AMSER Case of the Month June 2021

67-yo female presents with right side abdominal pain

Andrew Magyan, MS3

Lake Erie College of Osteopathic Medicine

Will Terrill, MD, PGY-5

Allegheny Health Network

Brian Goodman, MD & Matthew Hartman, MD

Allegheny Health Network

Patient Presentation

- HPI: Patient initially presented with right side abdominal pain, dark urine, nausea and sweating
- PMHx: breast cancer (treatment completed), HTN, GERD, obesity, alcoholism
- SHx: gastric bypass, cholecystectomy, hysterectomy, mastectomy
- Vitals: BP 154/84, HR 85, RR 17, SpO_2 99%, 97.8^{o}
- Physical exam: Normal breath sounds, RRR, abdomen tender to palpation
- ROS: No fever/chills, constipation, no jaundice

Pertinent Labs

- Pertinent Labs:
  - CBC-
    - WBC- 8.70
    - RBC- 4.12
    - Hgb- 13.1
    - Hct- 40.2
  - Cr- 0.97
  - LFTs
    - Alk Phos- 401 (ref. 35-104)
    - AST- 278 (norm. 0-32)
    - ALT- 411 (0-33)
    - Bilirubin- 1.1 (0-1.2)
  - Lipase- 111 (6-75)
  - Urobilinogen- 4.0 (0-1.0)

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

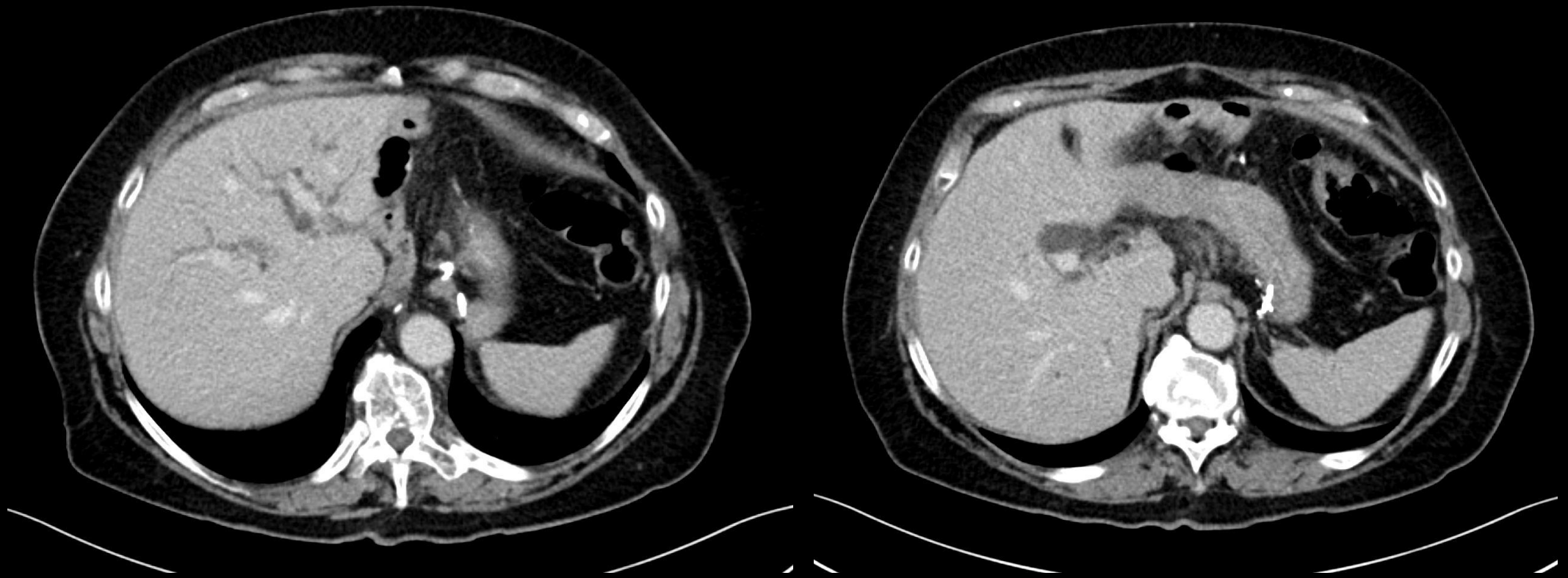
American College of Radiology
ACR Appropriateness Criteria®
Right Upper Quadrant Pain

