



SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME : CONTRAST AND SPECIAL RADIOGRAPHY PROCEDURES

II YEAR

UNIT : 3

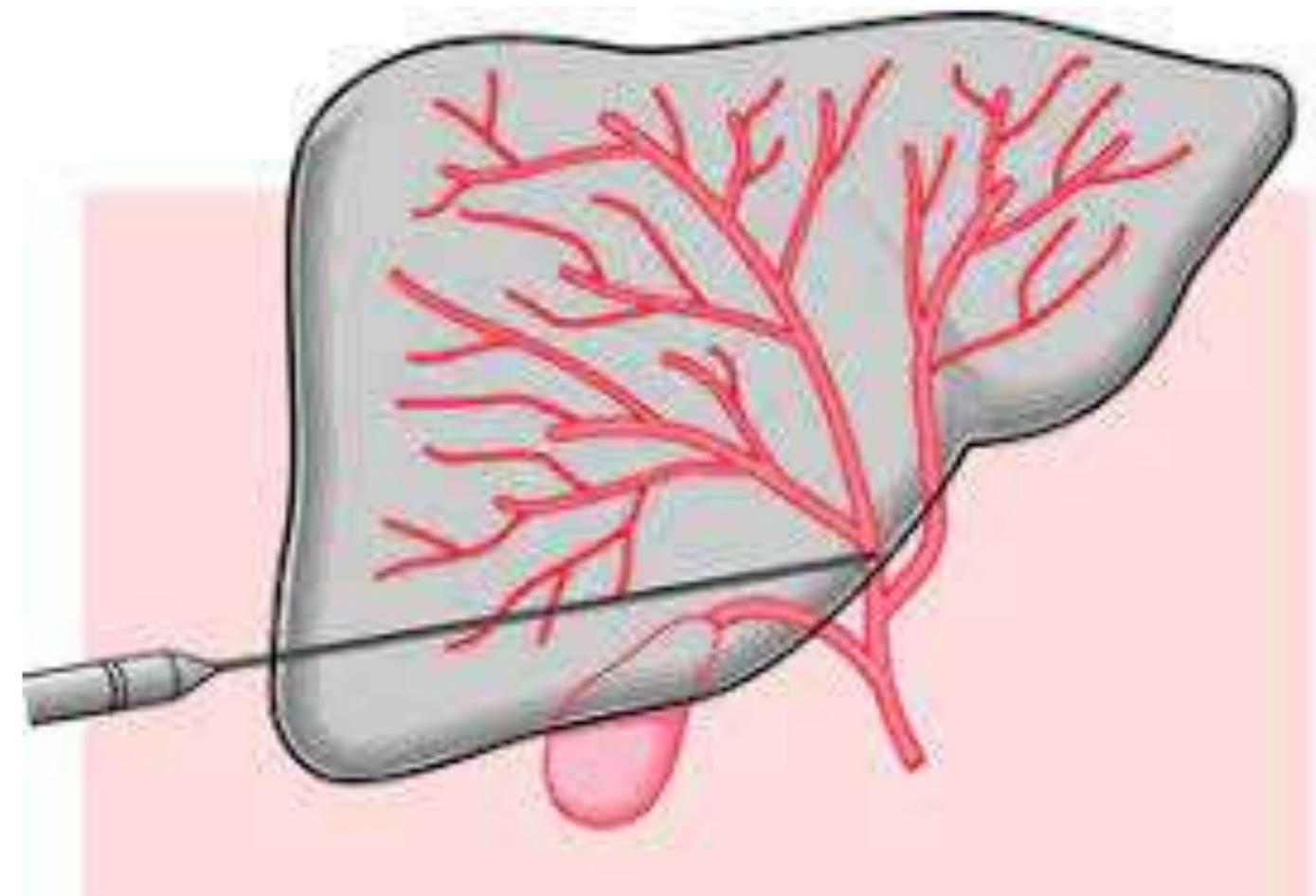
TOPIC : PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY (PTC)



INTRODUCTION



It is a radiographic imaging techniques in which percutaneous injection of radio-opaque contrast media is directly injected into the bile duct to visualize the abnormalities in the biliary system. In this procedure, a thin needle is inserted through the skin into the liver to reach the bile duct. The test is performed in the radiology department by surgeons, radiologists, anesthetics and other healthcare teams.





