54-year-old female returns with persistent RUQ pain 3 weeks after cholecystostomy tube

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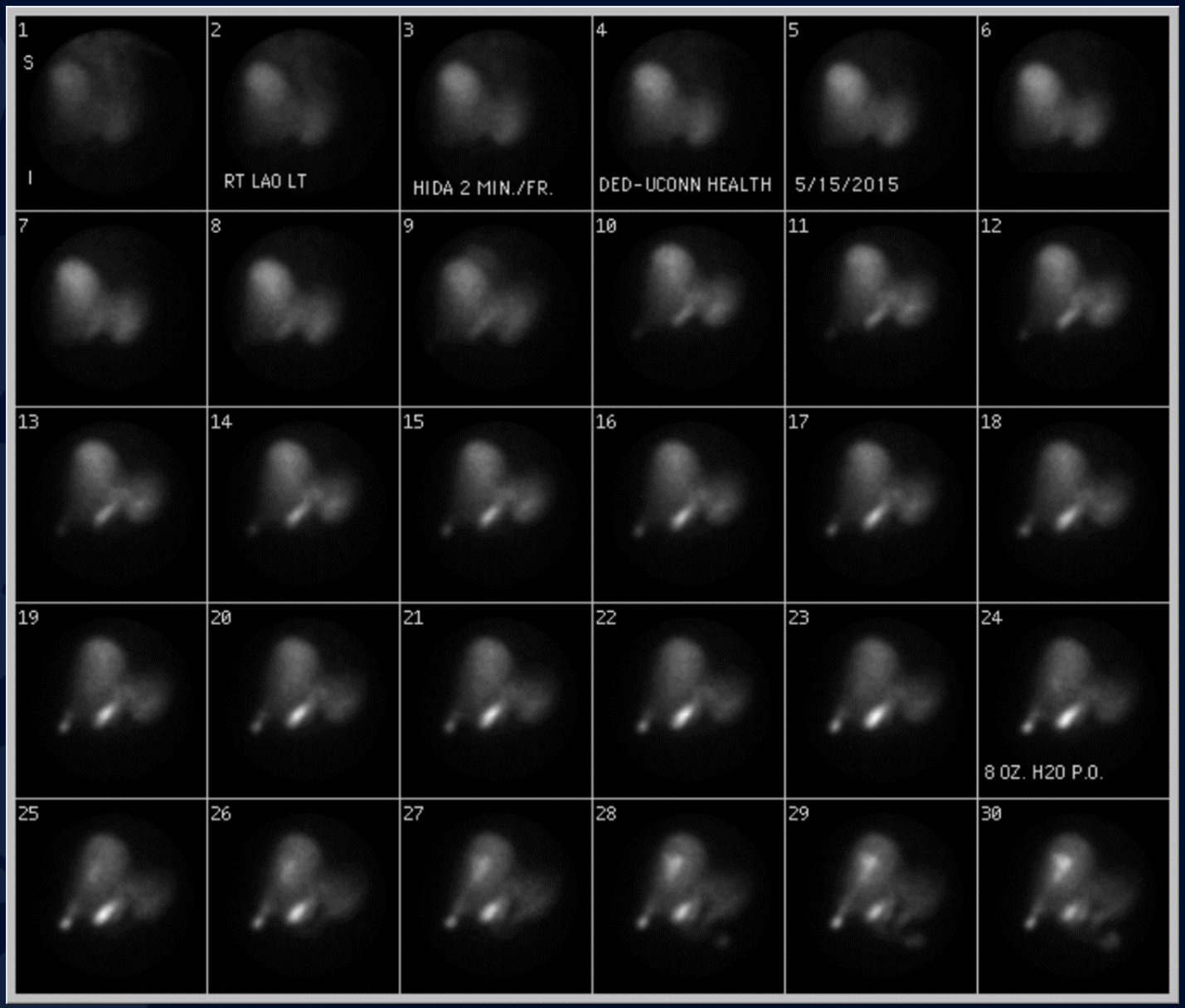