Variant 1: **Right upper quadrant pain. Suspected biliary disease. Initial imaging.**

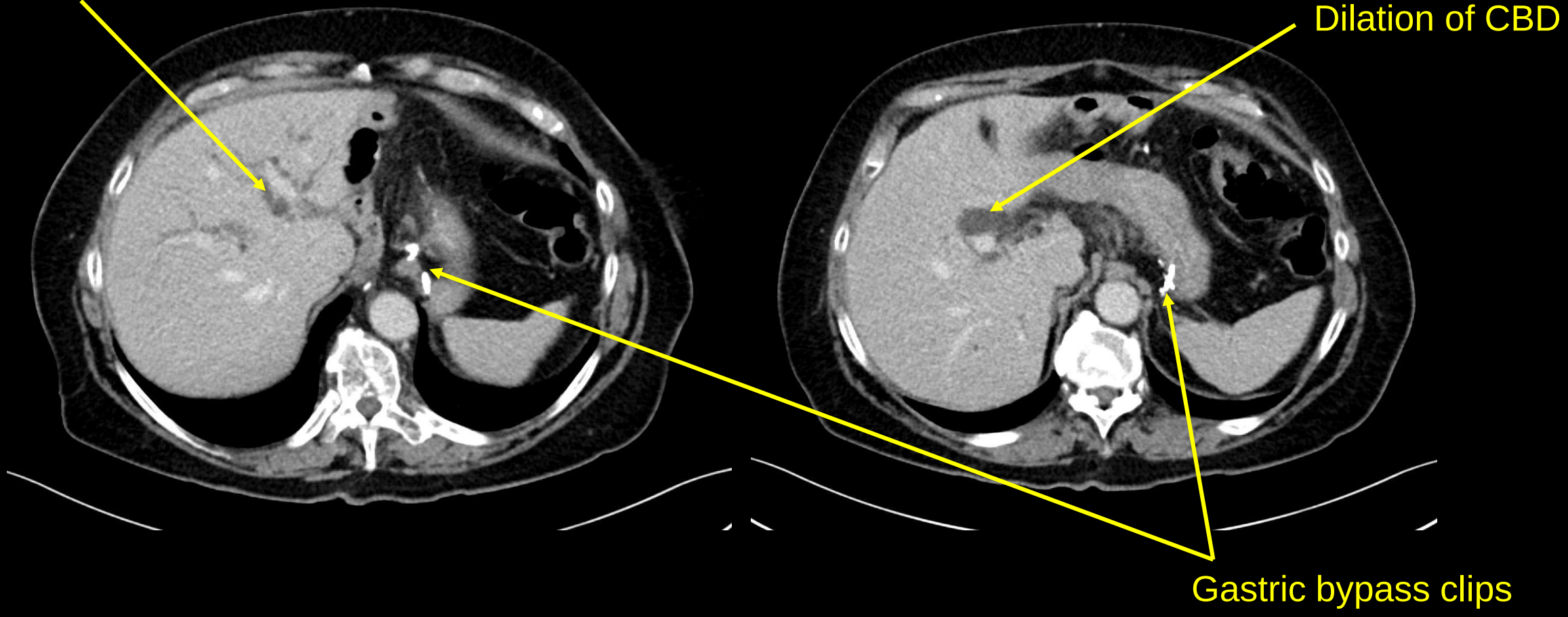
Procedure	Appropriateness Category	Relative Radiation Level
US abdomen	Usually Appropriate	O
CT abdomen with IV contrast	May Be Appropriate	☢☢☢
MRI abdomen without and with IV contrast with MRCP	May Be Appropriate	O
MRI abdomen without IV contrast with MRCP	May Be Appropriate	O
Nuclear medicine scan 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 ER physician

Findings (unlabeled)

