enhancement of locules
    - Intracystic contents > water density ± gas
- **Echinococcal (Hydatid) Cyst**
  - Large, well-defined, cystic hepatic mass
  - Classically show peripheral daughter cysts of different density/intensity than mother cyst
  - May have curvilinear or ring-like pericyst calcifications
- **Cystic Metastases**
  - Seen in mucin-producing adenocarcinomas (ovarian/colorectal carcinoma) or hypervascular metastases if outgrowing blood supply (sarcoma, melanoma, etc.)
  - Ill-defined multilocular cystic mass with debris and mural nodularity
- **Biloma**
  - Encapsulated bile collection occurring after trauma or iatrogenic injury
  - Well-defined unilocular cystic lesion ± enhancing rim
  - Water density unless associated with hematoma
- **Rare**
  - Caroli disease
  - Ciliated hepatic foregut cyst



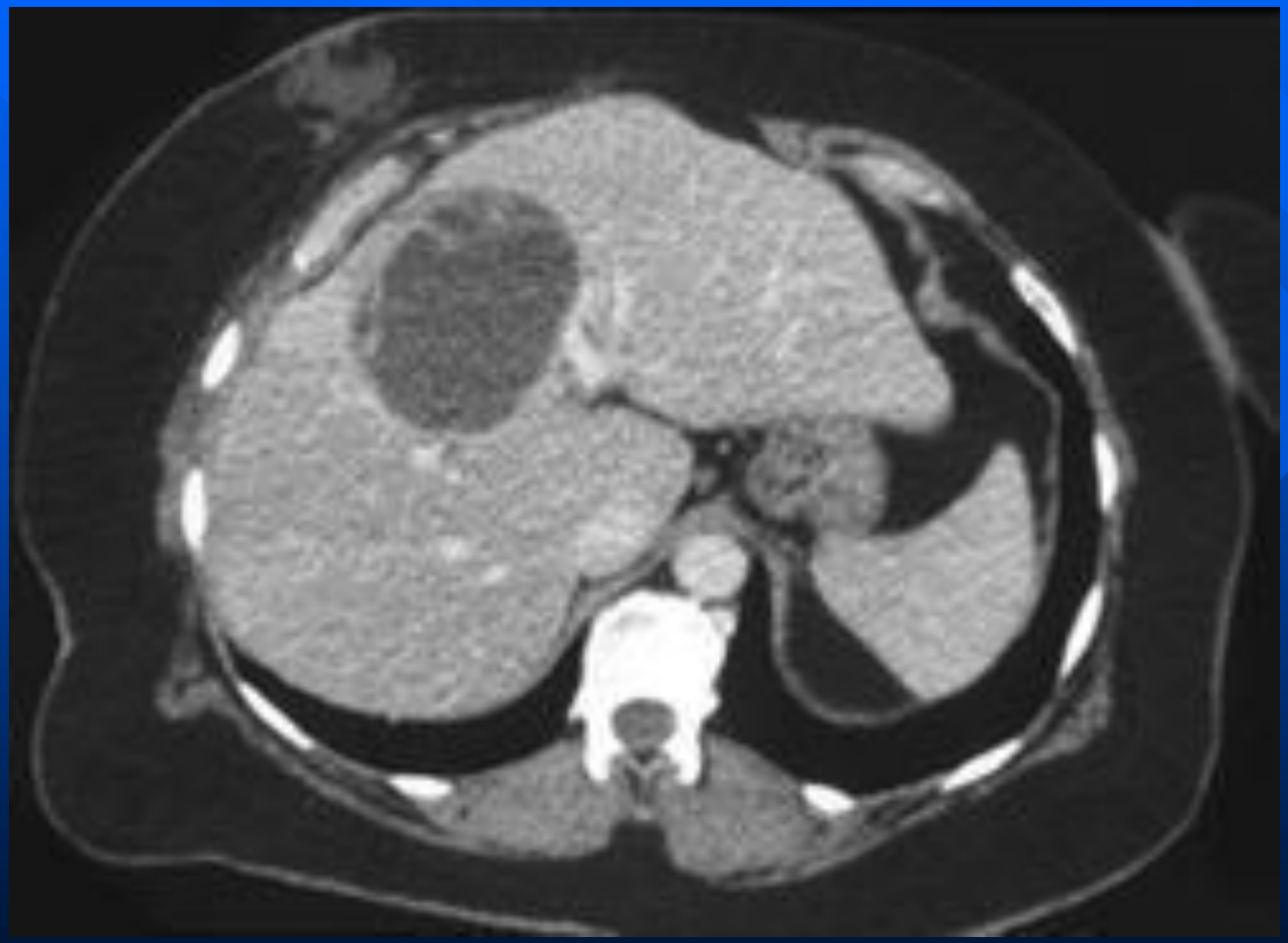
Axial graphic shows a biliary cystadenoma (white open arrow) with lobulated contour and multiple irregular, vascularized septations (cyan solid arrow).