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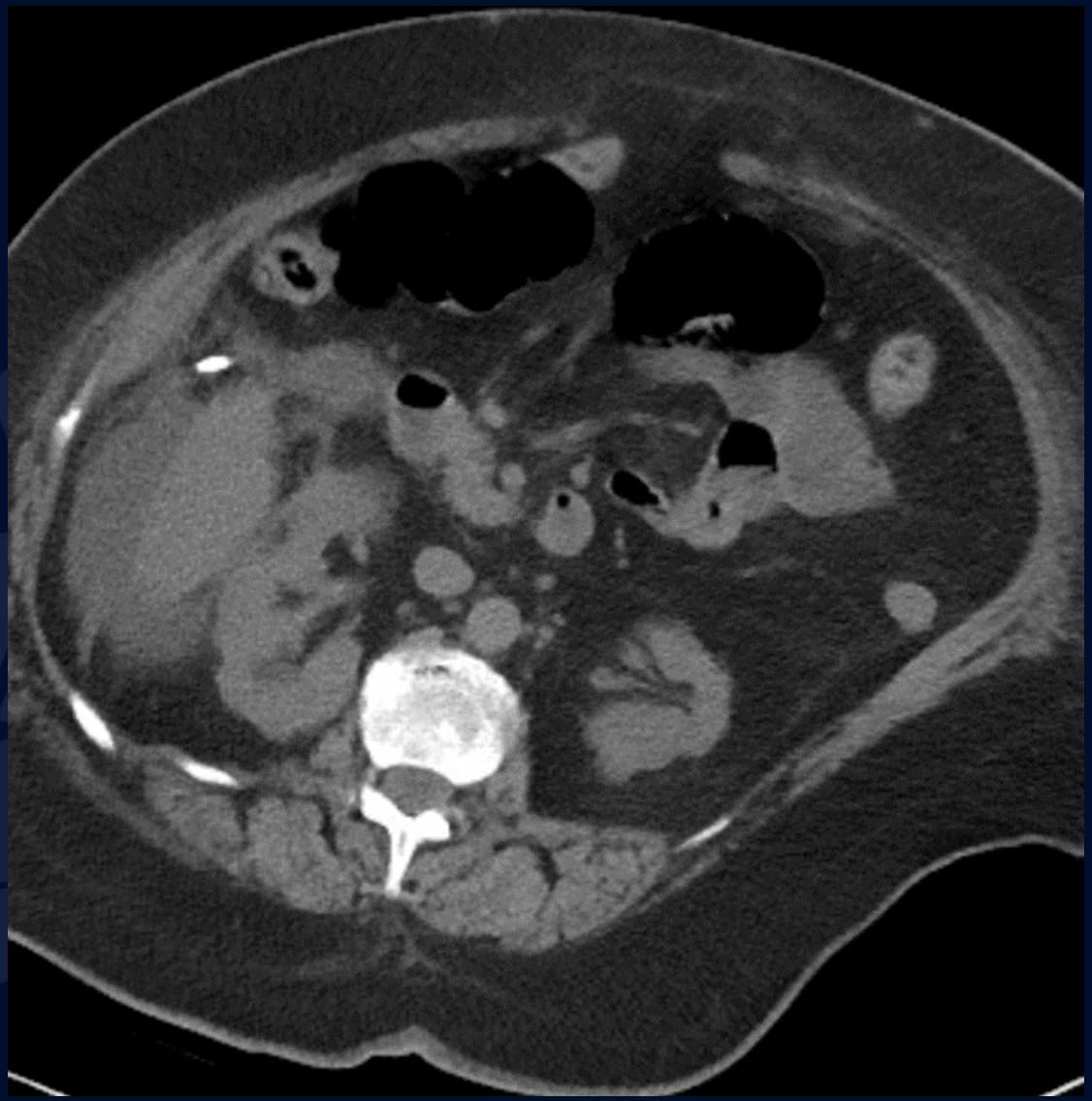