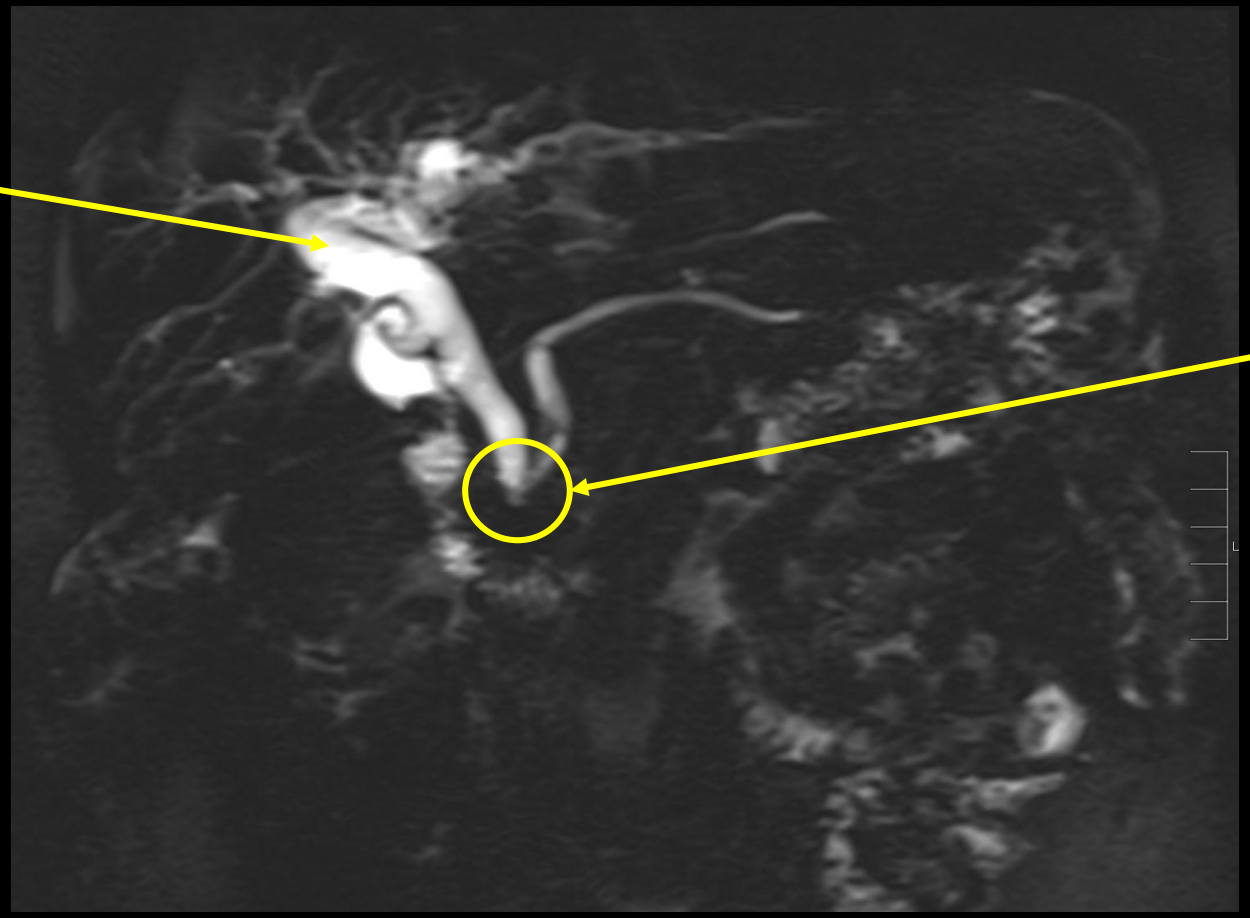


Findings: (labeled)



- Follow-up MRCP suggested

Findings MRCP: (labeled)



Final Radiologic Impression:

CBD obstruction, possibly malignant
Consider direct visualization with tissue sampling

