Hyperplastic Cholecystosis (Adenomyomatosis)

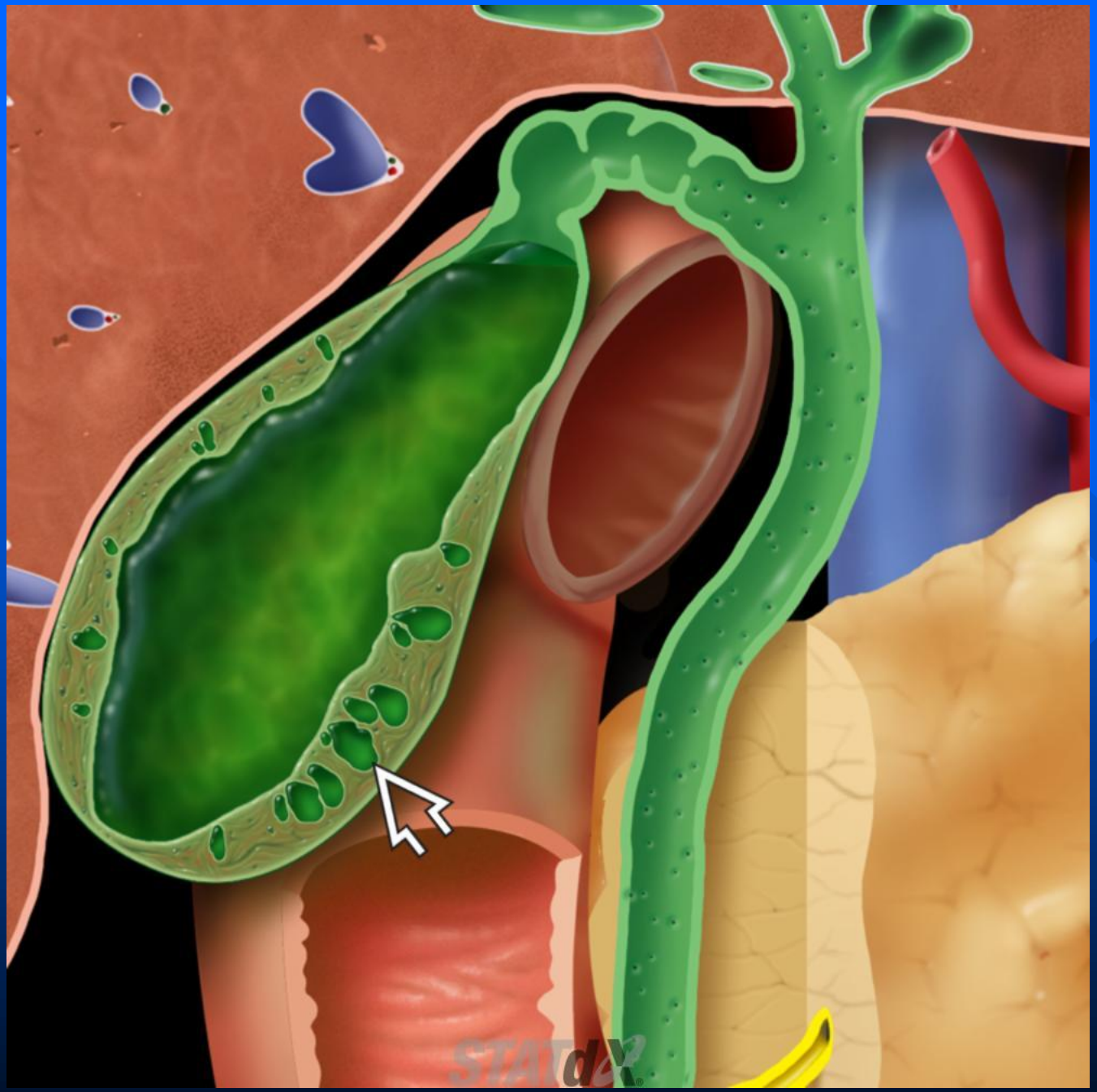
- Adenomyomatous hyperplasia, diverticular disease of gallbladder (GB)
- Although classified together, cholesterolosis and adenomyomatosis have different etiology and clinical features and should be considered separate entities
  - Cholesterolosis: Abnormal deposits of triglycerides and cholesterol esters in subepithelium of GB
  - Adenomyomatosis: Focal or segmental GB wall thickening due to mucosal proliferation and hypertrophy of muscularis with invagination of excess mucosa into thickened muscularis- forming Rokitansky-Aschoff (RA) sinuses; these sinuses can contain bile, cholesterol crystals, sludge, and calculi

