

Percutaneous Biliary Procedures

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Procedures

- Transhepatic Cholangiography
- Biliary Decompression
- Endobiliary Stenting
- Cholecystostomy

Transhepatic Cholangiography

Indications

- Evaluate biliary system in the setting of cholelithiasis
- To differentiate obstructive jaundice from other causes
- Prelude to decompression
- Evaluate for postoperative anastamotic strictures or iatrogenic injuries
- Evaluate extent of cholangiocarcinoma prior to surgery or radiation therapy

Prophylactic antibiotics

- Bile infected in 25-36% with malignant obstruction and 71-90% stone obstruction
- Many regimens shown to be effective: piperacillin, cefazolin, cefuroxime, cefotaxime, ciprofloxacin, amp/gent, etc.

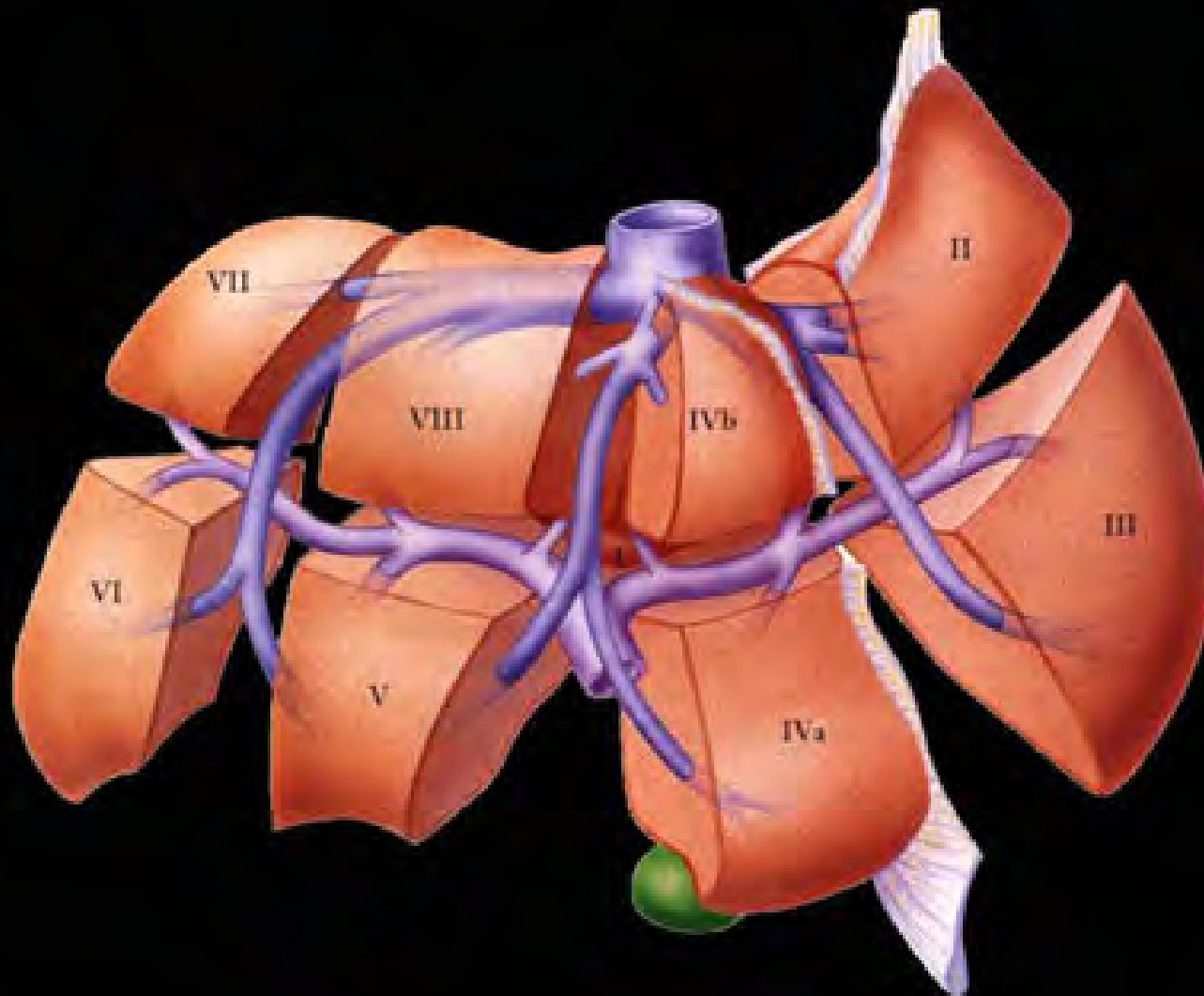
Transhepatic Cholangiography Procedure

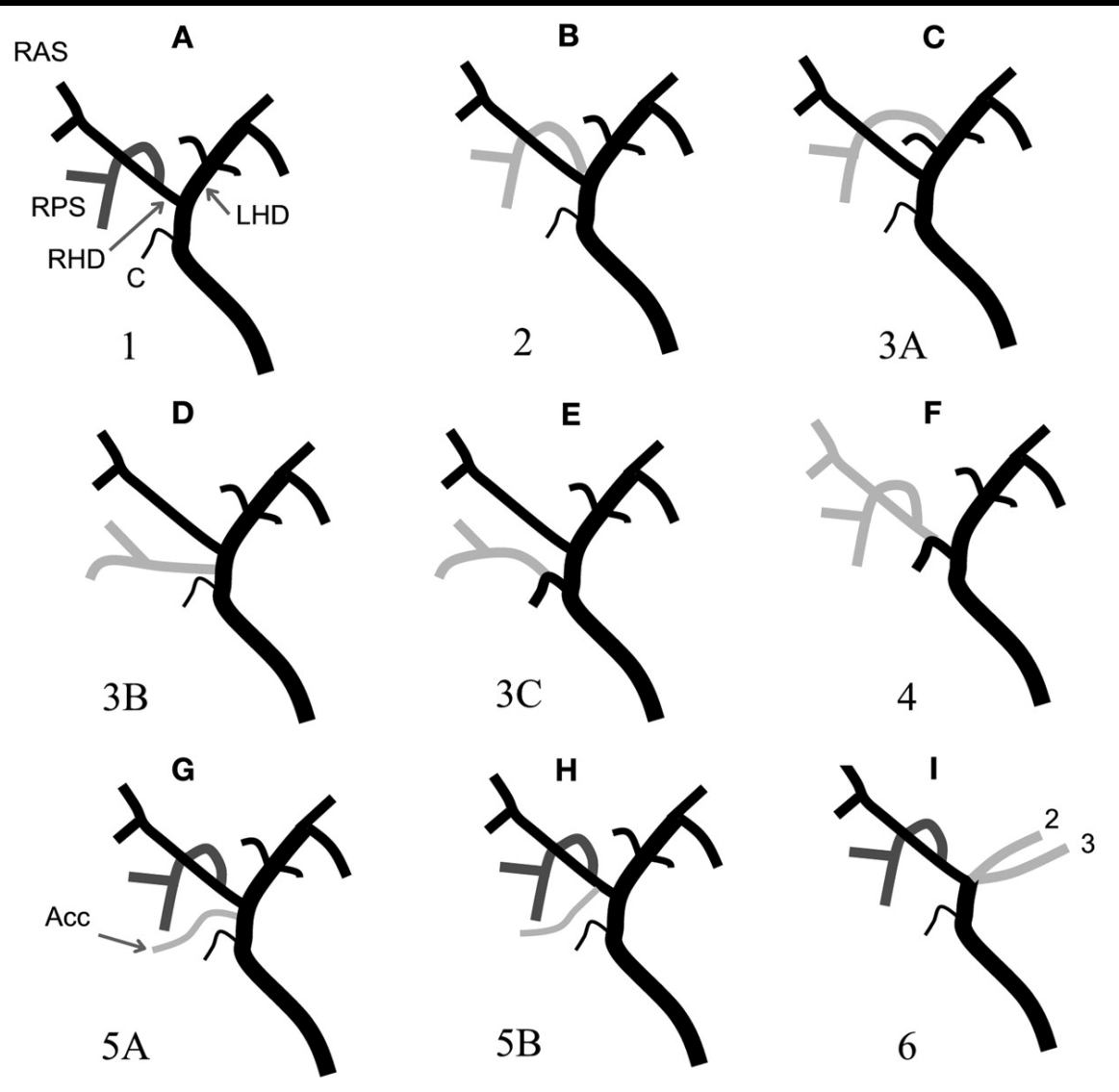
- Local anesthesia
- Chiba introduction
- Duct search
- Imaging in multiple projections
- Search for missing segments
- Move to decompression or stop