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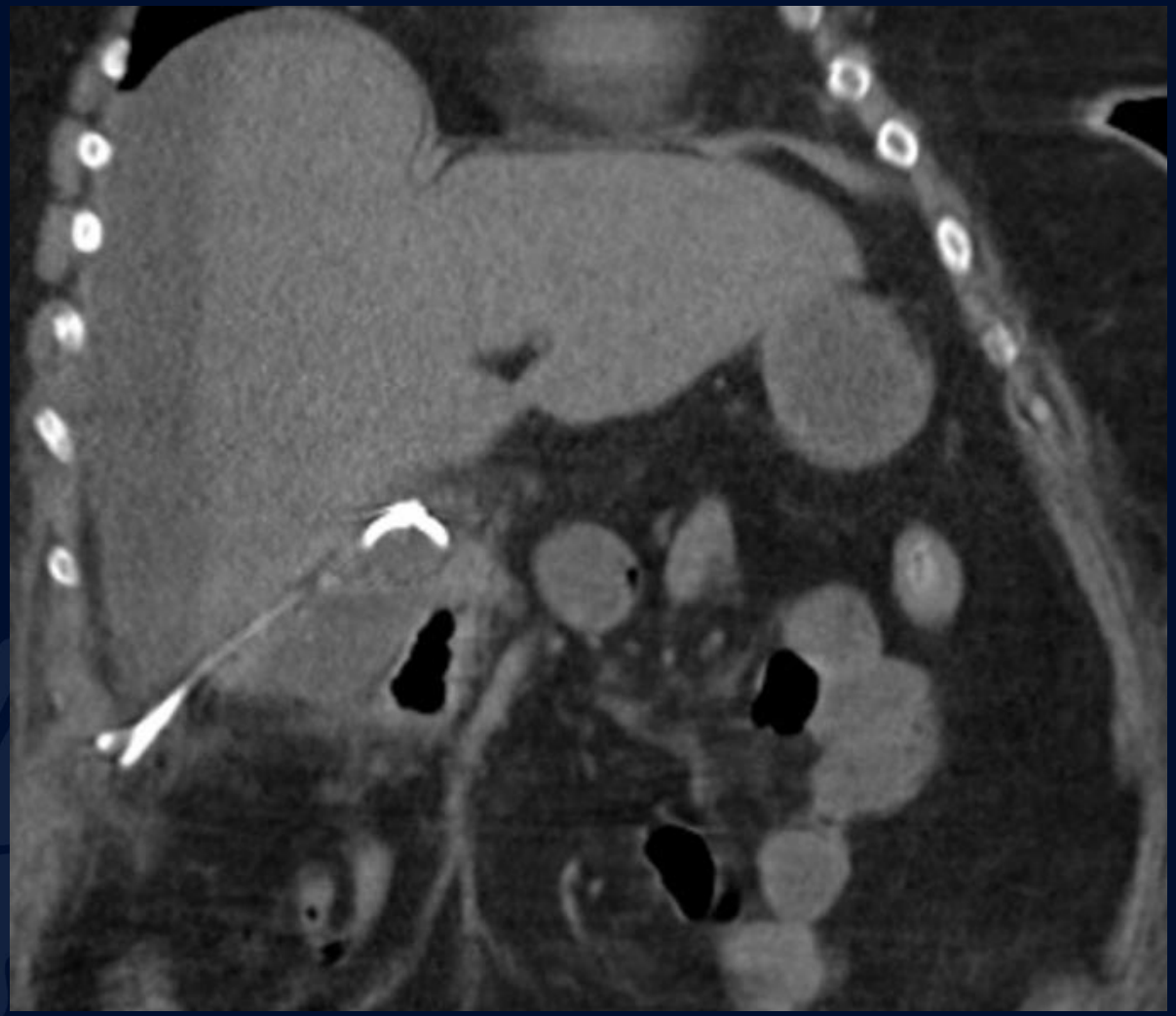

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Biliary leak after incomplete self-removal of percutaneous cholecystostomy tube

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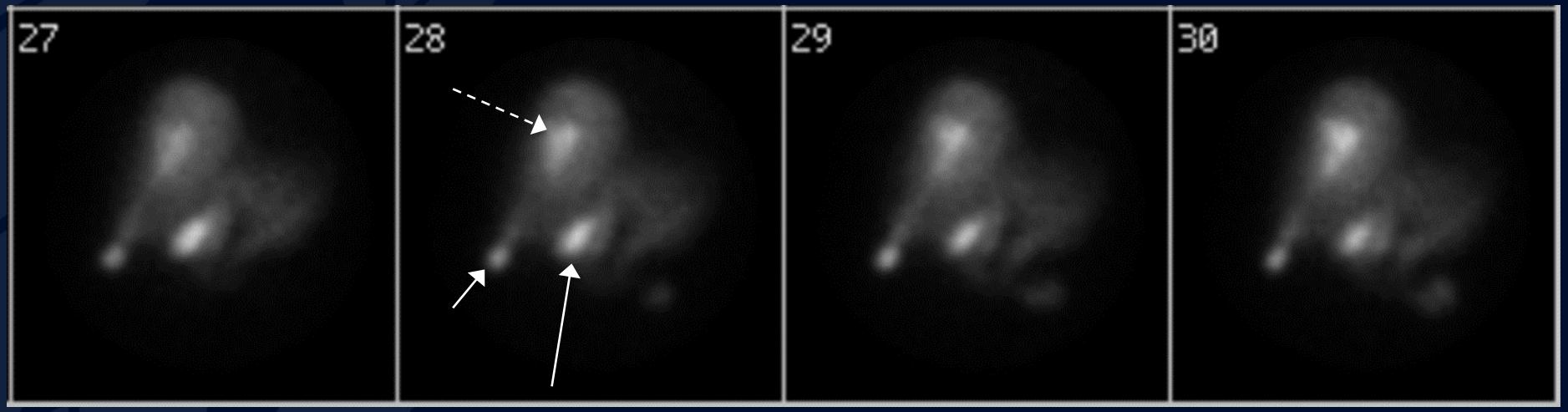

HIDA scan static images show the gallbladder (long arrow) with intraperitoneal bile leak (short arrow) originating from the inferior aspect of the liver (dashed arrow).

