

AMSER Case of the Month

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50-year-old female with right upper quadrant
abdominal pain

Ryan Rossi, MS4

Saint Louis University School of Medicine

Ramy Shoela, M.D.

Saint Louis University

Department of Radiology



SAINT LOUIS UNIVERSITY
SCHOOL OF MEDICINE



Patient Presentation

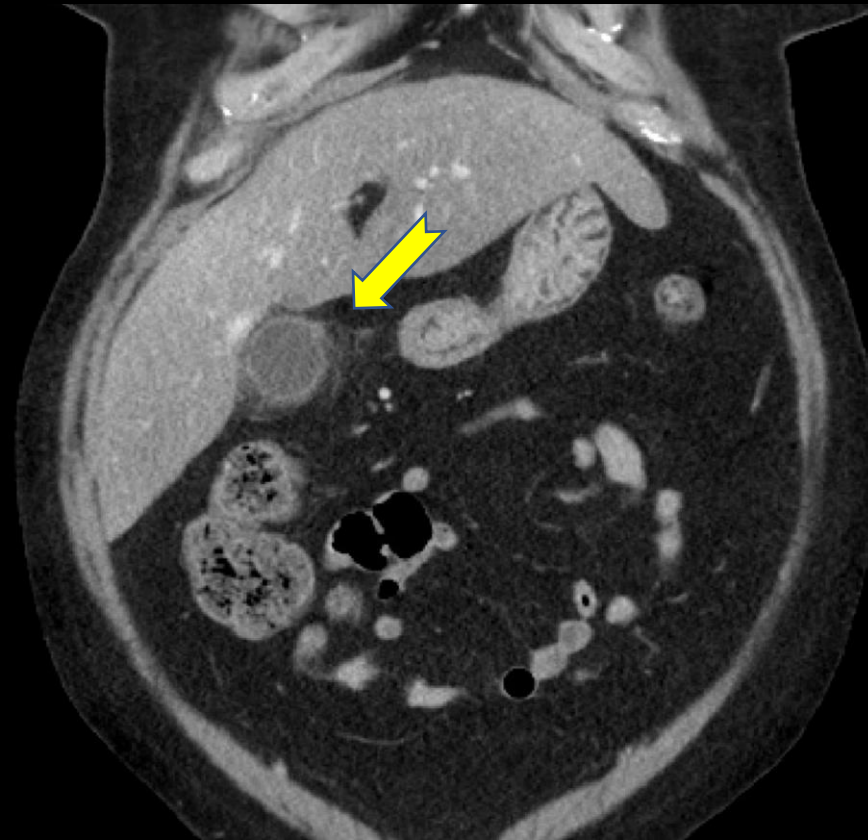
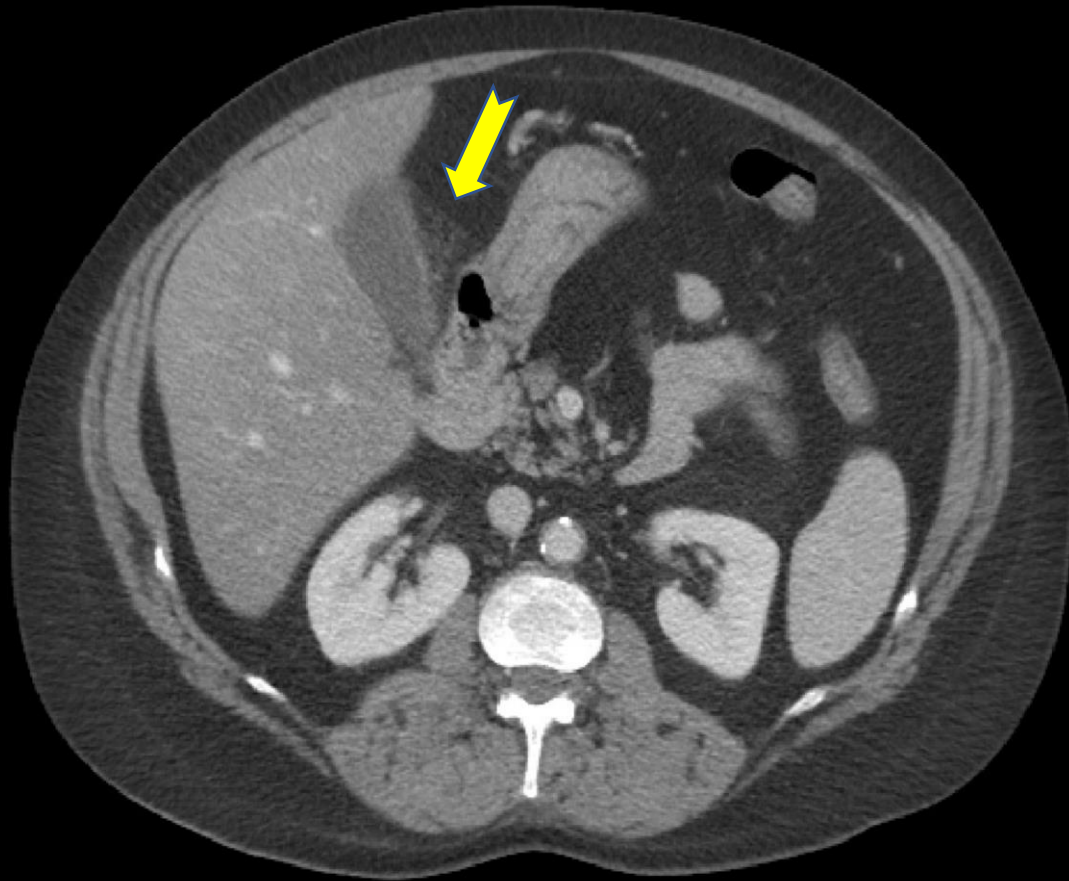
- 50-year-old female presenting in April 2024 with constant right upper quadrant abdominal pain radiating to the epigastric region for 2-3 months.
- History of laparoscopic cholecystectomy on 7/4/2023 for acute cholecystitis with lengthy postoperative course highlighted on next slide.