Relevant anatomy

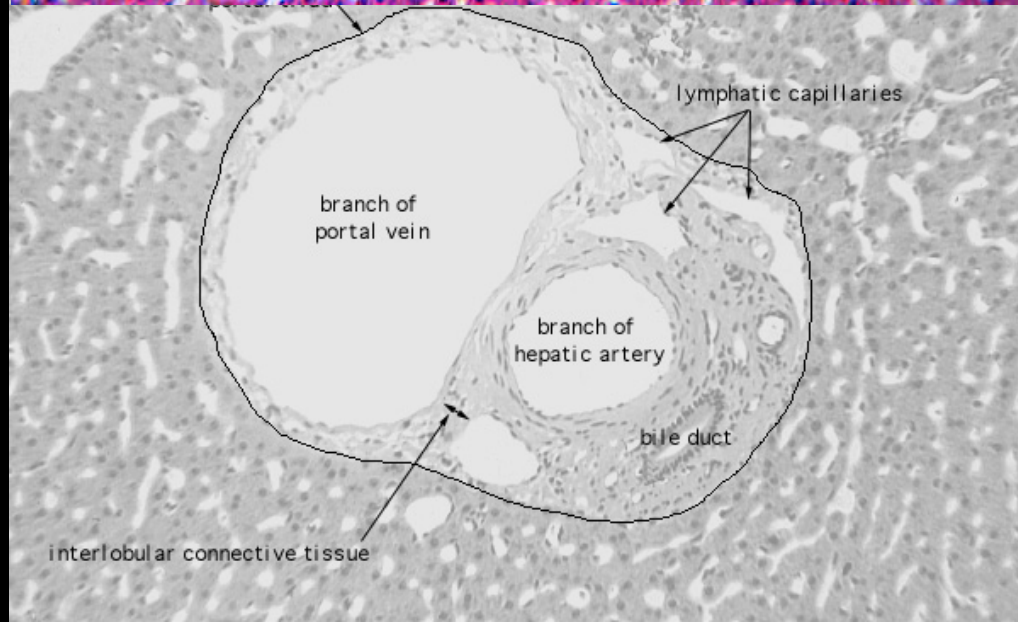
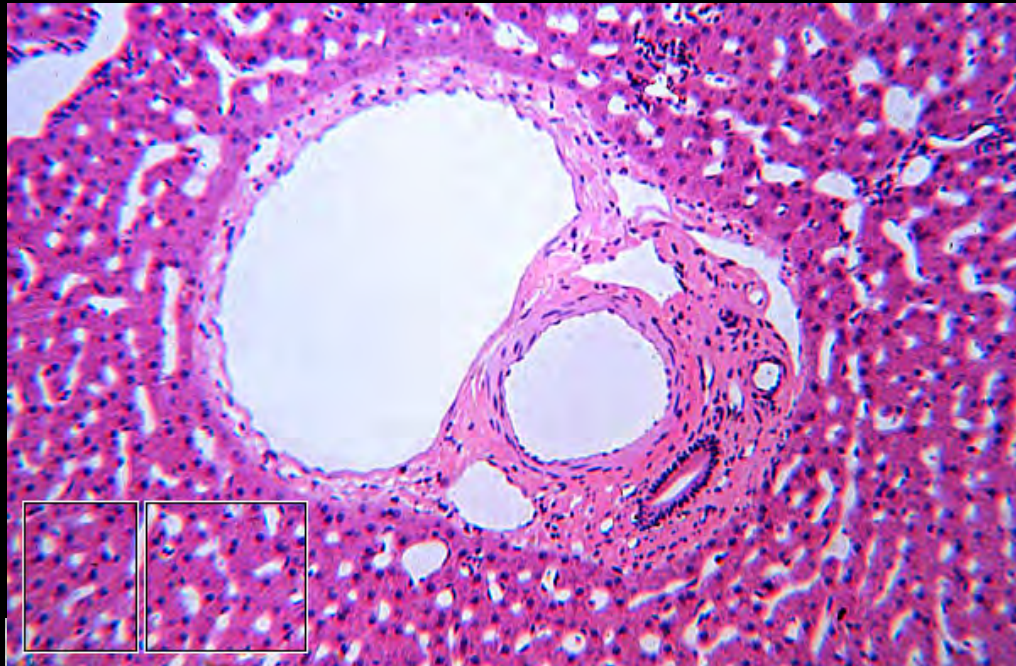
- Liver Segments
- Ductal anatomy and variants
- Portal triad
- Extrahepatic relationships – pleura, colon, pancreas