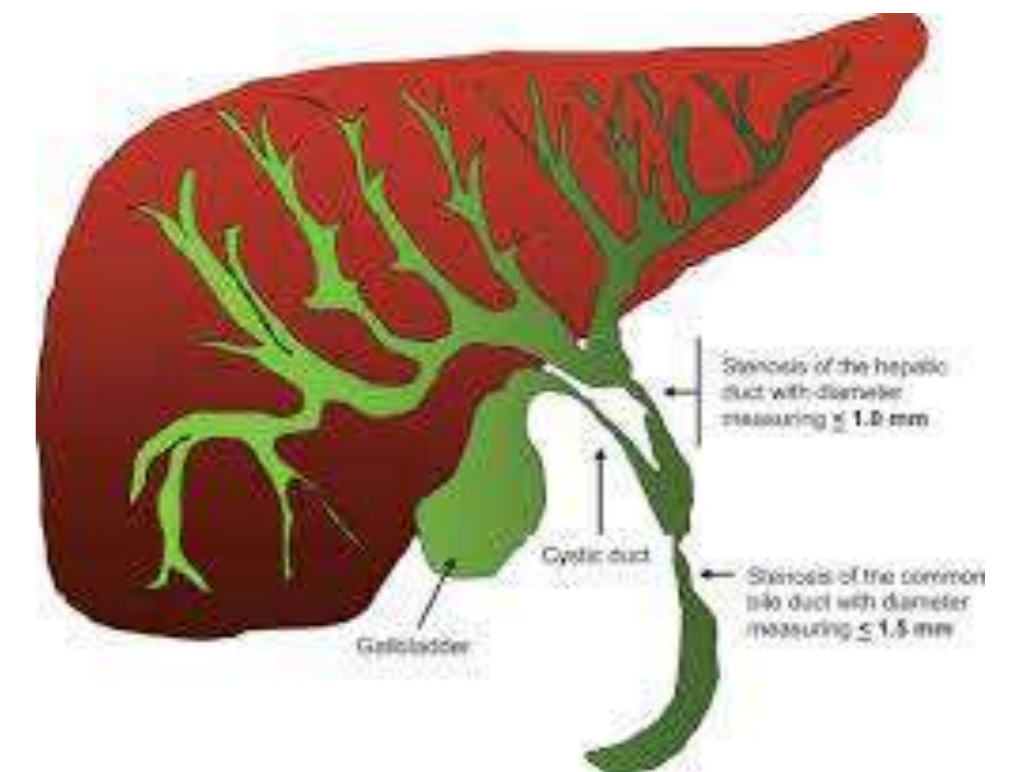
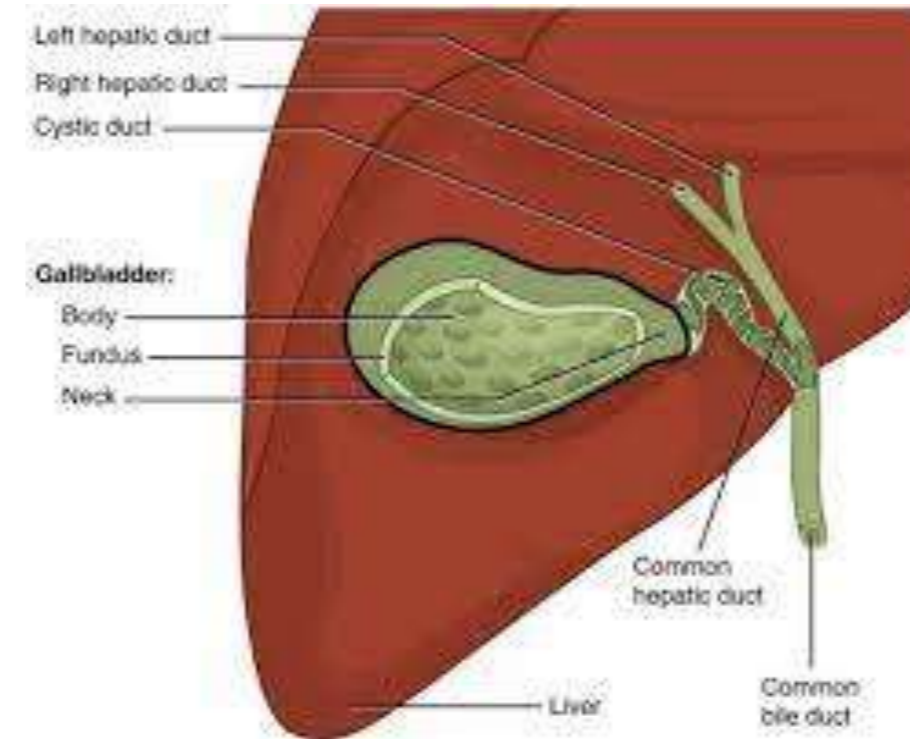
ANATOMY