Patient Presentation

- Developed bile leak per Jackson-Pratt (JP) drain shortly after cholecystectomy.
- 7/6/2023 endoscopic retrograde cholangiopancreatography (ERCP) showed bile leak at cystic duct and biliary stent placed at common bile duct.
- Continued bile leak per JP drain.
- 7/13/2023 ERCP with biliary stent replacement at common bile duct.
- 7/27/2023 CT showing large gallbladder fossa fluid collection, most likely biloma.
- 7/28/2023 ultrasound/fluoroscopy guided placement of drainage catheter in gallbladder fossa fluid collection.
- 8/1/2023 CT showing interval improvement of fluid collection after placement of a drainage catheter.
- 9/7/2023 CT showing recurrent gallbladder fossa fluid collection, most likely biloma.
- 9/8/2023 hepatobiliary iminodiacetic acid (HIDA) scan showing no bile leak.
- 9/11/2023 ultrasound guided aspiration of fluid collection.
- 9/18/2023 ERCP with biliary stent removal. No bile leak noted on cholangiogram.
- 1/26/2024 CT showing recurrent gallbladder fossa fluid collection.
- 2/26/2024 ultrasound and CT guided aspiration of gallbladder fossa fluid collection. No residual fluid collection noted on postoperative CT.

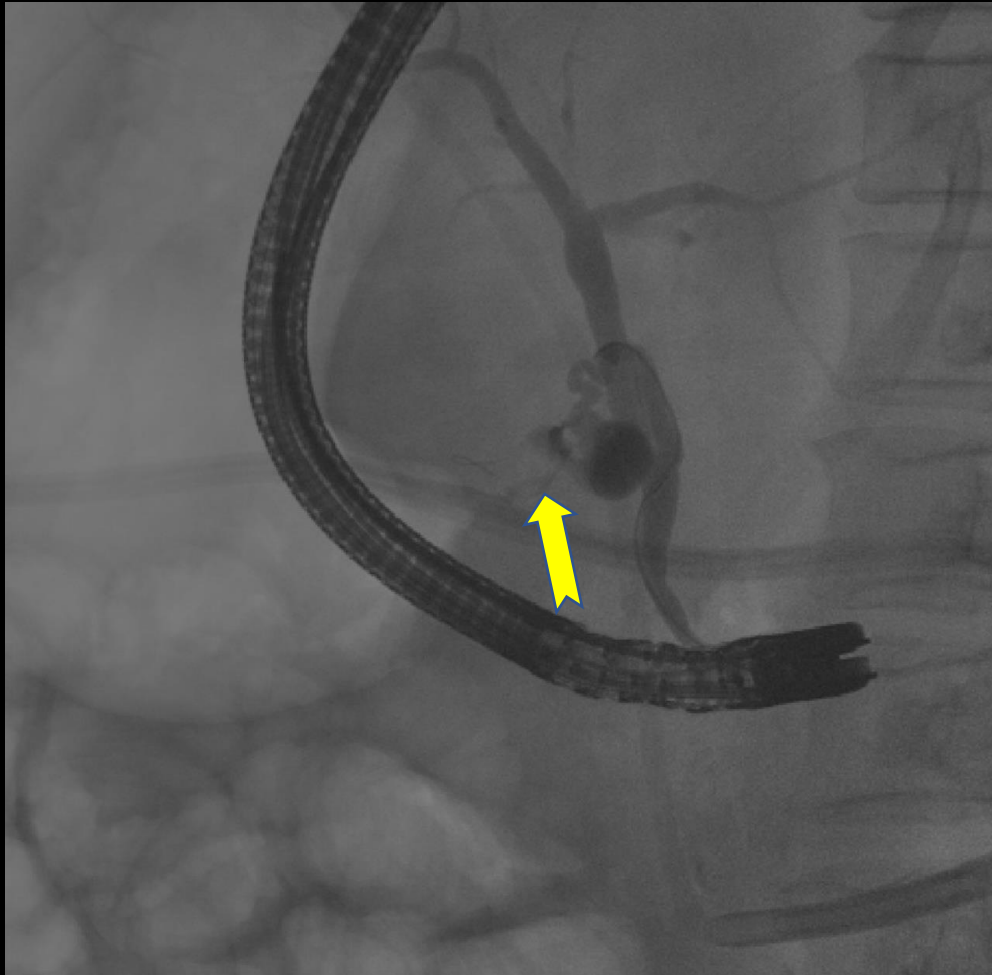
Initial imaging shown on next few slides.
Repeats not shown due to similar findings.

Patient Presentation



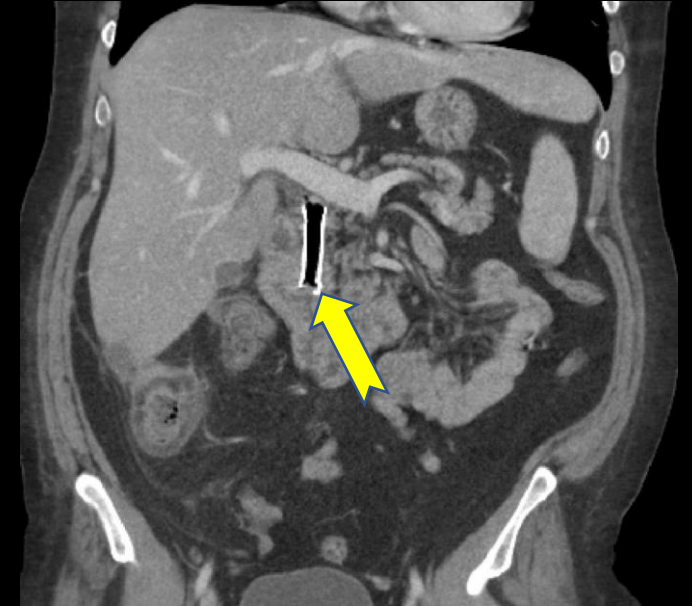
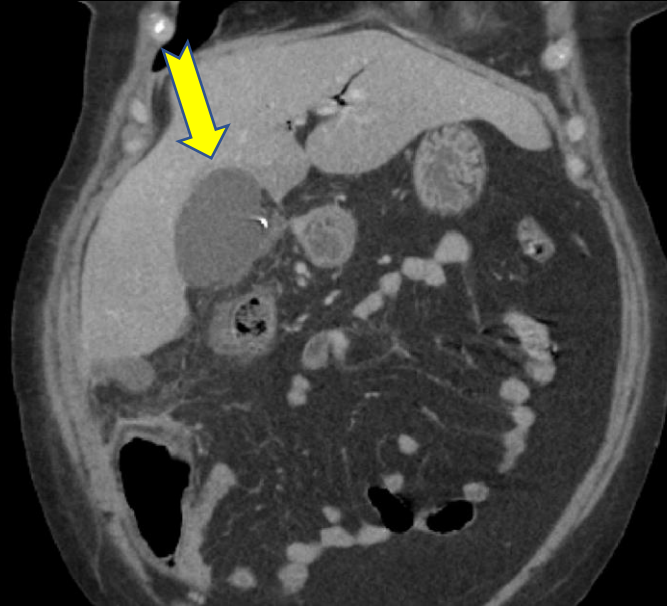
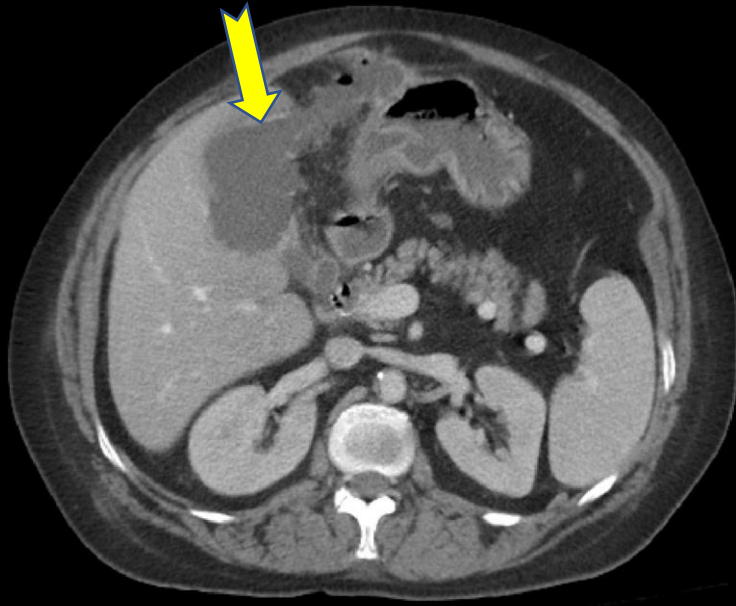
- Initial CT 7/3/2023 showing acute cholecystitis with pericholecystic stranding.