Liver Segments

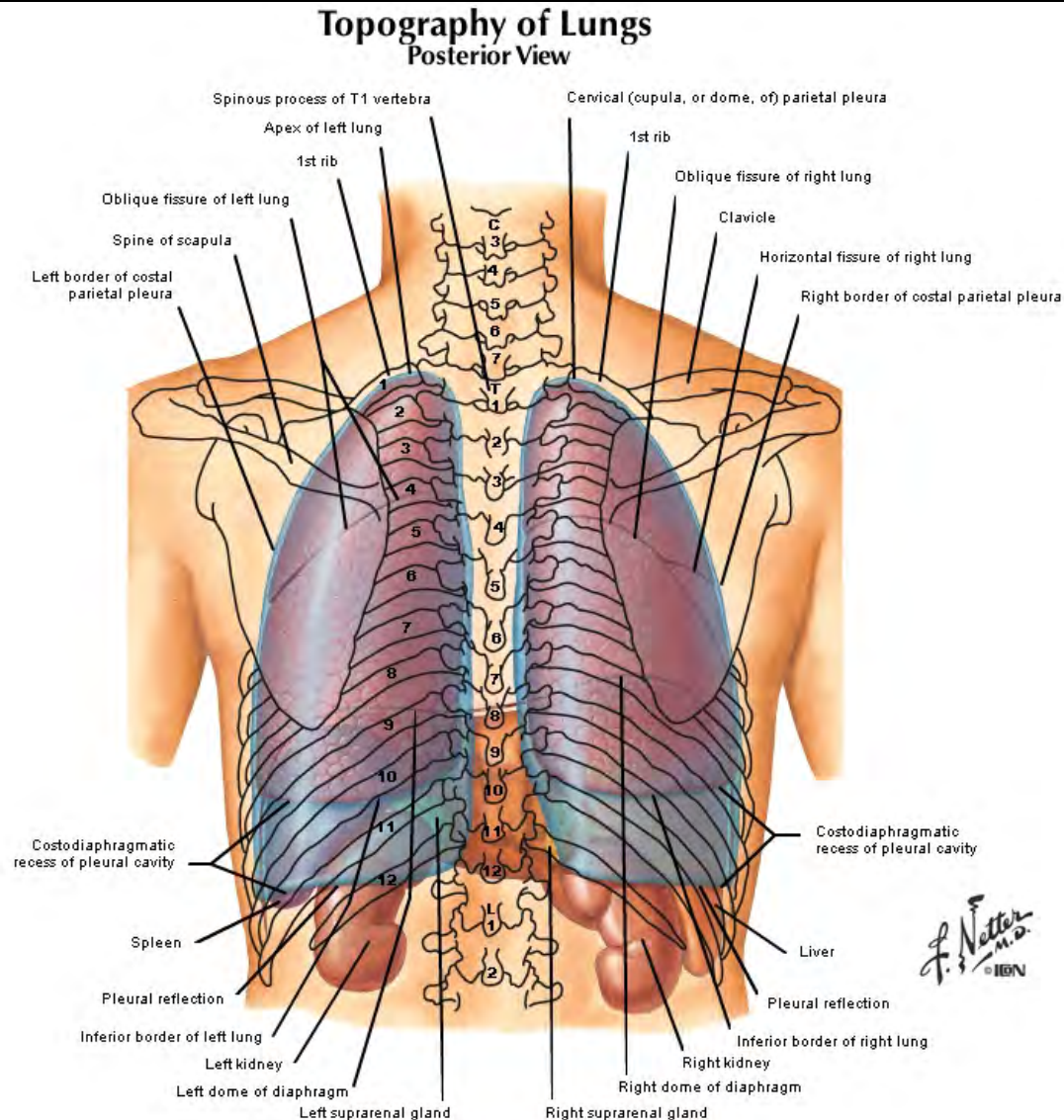




Portal triad



Pleura relationship



Colon relationship



Transhepatic Cholangiography

Complication rates

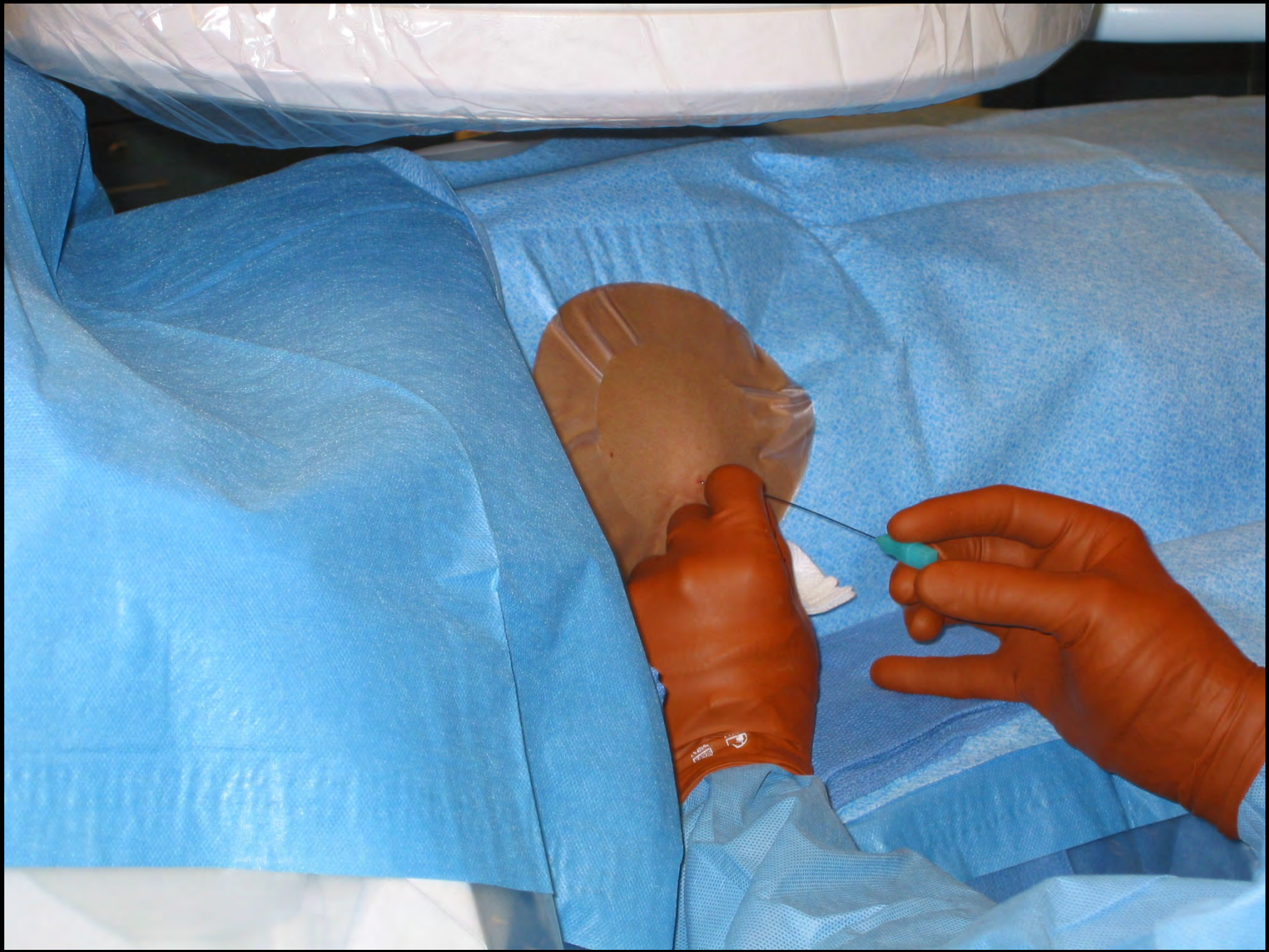
- Bile peritonitis 1-2%
- Hemorrhage 1-4%
- Sepsis 2-3%
- Death < 1%







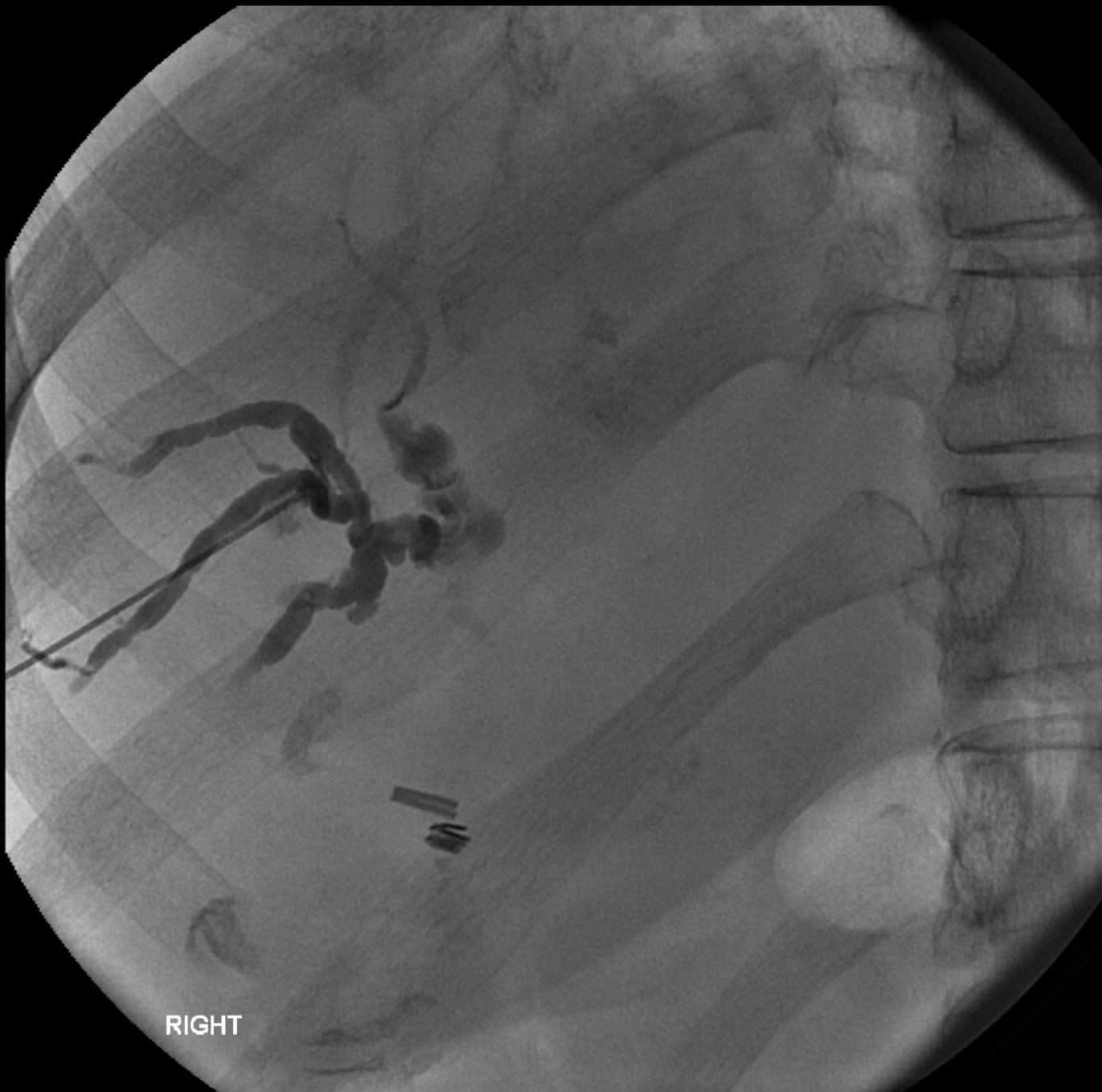








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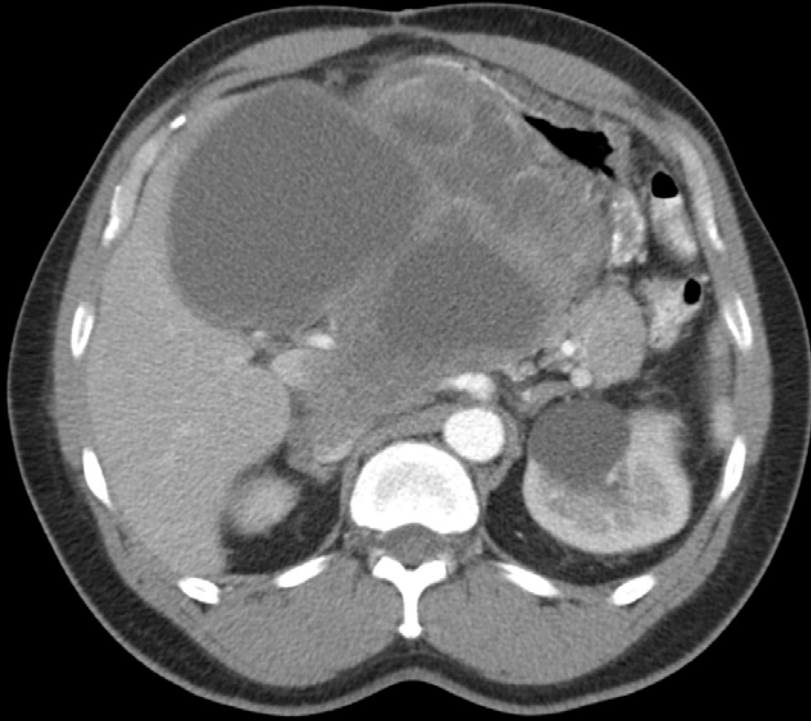
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Cholangiocarcinoma