Clinical Issues

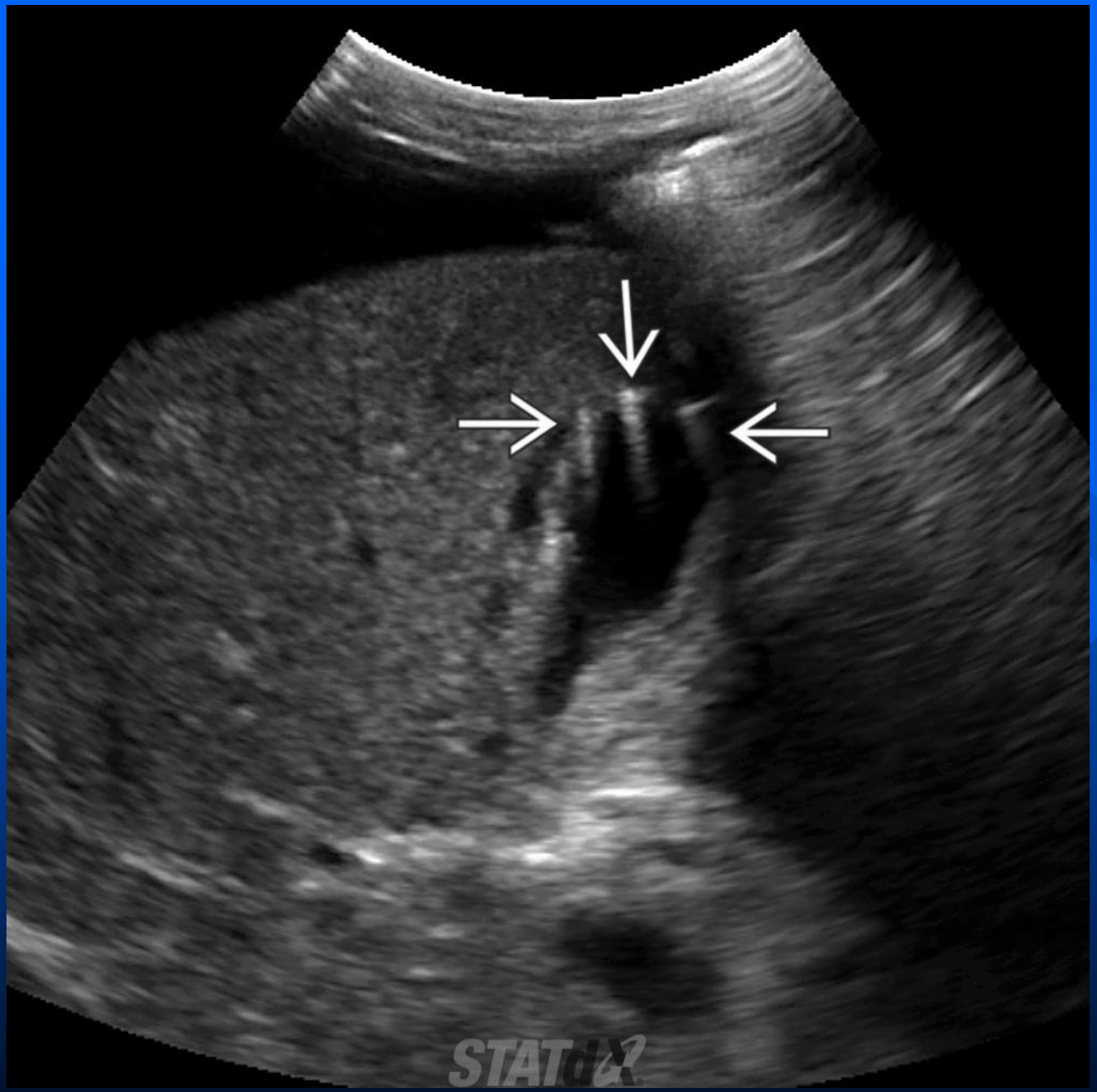
- Cholesterolosis: May present as subtle mural nodules but usually occult
- Adenomyomatosis: Focal or segmental wall thickening with intramural hyperechoic foci and "comet tail" reverberation artifacts
- Gallstones in up to 90%
- When symptomatic, biliary pain (cystic duct obstructed by prolapsing or detached polyp) or dyspepsia (poor GB emptying)
- No conclusive evidence that presence of adenomyomatosis increases risk for GB cancer