Patient Presentation



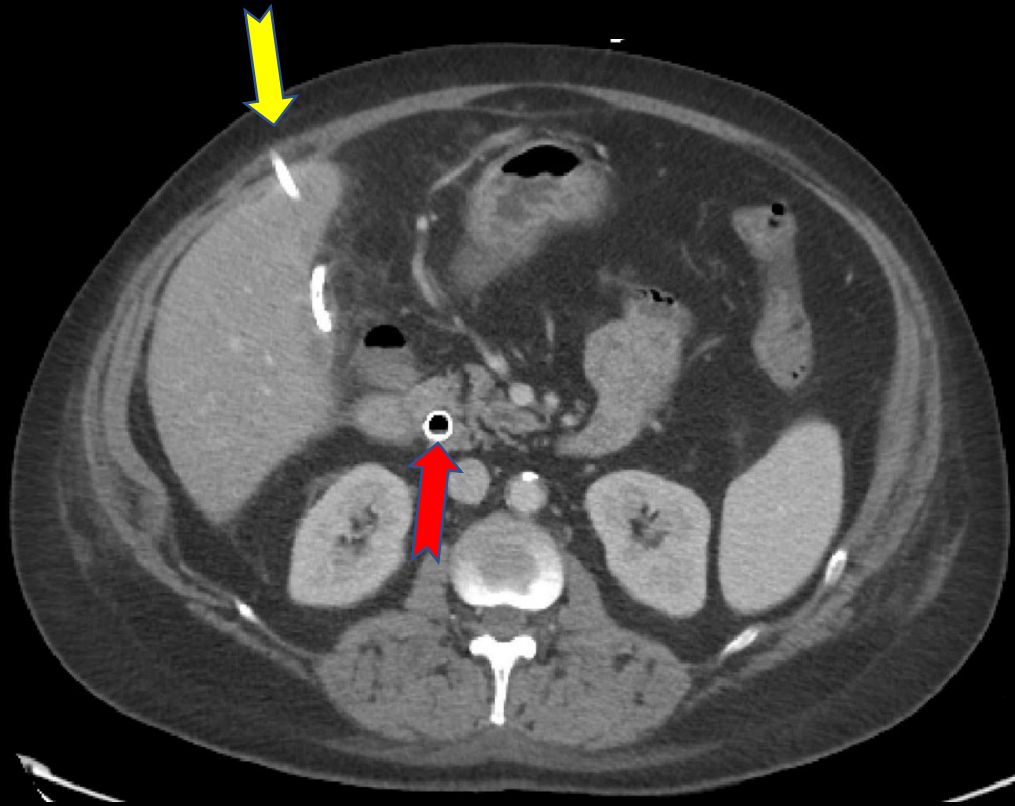
- ERCP 7/6/2023 showing bile leak.