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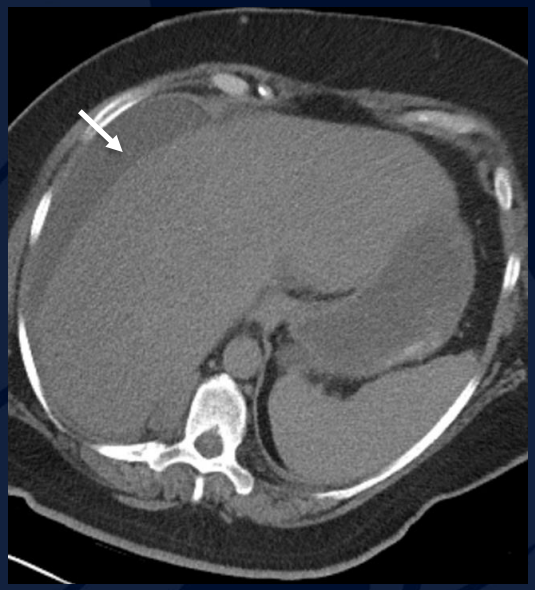


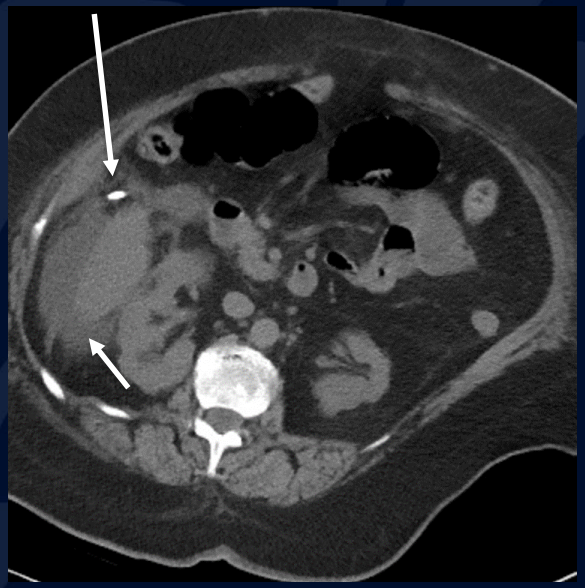


Sequential axial CECT images demonstrate bile accumulation around the liver and within the peritoneal cavity (short arrows) with the cholecystostomy tube terminating in the peritoneal cavity (long arrow).

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Coronal CECT image demonstrate bile accumulation around the liver and within the peritoneal cavity (short arrows) with the cholecystostomy tube terminating in the peritoneal cavity (long arrow). Note the pigtail portion of the catheter remains within the gallbladder lumen.

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Background

- Cholelithiasis (gallstones)
  - Hard, solid accumulations of material (“stones”) located in the biliary system
  - Patients with recurrent symptoms can have prophylactic cholecystectomy
- Acute cholecystitis
  - Inflammation of the gallbladder, usually presenting as a complication of cholelithiasis, when a gallstone obstructs the cystic duct
  - Ultrasound is the gold standard for diagnosing biliary disease
  - Urgent cholecystectomy should be performed within 72 hours of symptoms
- Poor surgical candidates can be managed with percutaneous cholecystostomy tube drainage
  - Image-guided insertion of drainage catheter into the GB to relieve obstruction
    - Reasons for cholecystostomy include symptoms present for >72 hours, extensive GB wall thickening, WBC >18,000 and localized abscess
    - Surgery is typically performed after patient has been stabilized and inflammation has subsided
  - Rarely, disruption of the tube can cause extra-biliary leakage of bile into the liver or the peritoneum

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Diagnosis

- If biliary leakage is suspected, imaging is used to:
  - Confirm the presence of bile outside of the biliary system
  - Determine whether it is intra-hepatic or extra-hepatic
  - Determine the extent of leakage
  - Identify any associated biliary obstruction
  - Devise a treatment plan
- CT can visualize bile in the liver, as well as identify a communication between the GB and biliary fluid collection (also known as a biloma)
  - Cholecystostomy tubing appears radiopaque for easy identification
- MRI is useful in that some contrast agents are excreted through the biliary system and can help visualize bile collections
- HIDA scan using Tc-99 diisopropyl iminodiacetic acid can assist with identifying an active bile leak

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Management

- Treatment of biliary leak/biloma is variable and depends of the individual patient, the etiology of the leak and their risk factors for recurrence
- Treatment options include percutaneous drainage and surgical drainage
- Management should also include resolving any biliary obstructions
- Surgical repair of the source of bile leakage may be required

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References

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