US

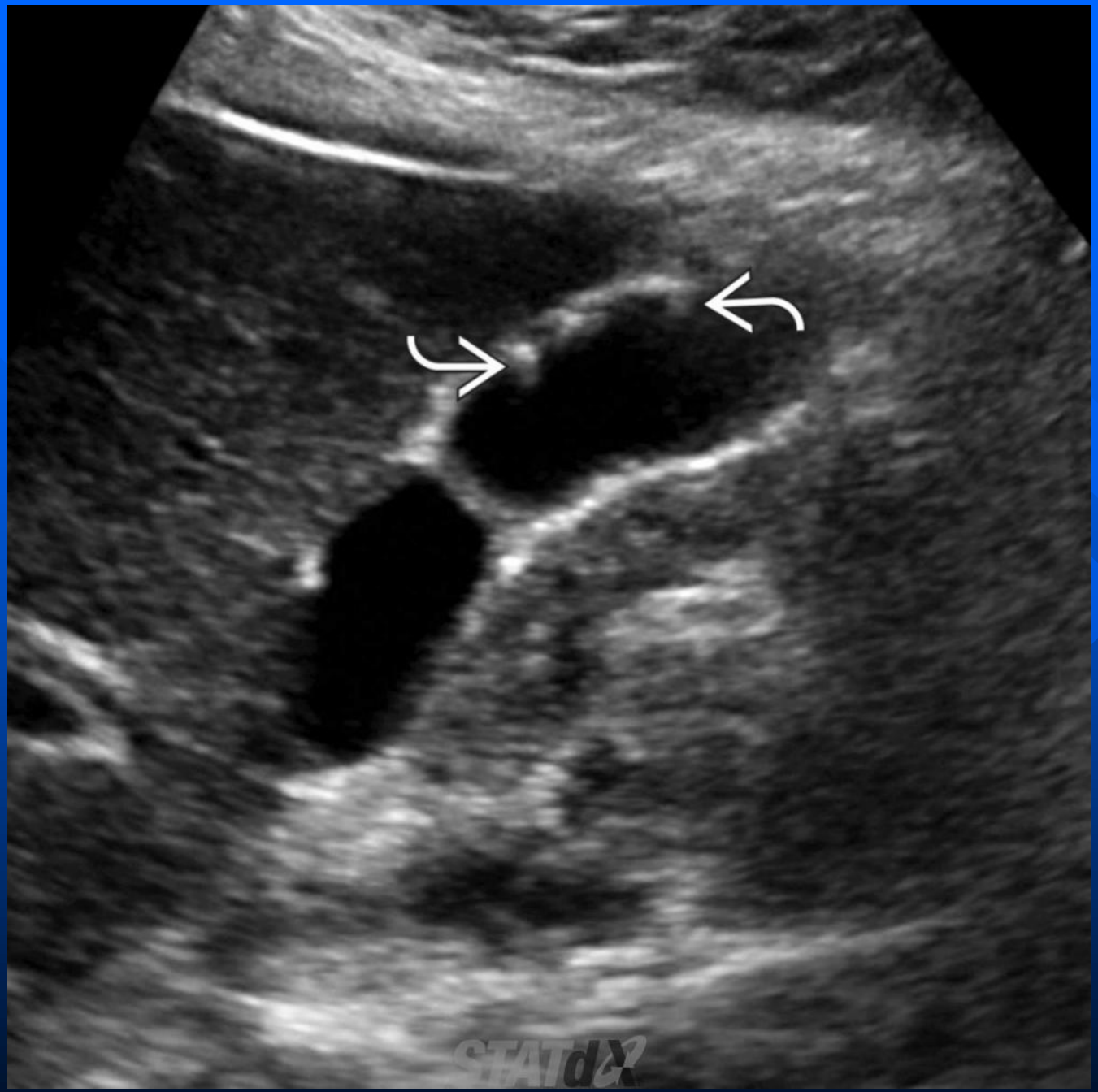
- **Grayscale ultrasound**
  - **Cholesterolosis**
    - » Multiple tiny hyperechoic GB polyps may present as subtle mural nodules
    - » Usually < 1 mm in size
    - » No posterior acoustic shadowing or "comet tail" artifact
    - » No evidence of invasion to adjacent liver parenchyma or regional lymphadenopathy
    - » May coalesce into cholesterol polyps (4-10 mm in size)
  - **Adenomyomatosis**
    - » Focal or diffuse GB wall thickening
    - » Presence of intramural anechoic foci = dilated sinuses
    - » Tiny echogenic intramural foci in GB wall, producing V-shaped or "comet tail" artifacts = debris in sinuses
    - » Hourglass GB: Focal wall thickening forms ring around midbody
    - » Fundal adenomyoma: Smooth intraluminal mass, usually fundal and solitary
- **Color Doppler**
  - No significant vascularity
  - "Twinkling" artifacts on Doppler examination associated with debris in RA sinuses