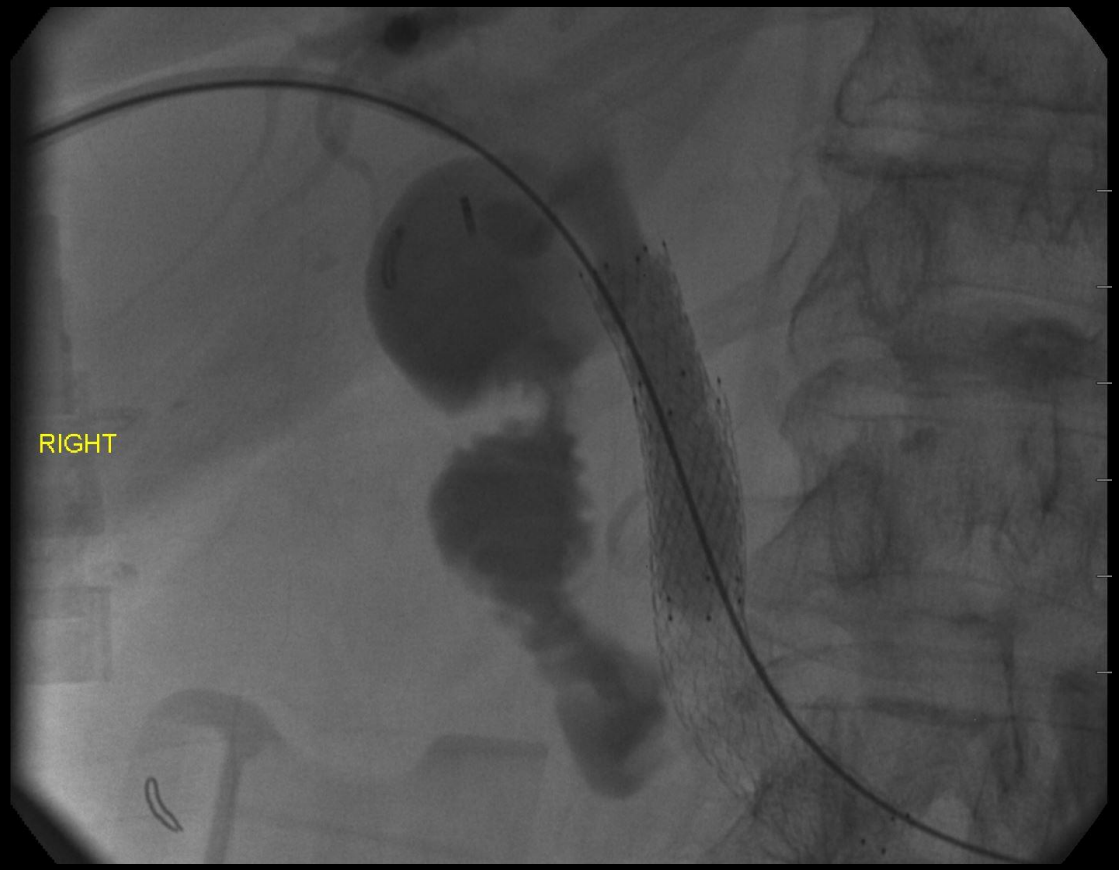
Therapeutic and Diagnostic Options for Biliary Obstruction

- Differential diagnosis:
  - Gallstone (most common), benign stricture, infection, neoplasm, inflammatory disease (such as PSC)
- Patient is at high risk for development of acute cholangitis
  - Ascending bacterial infection into the liver in a patient with biliary stasis
- Treatment:
  - 1st line- Endoscopic sphincterotomy with stone extraction or stent insertion is treatment of choice
    - Lower overall rates of morbidity/mortality compared to surgery
  - 2nd line- Percutaneous Transhepatic Cholangiogram and Percutaneous Biliary Drain placement (PTC/PBD)
  - 3rd line- Surgical management