Extrinsic Mass



PSC



Pancreatitis



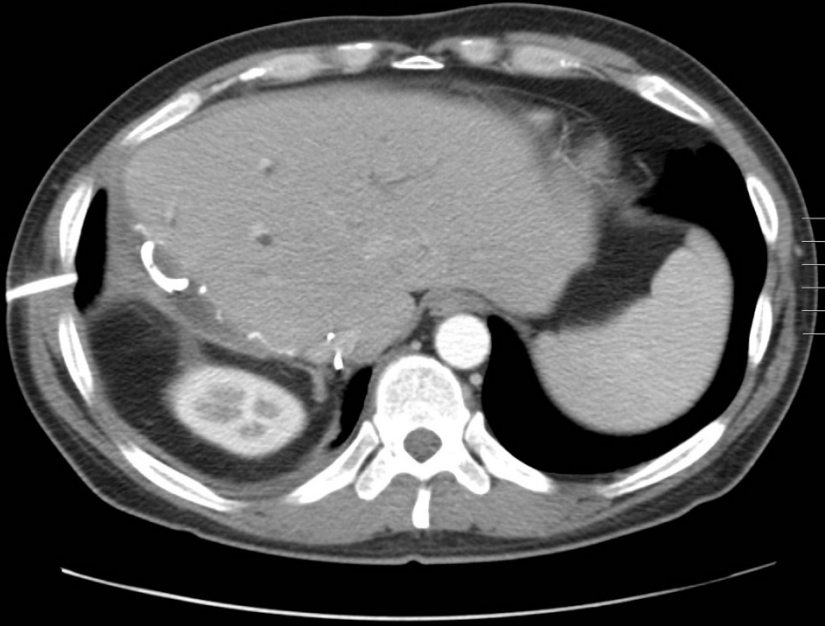
Cholelithiasis



Anastomotic Stenosis



Bile Leak



Bile Leak



Clipped Duct



Biliary Decompression Indications

- Treat cholangitis, sepsis due to obstruction
- Treat symptomatic jaundice
- Treat asymptomatic obstruction prior to chemotherapy
- Divert bile flow from leak
- Stone removal
- Treat ductal strictures
- Restore flow of bile to bowel
- Biopsy strictures
- Brachytherapy access

Biliary Decompression Procedure

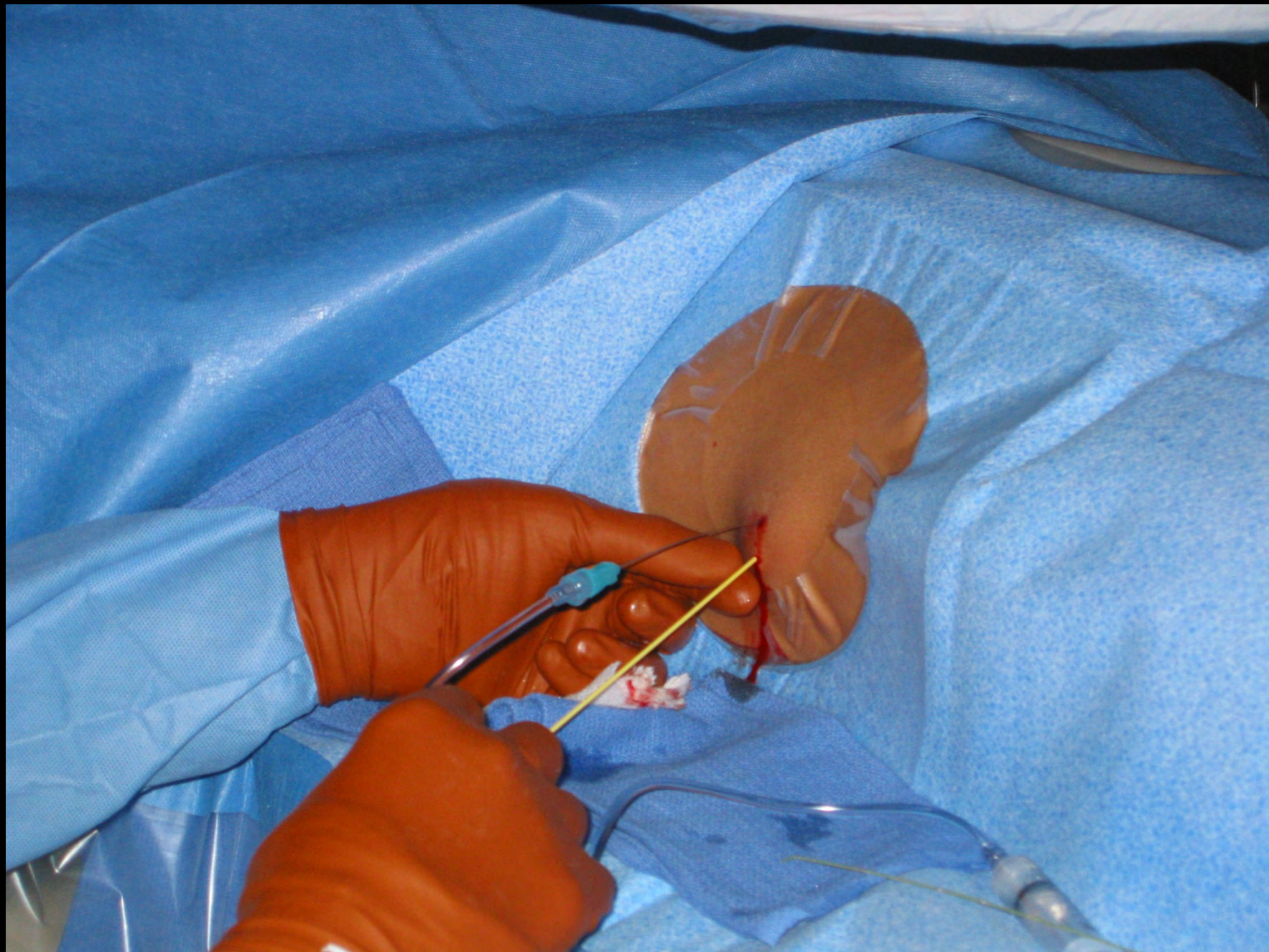
- Opacify biliary system
- Select appropriate duct for drain placement
- Access desired duct with needle using fluoroscopy and obliques
- Place wire.
- Place catheter to manipulate wire to bowel
- Dilate obstruction and tract
- Place desired drainage catheter
- Secure to skin and place to gravity