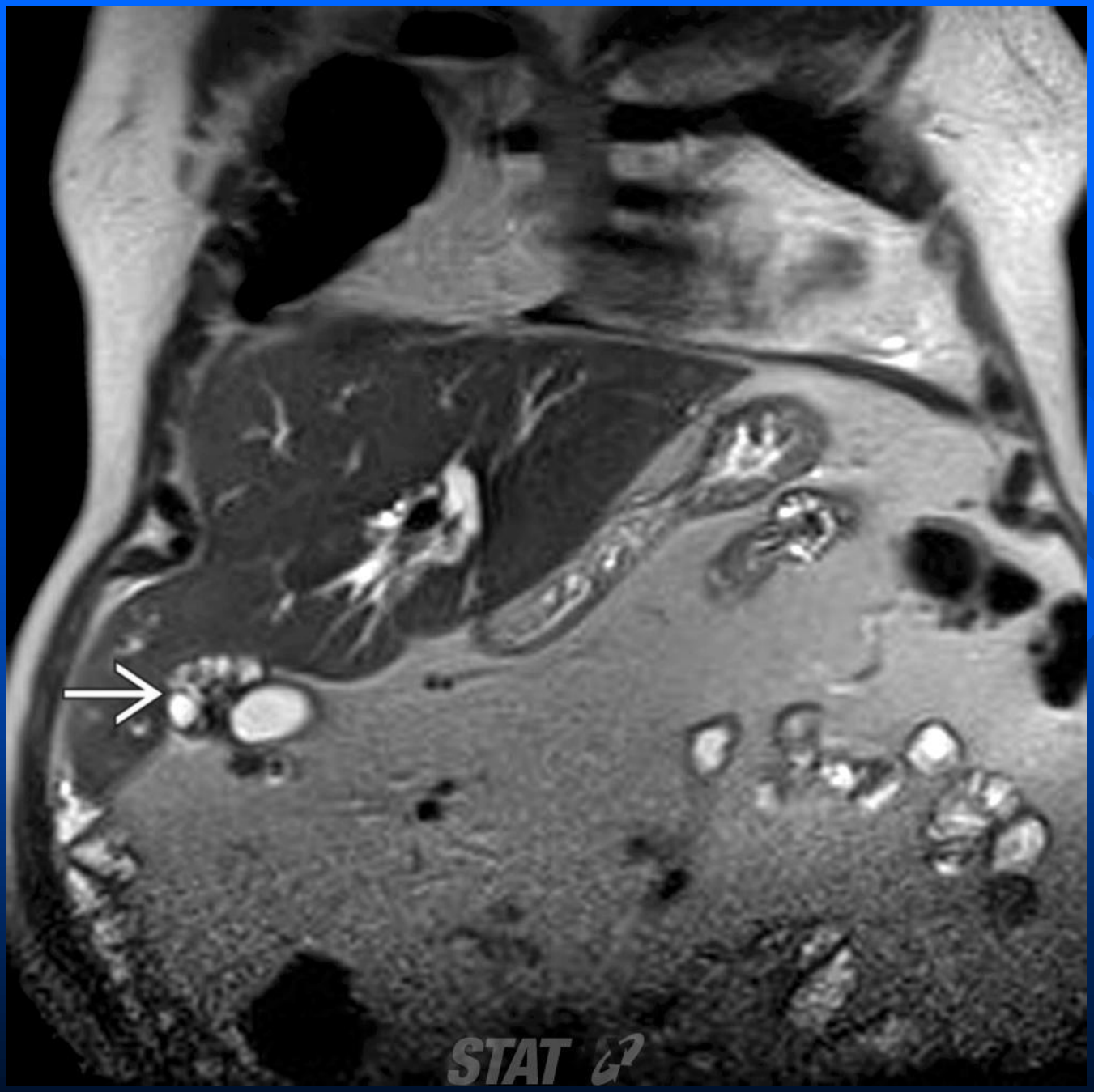
Graphic shows characteristic features of adenomyomatosis. Note the thickened gallbladder (GB) wall with multiple intramural cystic spaces (white open arrow).