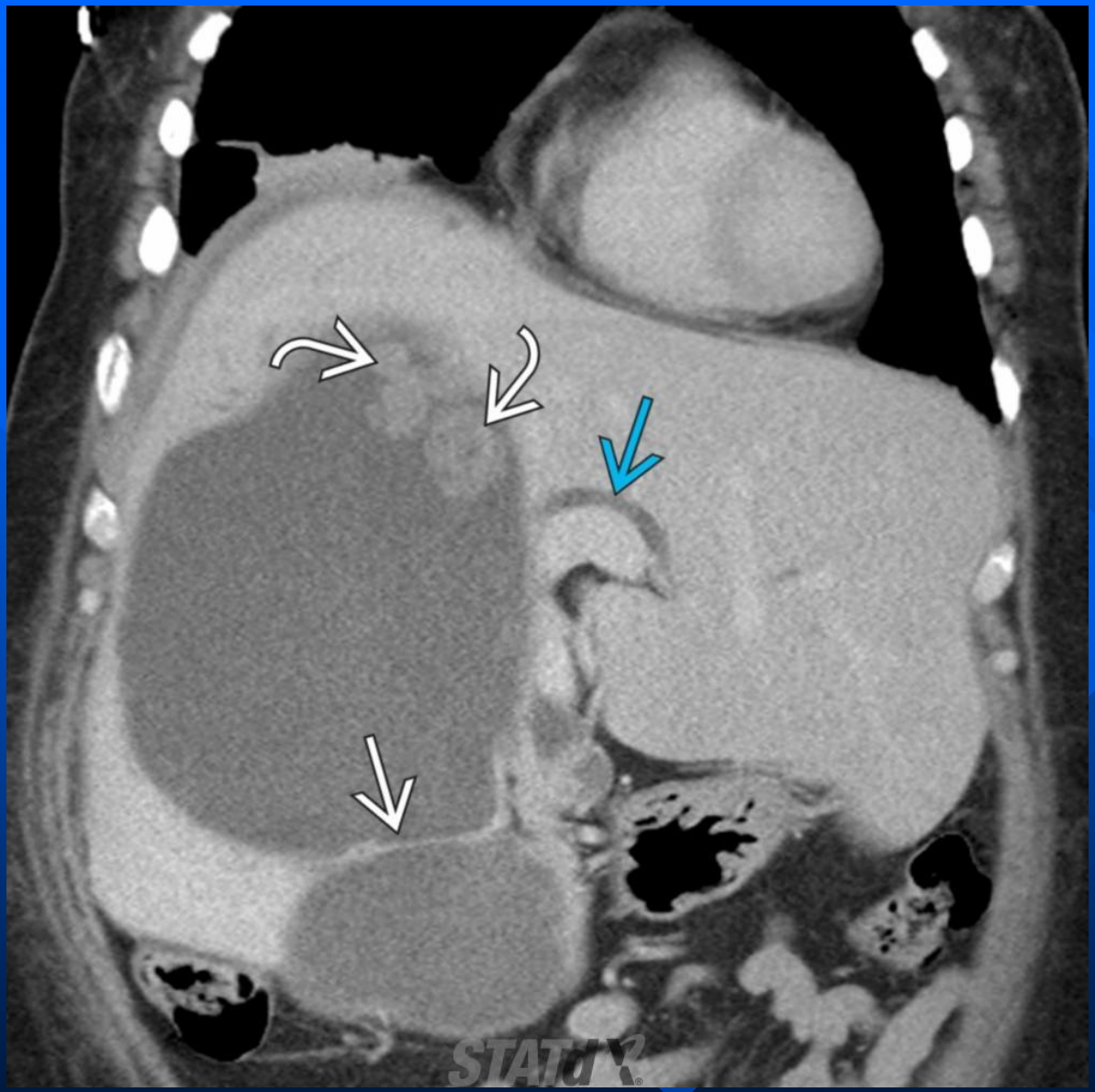
Axial T2-weighted MR with fat saturation of the liver in the same patient shows the large biliary cystadenoma with lobulated contour, multiple thick septations (black solid arrow), and associated mild peripheral biliary ductal dilatation (white curved arrow) caused by central mass effect.

Biliary cystadenoma



Biliary cystadenoma





Coronal CECT shows a biliary cystadenocarcinoma with rounded peripheral enhancing mural nodules (white curved arrow) and thick septation (white solid arrow). Associated biliary ductal dilatation is seen (cyan solid arrow). The degree of complexity with enhancing mural nodules makes this lesion more suspicious for biliary cystadenocarcinoma.