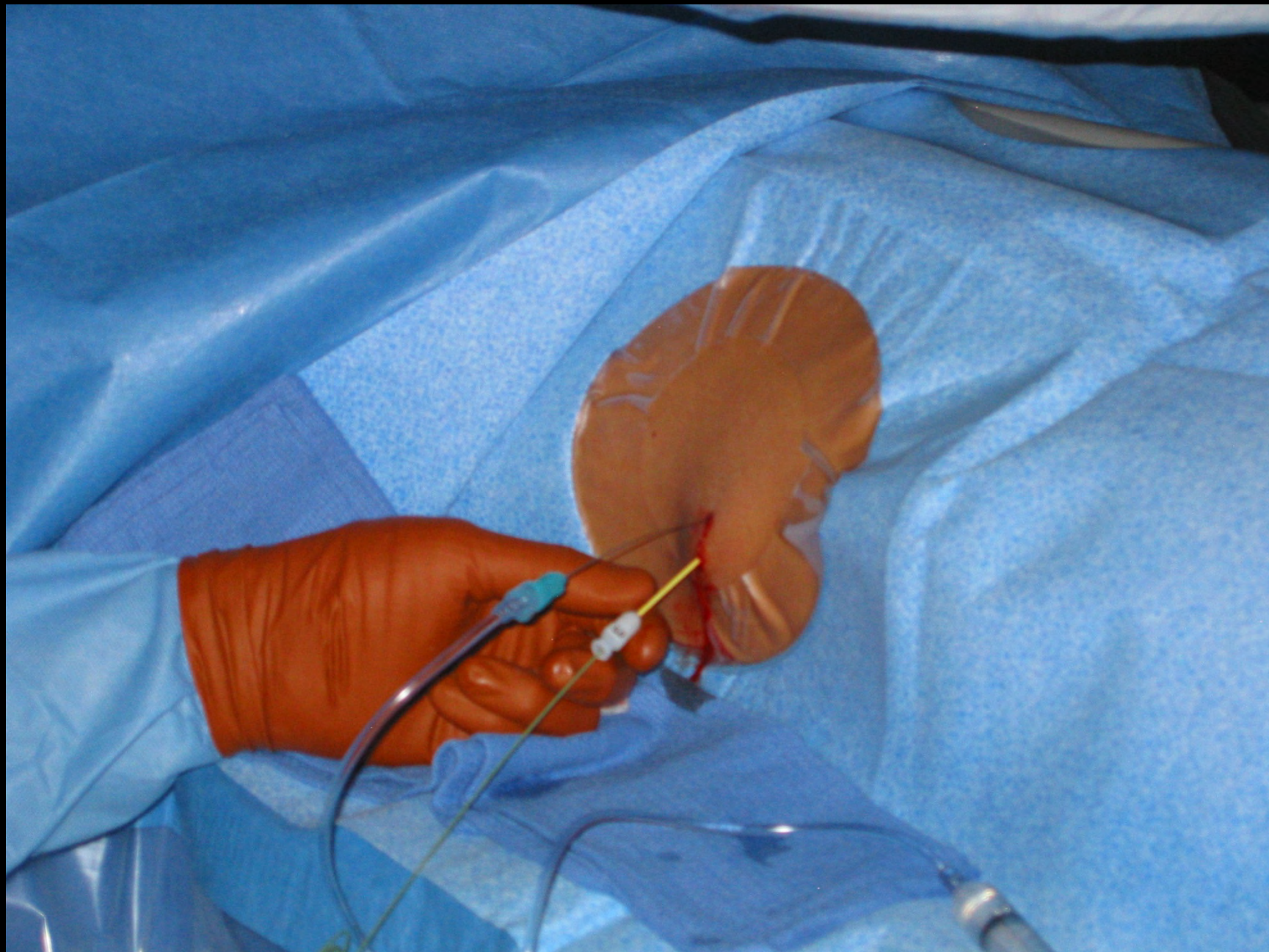
Drain types

- External drain – APDL pigtail
- Internal/external biliary drain – Side holes on catheter allow bile to be diverted internally
- All come in various sizes, 8-16 French

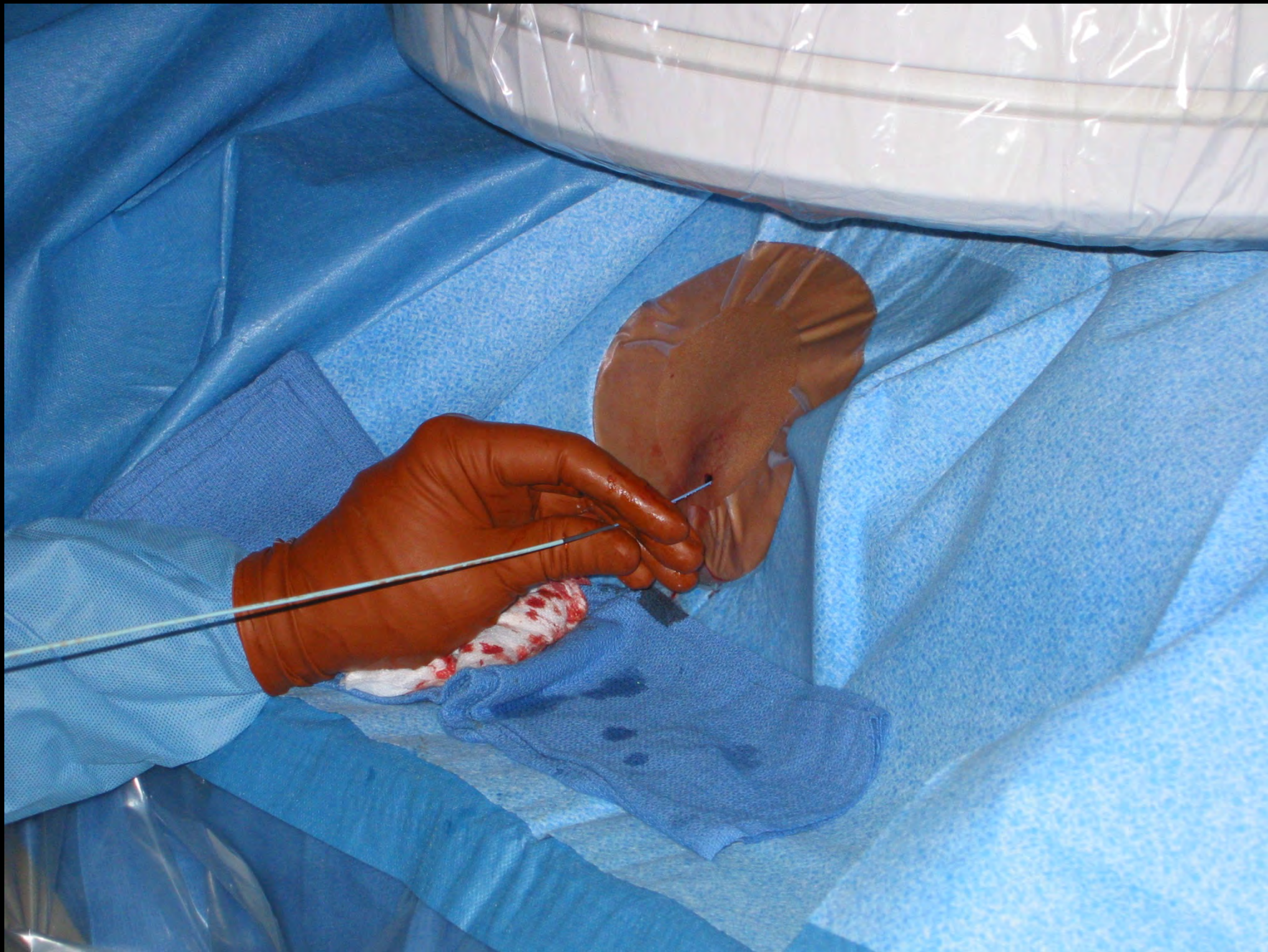


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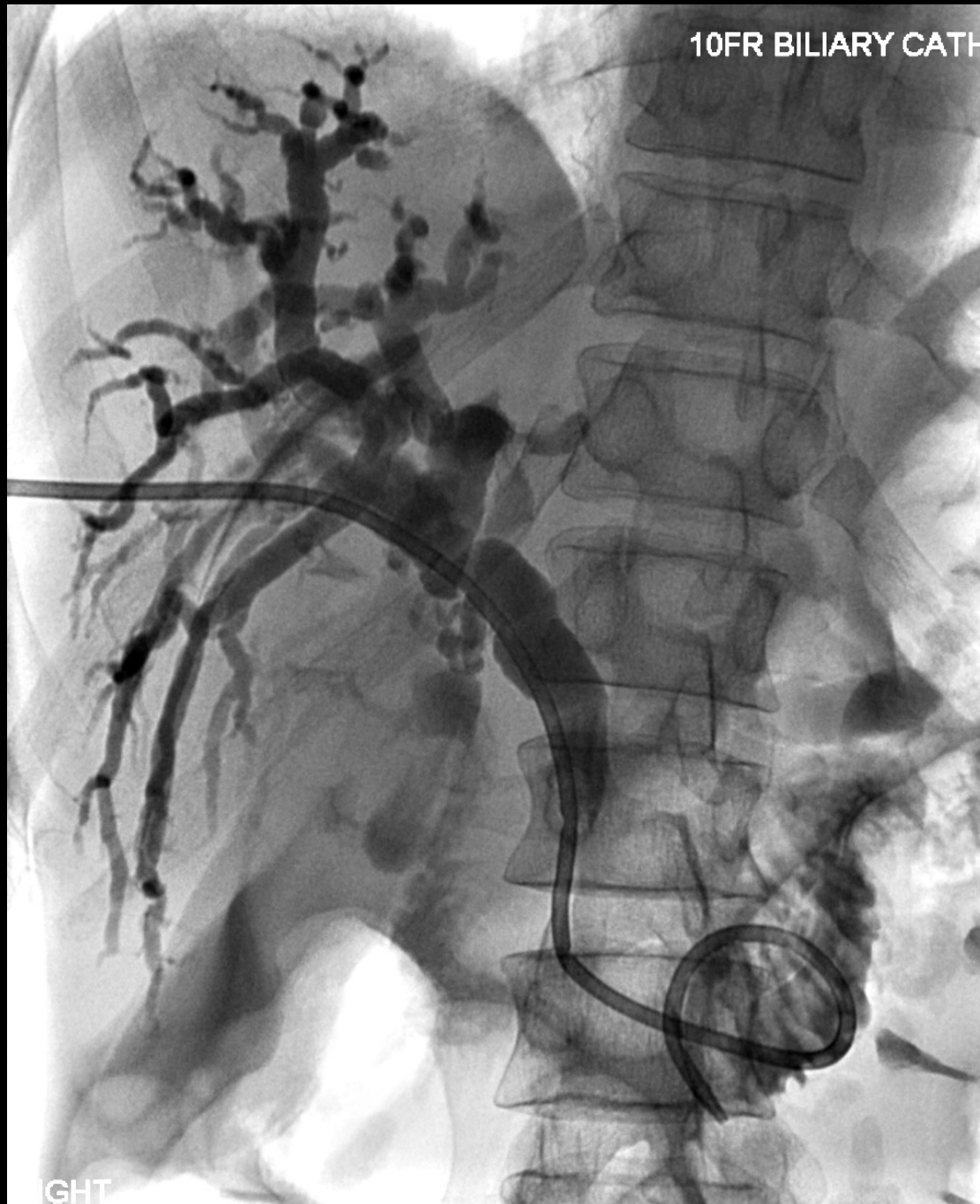