Transverse oblique ultrasound demonstrates multiple anterior gallbladder wall "comet tail" artifacts (white solid arrow) emanating from debris in RA sinuses. The sinuses themselves are not visible.

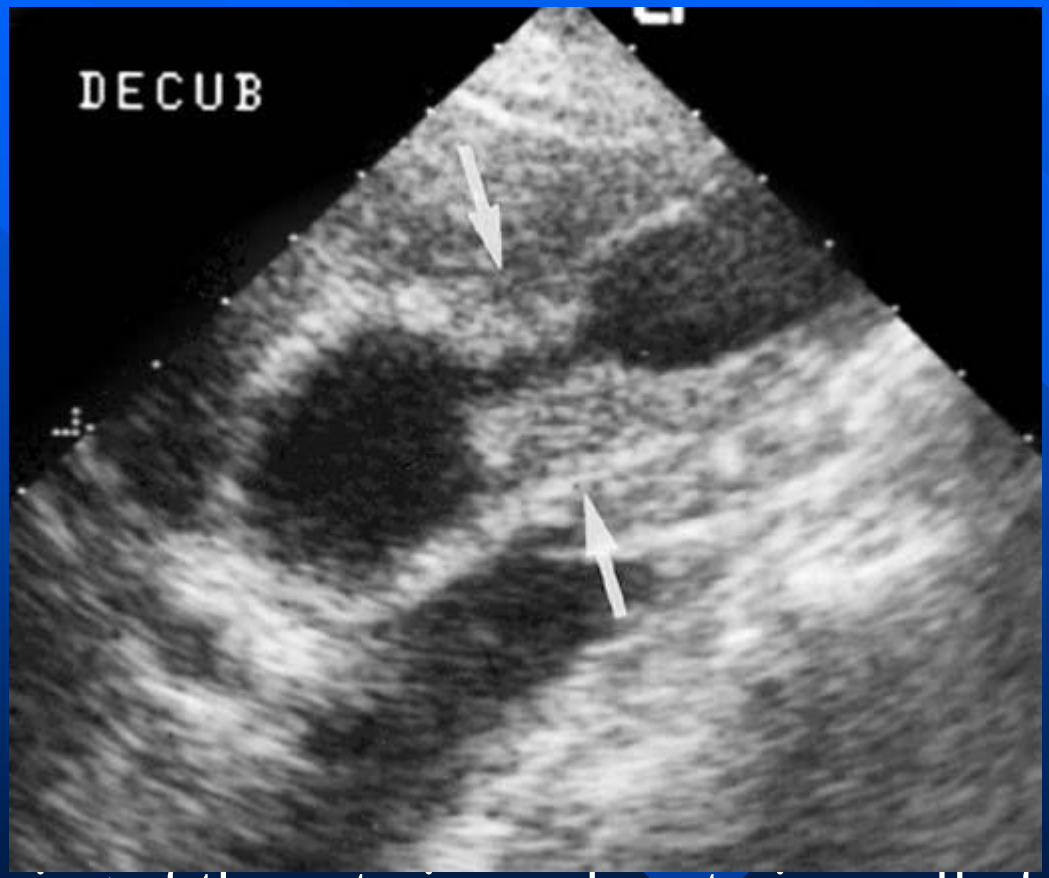


Longitudinal ultrasound through the gallbladder shows multiple hyperechoic foci with V-shaped, "comet tail' reverberation artifact (white curved arrow).