Biliary System Ducts – The liver cells secrete the bile. The bile consists of salts, bile pigments, cholesterol and phospholipids. It is then collected by the right and left hepatic ducts and drain into the common hepatic duct. The bile produced by the liver is stored in the gall bladder. The duct that comes from the gall bladder is called the cystic duct. The cystic duct and hepatic duct join and form the common bile duct. The common bile duct joins the pancreatic duct and opens into the second portion of the duodenum at the ampulla of Vater.

INDICATION

- Biliary obstruction due to gallstone or mass.
- Strictures in the bile duct.
- The unknown reason for Jaundice.
- ERCP study become failed or facility not available.
- ERCP not possible due to abnormalities in the esophagus or small intestine.

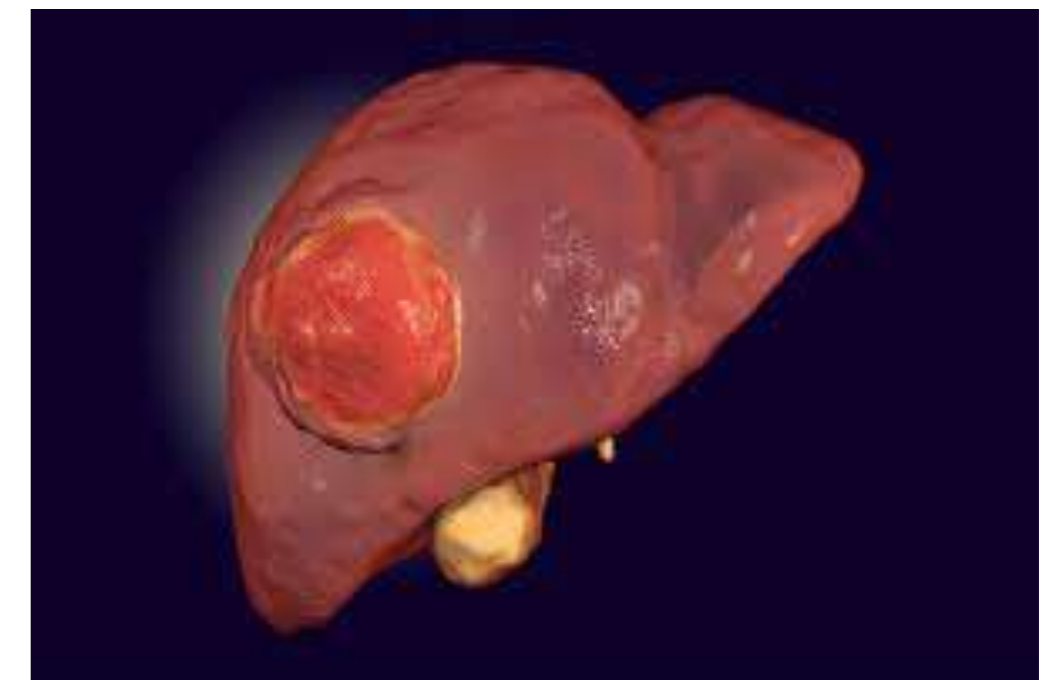
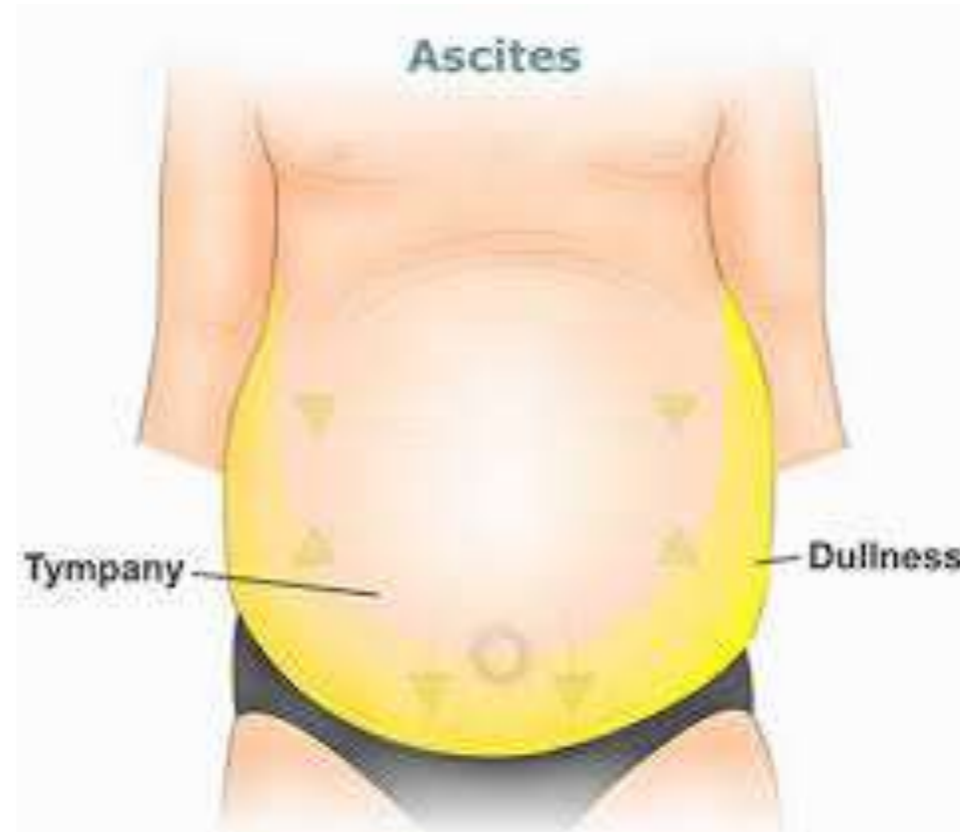




CONTRAINDICATION



- Hypersensitivity to Iodine.
- Ascites (abnormal accumulation fluid in the abdomen).
- Blood clotting disorder.
- Suspected pregnancy.
- Large liver tumors.
- Severe infection at the puncture site.





PATIENT PREPARATION



- The patient is asked to take a low residue diet for two days prior to the examination and drink clear liquids the day before the examination.
- Fasting may be employed for 6-8 hours. Ask the patient not to eat or drink after midnight.
- Women should inform about any possibility of pregnancy. Pregnant women should not have a radiologic examination because of the risk of radiation exposure to the unborn baby.
- The patient is instructed to remove all the metallic objects and metallic jewelry from the body.
- The patient is asked to stop taking an anticoagulant two days prior to the examination.



EQUIPMENT



- Fluoroscopic unit with spot film device or image recorder device.
- Ultra sonography machine.
- Needle Chiba 22G.
- Contrast media Water-soluble non-ionic.
- Antiseptic solution.
- Local anesthesia.
- Syringe.
- Gloves.
- Sterile towel.
- Gauze.