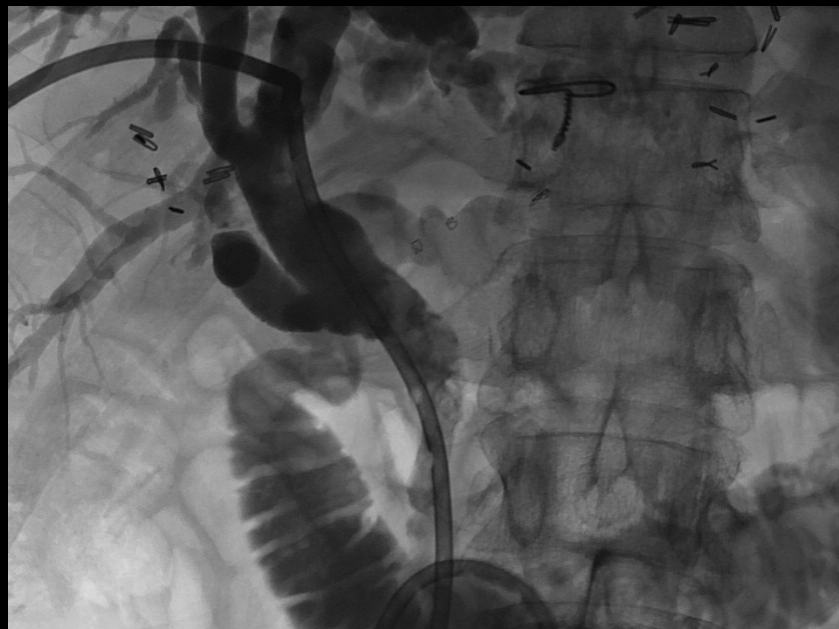
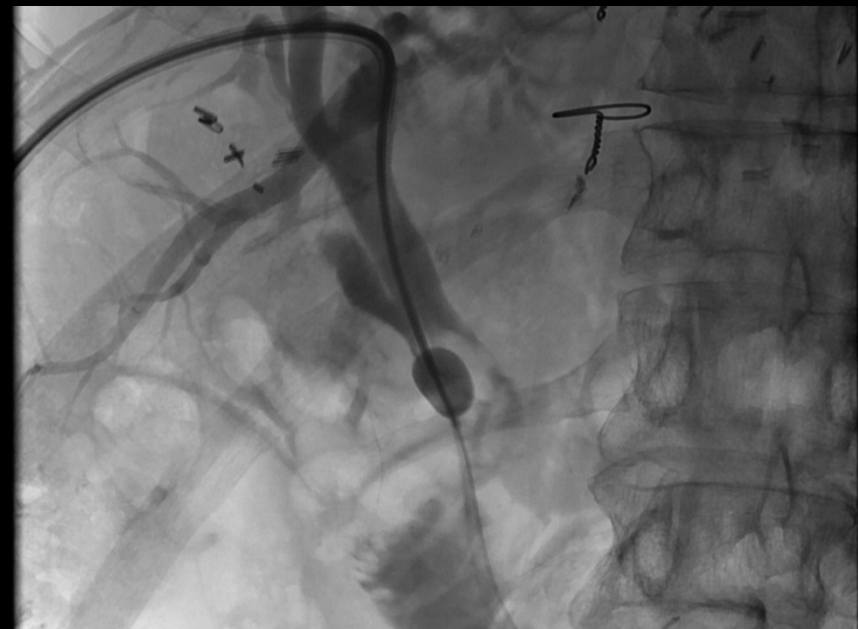
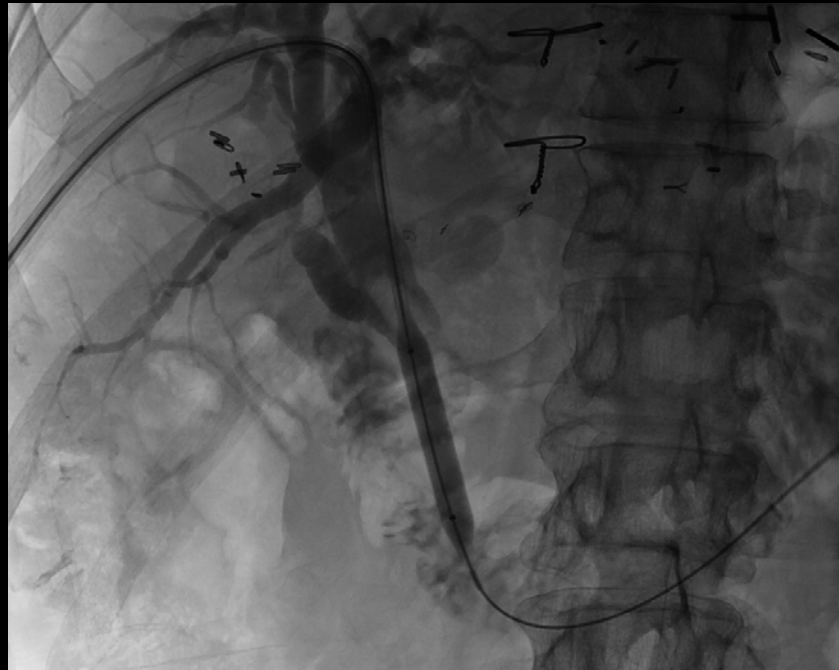
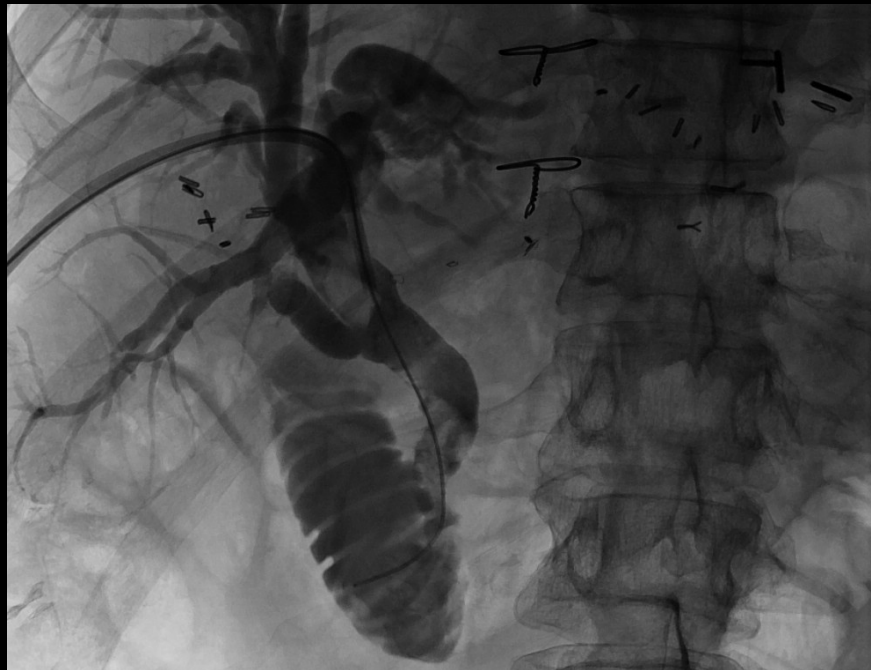
10FR BILIARY CATH



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Stone retrieval

- Basket
- Irrigation through created window (gall bladder)
- Papilla dilation and pushing
- Lithotripsy and pushing (with gastroenterology and scope)
- Drain left behind to allow inflammation to subside.