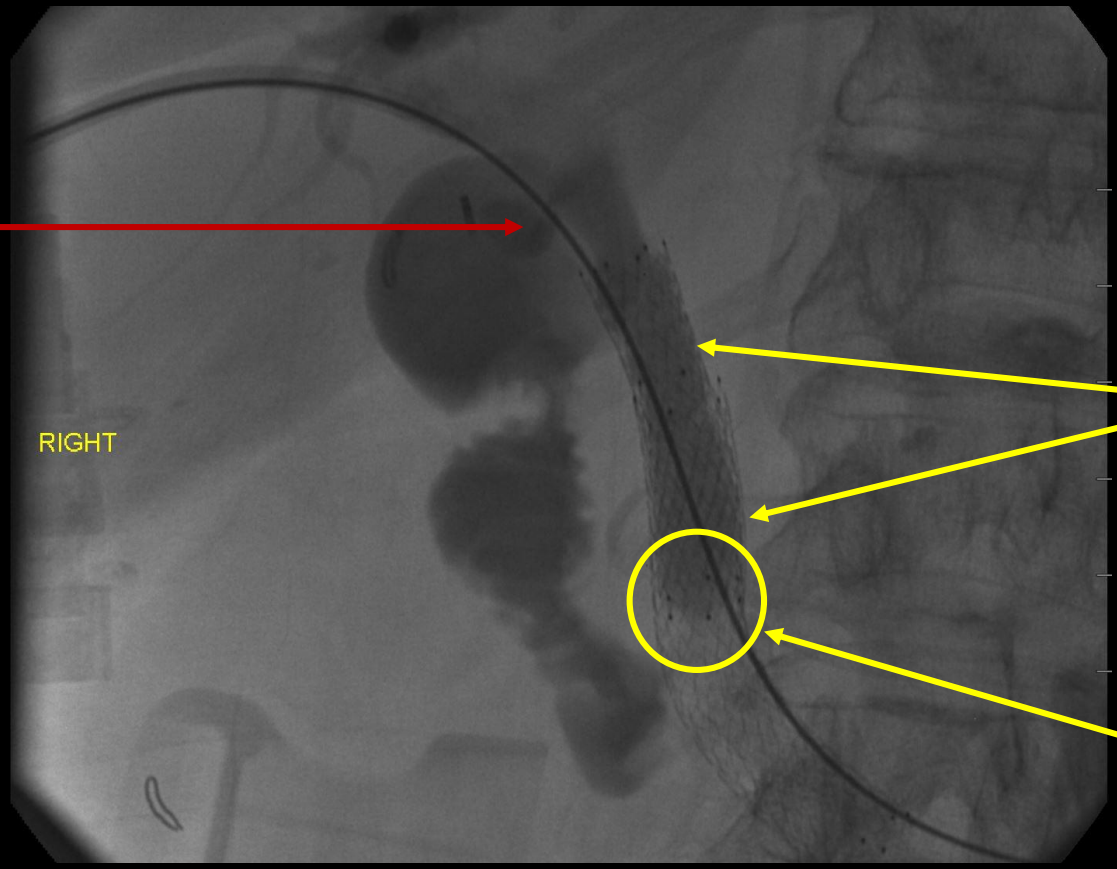
Case Discussion

- Patient course:
  - EUS-directed transgastric ERCP (EDGE) performed but unsuccessful due to pyloric stenosis
  - PTC/PBD performed for biliary decompression
  - Pathology from stomach revealed gastric adenocarcinoma
- Confirmed diagnosis of malignant CBD obstruction
- Treatment:
  - Chemotherapy initiated; biliary stent placed with internal/external biliary access preserved
    - Chemotherapeutic agents may be excreted through bile, requiring sufficient biliary drainage to mitigate toxicity
- Follow-up:
  - Patient returned for cholangiography to evaluate stent patency

Findings (unlabeled)



Findings (labeled)



Biliary-enteric fistula

Biliary stents

Persistent occlusion of CBD

Case Discussion

- Unexpected finding: Biliary-enteric fistula
  - Fistulous connection between the cystic duct stump and the small bowel
  - Fistula proximal to CBD occlusion, allowing for bile drainage
- Epidemiology
  - Rare complication of gallbladder disease
  - Inflammatory conditions such as cholelithiasis, cholecystitis, or neoplasia precipitate fistula formation
    - Laparoscopic cholecystectomy approach has slightly increased risk of secondary fistula compared to open surgery (0.3-0.4% to 0.6%)
- Final decision
  - Internal drainage via biliary-enteric fistula appeared to be adequate, therefore percutaneous catheter was removed
  - 1-week post-op bilirubin was 0.4

References:

- American College of Radiology ACR Appropriateness Criteria Radiologic Management of Biliary Obstruction. https://acsearch.acr.org/docs/69344/Narrative/
- Crespi, M et al. “Diagnosis and Treatment of Biliary Fistulas in the Laparoscopic Era.” *Gastroenterology Research and Practice,* 24 Dec. 2015, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706943/
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