PRE-PROCEDURE INVESTIGATIONS



The pre-procedure investigations must be reviewed by the radiologist, which includes-

- Abdomen x-ray report.
- Blood Urea.
- Blood serum creatinine.
- Chest x-ray report.
- Previous cholangiography report.
- Ultrasonography report and CT and MRI reports.
- Liver function test reports.
- Blood sugar reports.
- Total blood count and bleeding and clotting time.
- History of previous medication, bleeding disorder should be taken by the radiologist.

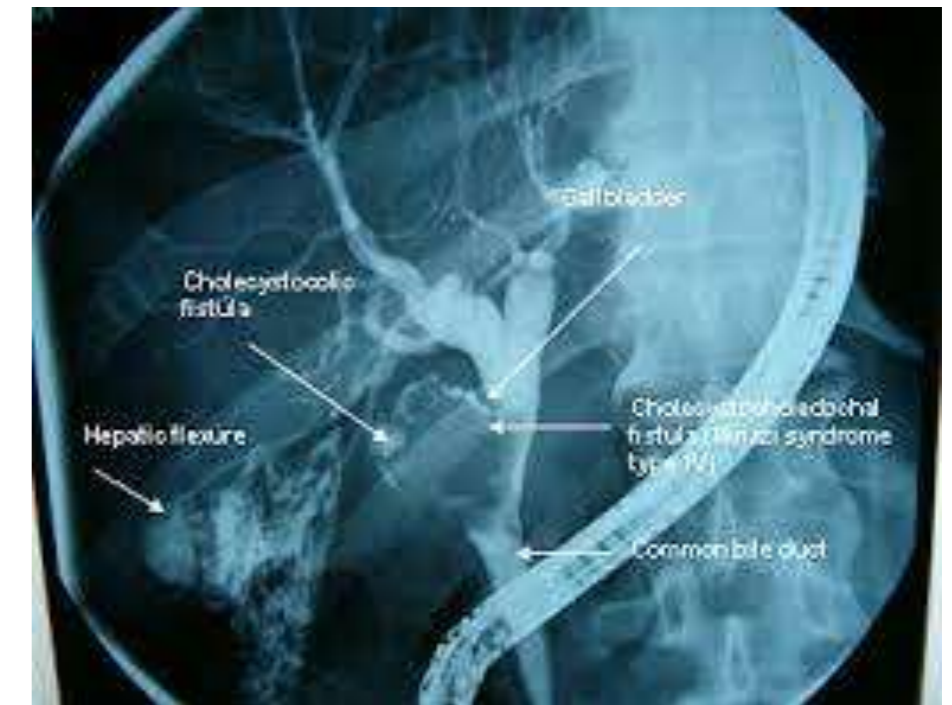


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Time :
: () EDTA blood () Clotted

| Lab Test | Results | U |
|-------------|---------|-------|
| FBS/Glucose | 185 H | mg/dL |
| HbA1c | 9.0 H | % |
| BUN | | mg/dL |





PROCEDURE



- On the day of the examination, the technologist should describe the whole procedure to the patient and obtain written consent from the patient, for permission of procedure.
- The patient is asked to remove clothing and wear a hospital gown.
- The patient is placed in the supine position with an empty bladder on the fluoroscopic table.
- An intravenous line is inserted into the patient arm. If necessary, sedative medication is given through line to make the patient relax.
- The Blood pressure, heart rate, respiration rate, oxygen level and other vital signs of the patient should be monitored during the procedure. The antibiotics and necessary medications are given to the patient through an IV line prior to the procedure.



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- Then the right arm of the patient is placed above the head and cleans the right side rib area with the antiseptic solution under strict sterile protocol and draped with a sterile towel.
- Afterward, the interventional radiologist identifies the minimal invasive distance to access under the ultrasonography guidance.
- Then the local anesthesia is given at the insertion site ; the most common insertion site is – the intercostals spaces of the caudal part of the lung at the midaxillary line.
- After that, the radiologist inserts the Chiba needle percutaneously through the skin, between the intercostal space of the rib, under the Ultrasonography guidance and gently pushes the needle through the liver into the bile duct.
- During the insertion of a needle, the patient is instructed to hold the respiration in the expiration phase.