Bleeding









Endobiliary stenting

Indications

- Plastic stents – removable, indicated for benign and malignant processes. Mostly placed endoscopically.
- Metallic stents – Palliation in setting of nonoperable malignant disease

Endobiliary stenting

Results

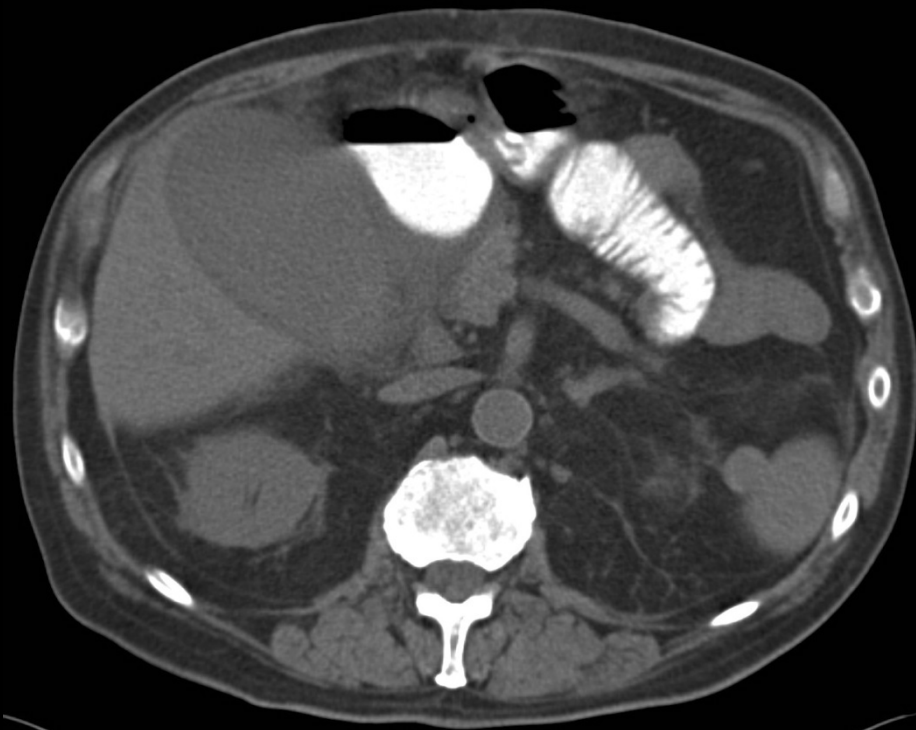
- Technical success rate near 100% in patients with internal/external drains
- Metallic stents have poor long term patency rates. Mean patency 3 – 8 months
- Covered stents - ? Longer patency, more migration, cost more.

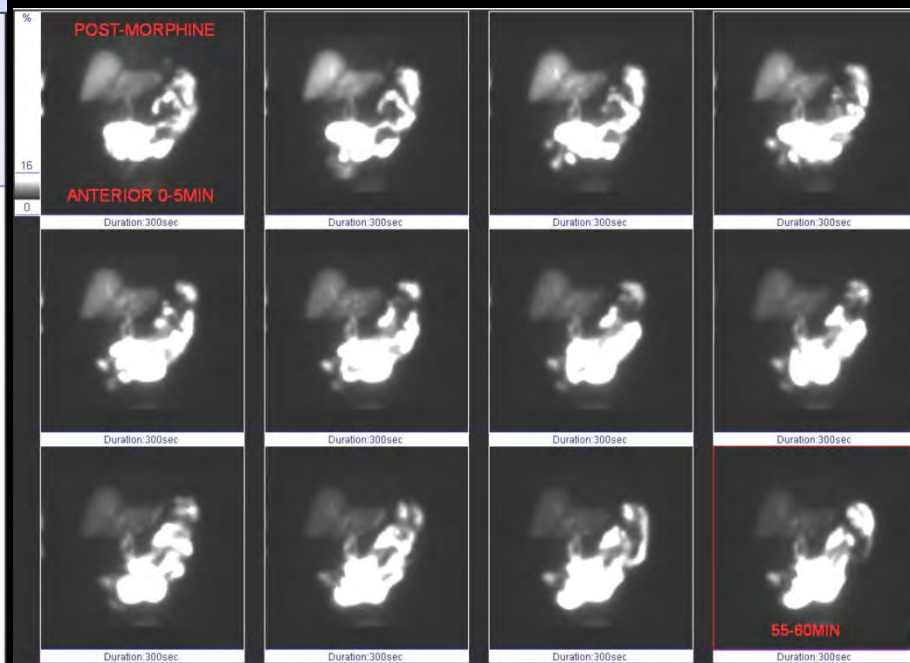
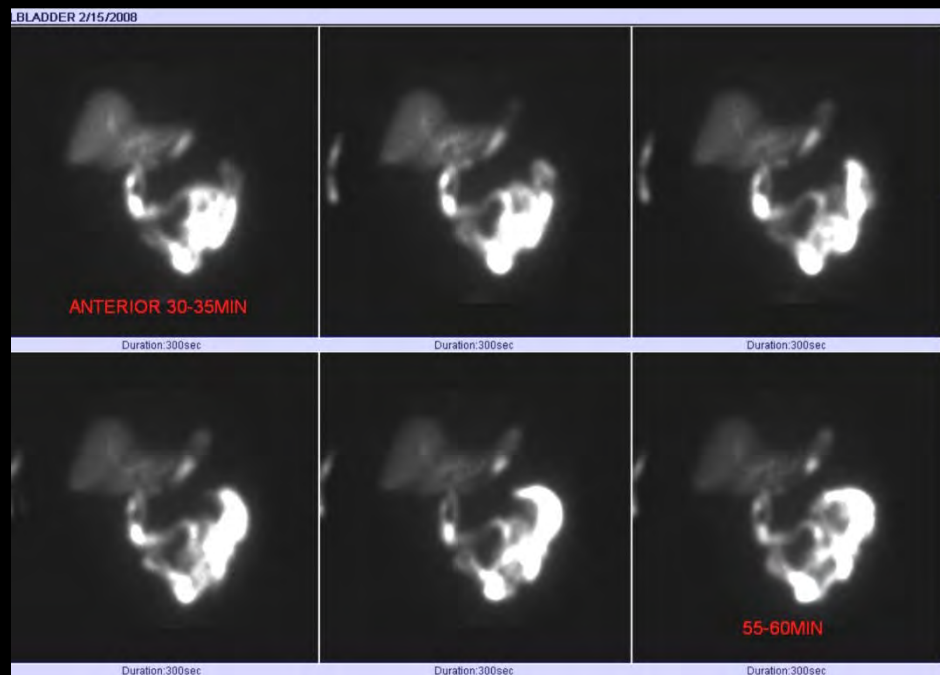
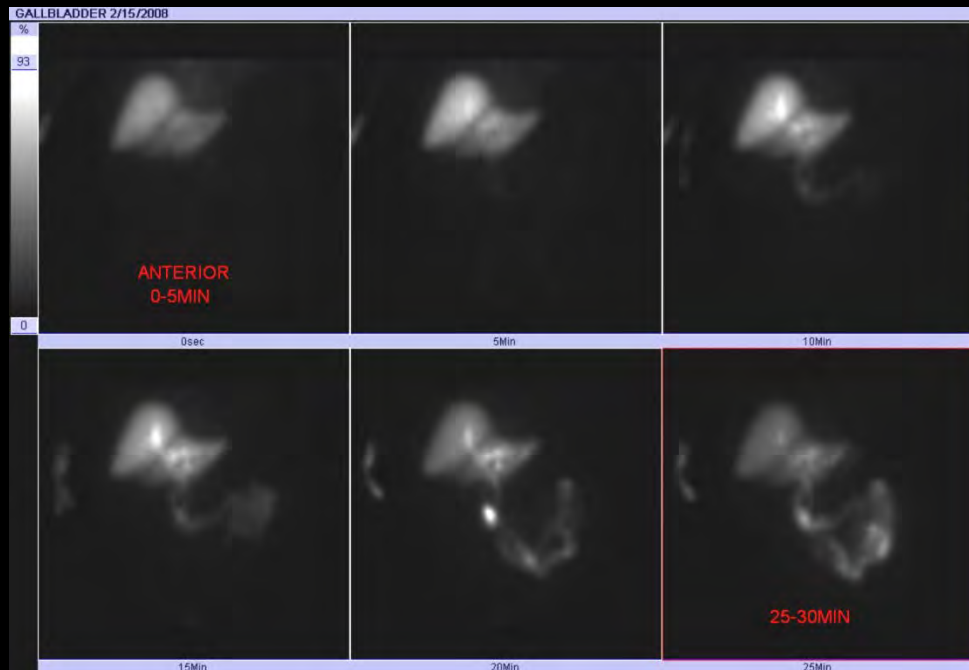