Patient Presentation



- CT 7/27/2023 showing large biloma. Third image showing bile duct stent placed during ERCP.

Patient Presentation



- CT from 8/1/2023 showing biloma nearly resolved with an IR percutaneous catheter in place. Catheter shown by yellow arrow. Bile duct stent shown by red arrow.

Patient Presentation

- That brings us to our current patient presentation in April 2024.
- Patient reports both dull and sharp pain begins in the morning with 4/10 severity that will reach 8/10 by the end of the day.
- Palpation of the right upper quadrant (RUQ) and lifting heavy objects worsens her pain. Tylenol slightly improves her pain.
- Notes some abdominal distension and an increase in weight recently.
- Denies any fever, chills, nausea, or vomiting.

Pertinent Labs

- White Blood Cell Count (WBC): 14.8 WBC/ μ L
- Alkaline Phosphatase (ALP): 183 IU/L

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 2:

Right upper quadrant pain. Suspected biliary disease. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US abdomen	Usually Appropriate	○
CT abdomen with IV contrast	May Be Appropriate	☼☼☼
MRI abdomen without and with IV contrast with MRCP	May Be Appropriate	○
MRI abdomen without IV contrast with MRCP	May Be Appropriate	○
Nuclear medicine scan gallbladder	May Be Appropriate	☼☼
CT abdomen without IV contrast	May Be Appropriate	☼☼☼
CT abdomen without and with IV contrast	Usually Not Appropriate	☼☼☼☼

This imaging modality was ordered by the patient's surgeon



Findings (unlabeled)



Findings (labeled)



Recurrent gallbladder sized fluid collection contained within the gallbladder fossa which appears to communicate with the cystic duct. Fluid attenuation is simple. No evidence of acute inflammation or bile duct dilatation. Surgical clip from cholecystectomy seen on coronal image.

Differential Diagnosis

- Differential diagnosis:
 - Biloma
 - Dilated cystic duct remnant
 - Partial cholecystectomy
 - Biliary cystadenoma
 - Hepatic cyst
 - Hepatic abscess

The presence of simple fluid attenuation and lack of inflammatory signs make an infectious process or neoplasm less likely. Review of operative reports showed the patient had a total cholecystectomy performed. The location of the collection suggests the most likely cause to be a biloma and less likely a dilated cystic duct remnant, hepatic cyst, or hepatic abscess.

Case Outcome

- Given this long course of failure to treat the biloma with biliary stenting and IR drainage, patient was taken back to the operating room on 4/26/2024.
- During the procedure and intraoperative cholangiogram, patient was confirmed to have residual gallbladder.
- This means initial surgery was actually a partial cholecystectomy as it had failed to remove the entire gallbladder.
- This residual gallbladder caused her recurrent bile leaks and biloma formation.
- Patient has done well after completion cholecystectomy without recurrent symptoms or need for imaging.

Final Dx:

Retained gallbladder

Case Discussion

- Biloma Definition and Characteristics:
 - A biloma is defined as an extra-biliary, abnormal, and well-circumscribed collection of bile.^[1] Most of them occur after a procedure or trauma.^[2,3]
 - They are uncommon and can be associated with significant morbidity and mortality when infected or impinge nearby structures.^[2]
 - Bilomas have a variable and subtle presentation, making radiological imaging the mainstay in diagnosis.^[1,4] Ultrasound is commonly the first modality employed, although CT, MRI, and HIDA scans are often needed for subsequent characterization of the fluid collection.^[3,5]
 - A majority of bilomas can be managed with radiologically guided percutaneous drainage.^[2,4] However, surgical management is favored in cases of failed percutaneous drainage, bilomas with multiloculated lesions, or those who have ongoing bile leaks.^[2,5]

- This case highlighted a rare complication of cholecystectomy.^[7,8]
- Retained gallbladders are difficult to identify on CT.^[4]
- This can lead to delay in diagnosis.

Learning Points

- Recurrent bilomas resistant to stenting and drainage should raise suspicion for incomplete cholecystectomy and retained gallbladder.

References:

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