Coronal T2 HASTE MR shows a cluster of fluid-filled intramural diverticula in the (white solid arrow) gallbladder fundus (the "pearl necklace" sign, characteristic of fundal adenomyomatosis).

Segmental adenomyomatosis

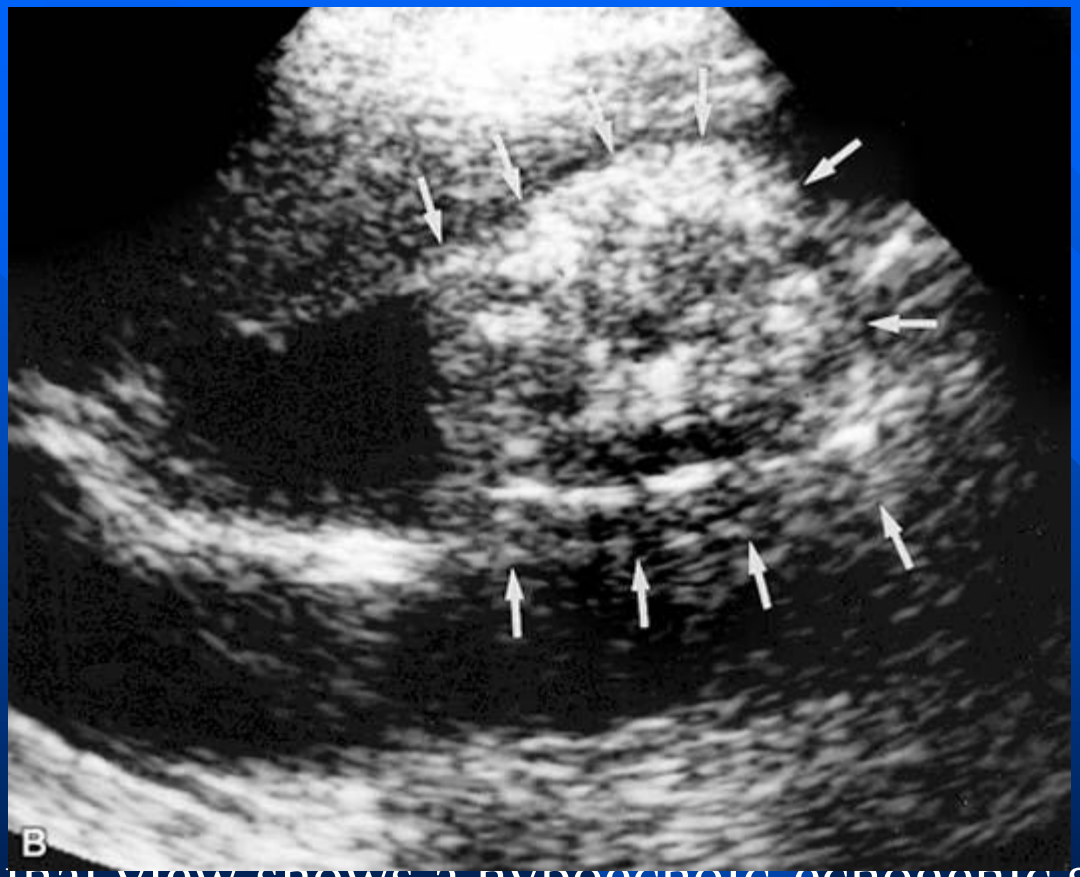


Focal thickening of the anterior and posterior wall of the mid-body of the gallbladder (arrows), causing an "hourglass" configuration of the gallbladder