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Cholecystostomy

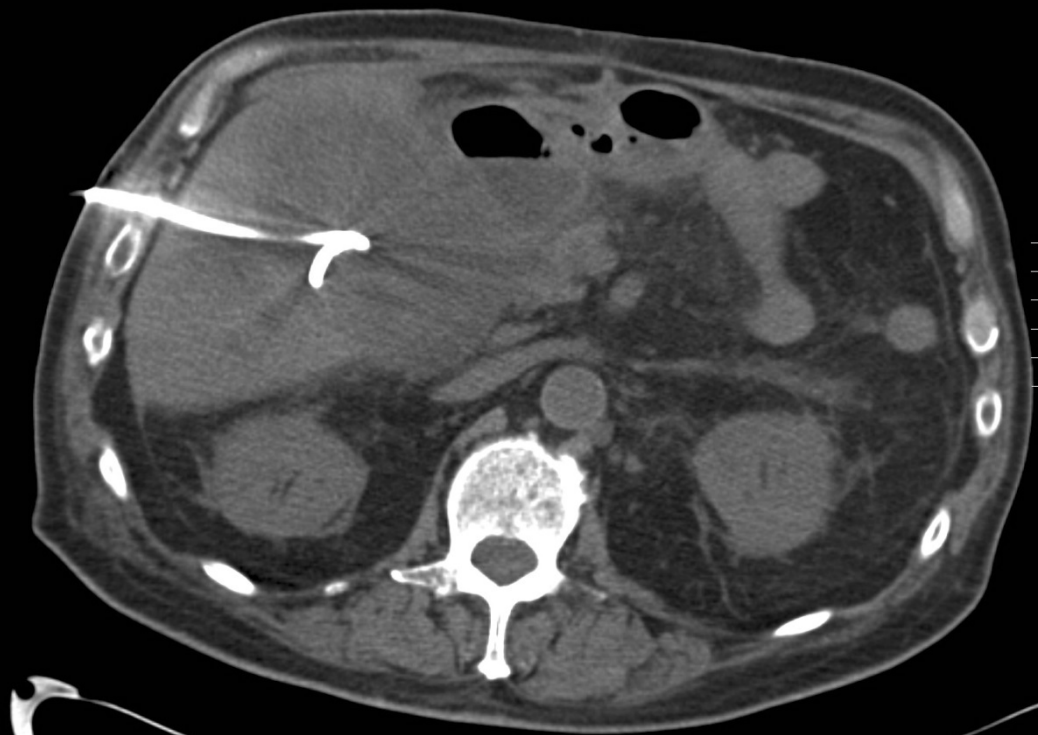
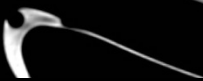
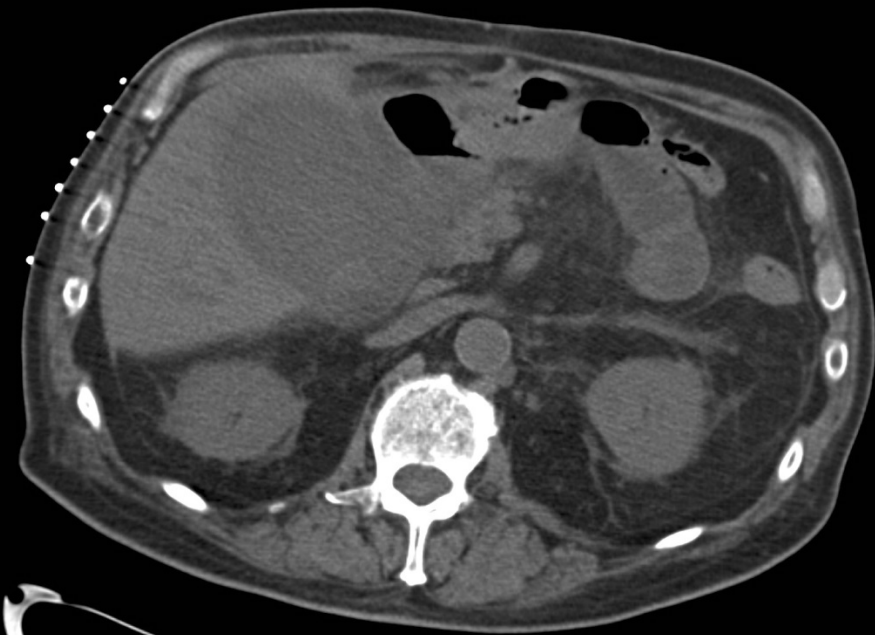
- Drain infected bile from gallbladder in patients who are not candidates for cholecystectomy
- U/S, CT, or Nuclear Medicine prior to drain to evaluate for cholecystitis
- U/S or CT guided.
- Transhepatic approach minimizes risk of bile peritonitis
- Tube stays in at least six weeks for tract maturation prior to pulling.
- Trial capping or fluoroscopic study before pulling





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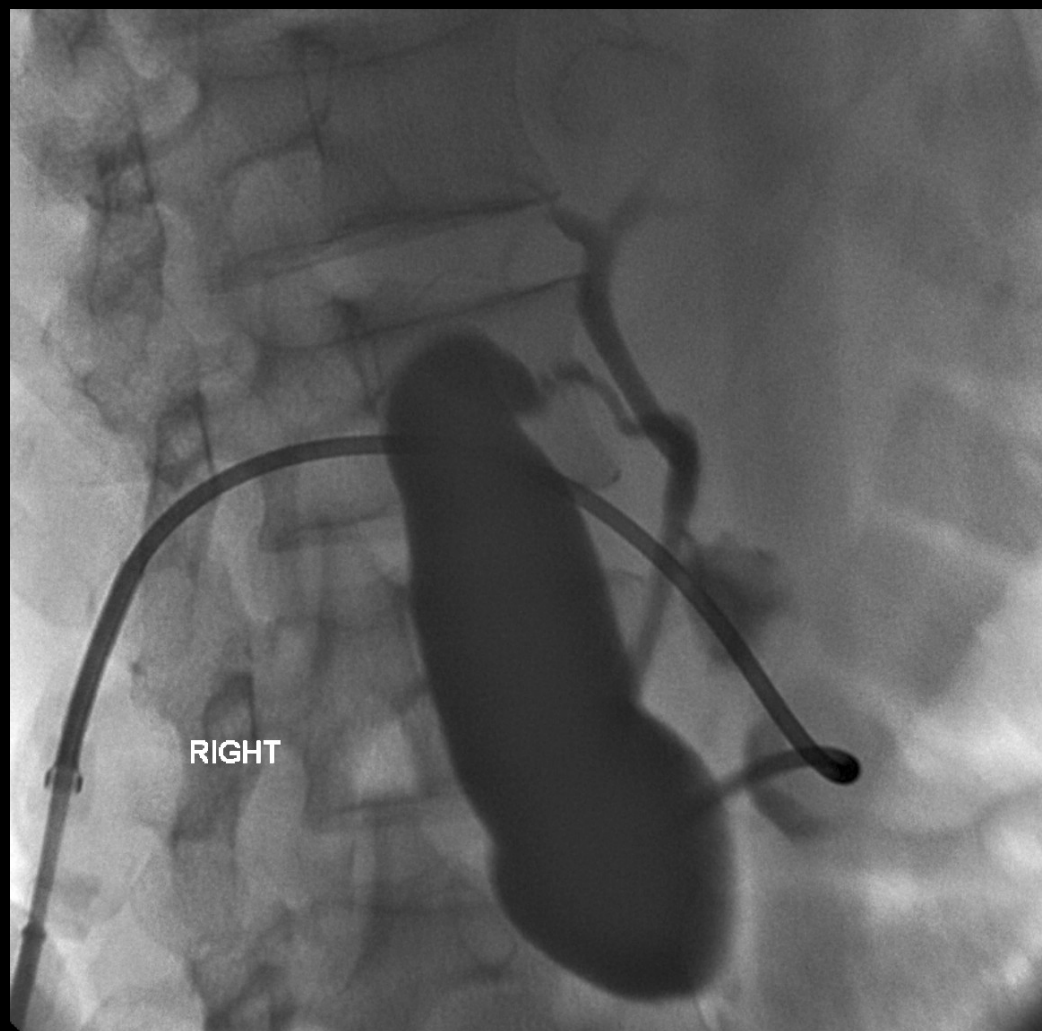
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Thanks

