



Adenomyomatosis of the Gallbladder: The “Good Omen” Comet

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INTRODUCTION

- Abdominal pain is the most common complaint of ED patients in the USA.
- Emergency physicians (EPs) are increasingly incorporating focused bedside ultrasound performance and interpretation into their practices.
- Consequence: Abdominal incidental findings outside the study focus will be encountered by EPs with greater frequency. EPs who perform ultrasound should familiarize themselves with these in order to more rapidly diagnose and appropriately treat/refer. The following case illustrates one such finding, the comet tail artifact caused by gallbladder adenomyomatosis.

REPORT OF CASE:

- 49-year old woman with unremarkable PMH and PSH presented to ED with abdominal pain.
- Pain was left > right, moderate, intermittent, sharp, one day duration, exacerbated by movement, and not related to eating.
- Vital signs normal. Abdomen soft to palpation. Mild epigastric and bilateral upper quadrant tenderness.
- Goal-directed bedside RUQ bedside ultrasound was negative for gallstones or pericholecystic fluid. Sonographic Murphy's sign negative. Mural ring-down artifacts and gallbladder wall thickening noted (Figure 1).
- On radiology-performed comprehensive RUQ ultrasound, both mural ring-down artifact and absence of cholelithiasis were confirmed (Figure 2). A final radiologic impression of focal adenomyomatosis was reported, and the patient was discharged with a diagnosis of nonspecific pain. Subsequent upper and lower GI endoscopies were nondiagnostic.

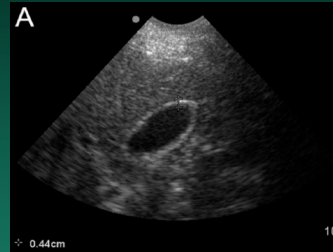


Figure 1A: Long axis gallbladder view demonstrating thickened (4.4 mm) wall.



Figure 1B: Short axis view showing prominent ring-down (“comet tail”) artifact from within the anterior wall.



Figure 1C: Oblique axis demonstrating three foci of ring-down artifact.



Figure 2: Short axis view from Radiology-performed study corroborating mural ring-down.

DISCUSSION

- Gallbladder adenomyomatosis (GBA): Infrequent and rarely symptomatic. Incidence of 2- 8% in cholecystectomy specimens. Unlikely (+/- controversy) precursor to cholelithiasis or carcinoma.
- Pathogenesis: Epithelial and smooth muscle hyperplasia --> gallbladder wall invaginations --> diverticulae known as Rokitansky-Aschoff sinuses (RASs).
- Ultrasound appearance of the RAS:
 - Intramural location
 - Contents can be echo-poor or echo-rich (if sludge within)
 - Distal shadowing or
 - Distal ring-down (“comet tail”) artifact
 - Hypothesized source: Reverberation between the near and far surfaces of the sinuses themselves, closely adjacent intrasinus papillary projections, or contained cholesterol crystals.
- Differential Dx of GBA vs carcinoma: A primary dilemma for the radiologist and prospective surgeon. Differential Dx of GBA vs emphysematous cholecystitis (EC): The most urgent concern for the emergency physician.
 - Fundal emphysema of EC: “Dirty” shadows and comet tails that are linear. Foci are mobile.
 - Comet tails of GBA: “V”-shaped and their source foci fixed in location.
 - Additional differentiating clinical characteristics: Patient overall acuity and laboratory results.
- In GBA, characteristic artifact is limited to the GB wall and is absent from hepatic ductal and venous structures; distinguishes from additional other more serious conditions

CONCLUSION

Emergency physicians performing bedside abdominal ultrasound should be cognizant of the comet tail artifact characteristic of GBA. After ruling out more clinically acute conditions, making this provisional incidental diagnosis can be followed by directed outpatient follow-up and further imaging such as complete sonography or MRI.