Adenomyomatosis

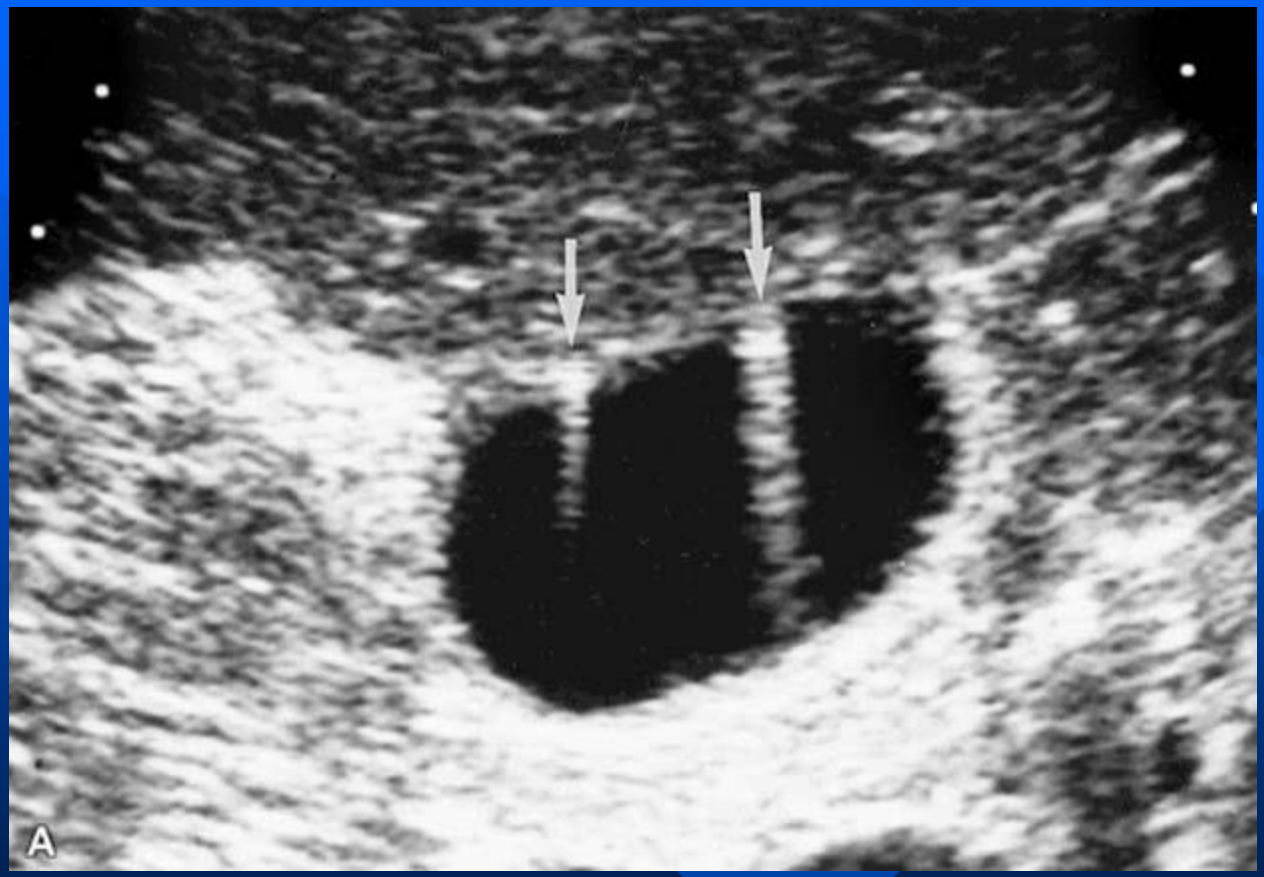
Localized type causing wall thickening of the fundus of the gb, appearing as a focal mass (straight arrows) within the fundus of the gallbladder. One (curved arrow) of the many hyperechoic foci representing cholesterol crystals in Rokitansky-Aschoff sinuses

Fundal adenomyomatosis



Longitudinal view shows a hypoechoic-echogenic solid mass (arrows) in the fundus and the distal body of the gallbladder secondary to circumferential wall thickening. The mass mimics carcinoma of the gallbladder

Adenomyomatosis



Hyperechoic foci within the anterior wall (arrows) producing comet tail artifacts. These are most likely secondary to cholesterol crystals within Rokitansky-Aschoff sinuses in the gallbladder wall

Adenomyomatosis

- Type of hyperplastic cholecystosis
- Benign condition characterized by hyperplastic changes of unknown etiology involving the gallbladder wall and causing overgrowth of the mucosa, thickening of the muscular wall
- Also formation of intramural diverticula or sinus tracts termed Rokitansky-Aschoff sinuses
- > 35 years; M:F = 1:3