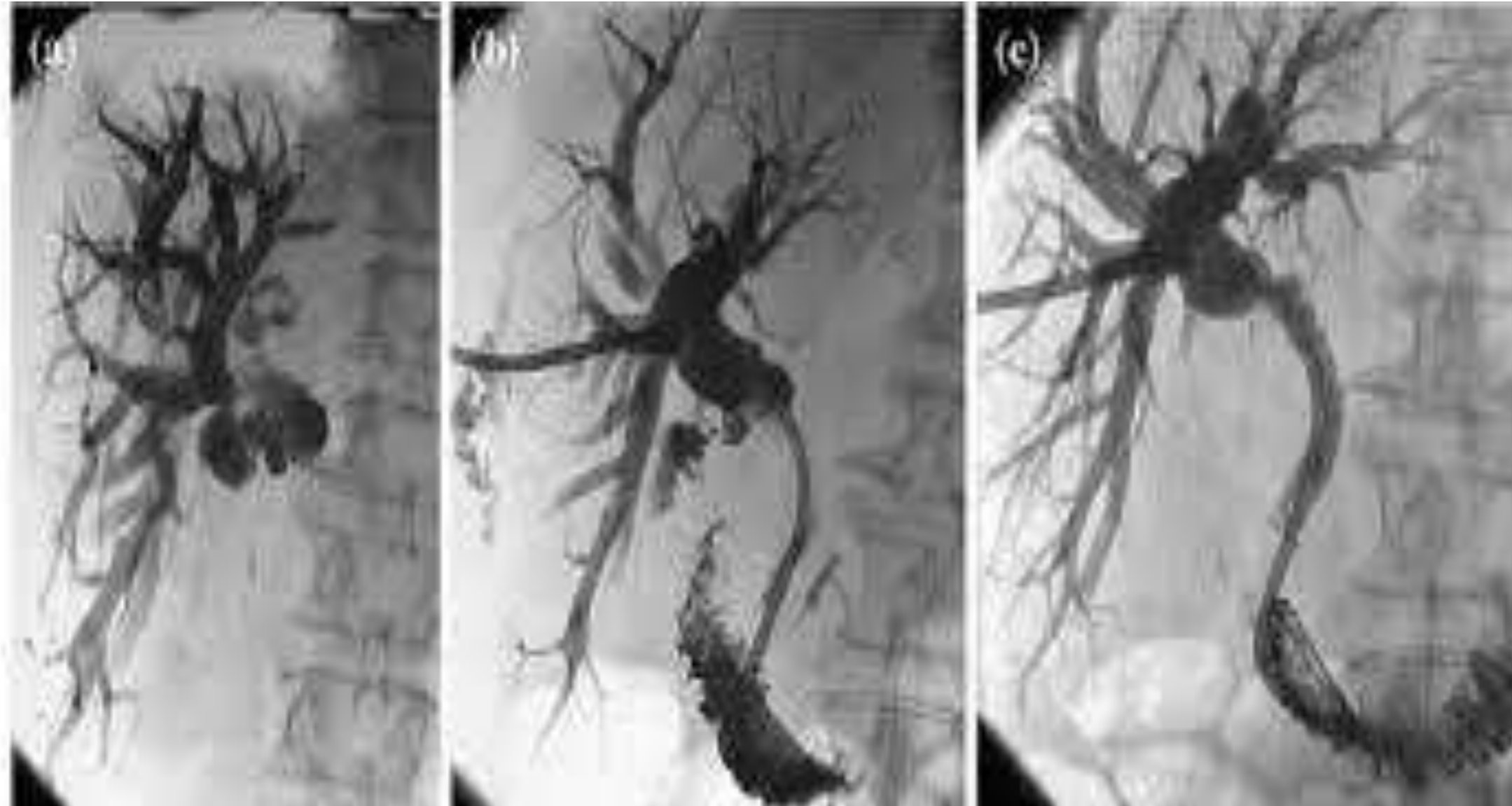
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- Once the needle tip enters the bile duct, the entire procedure will be done in fluoroscopy guidance. After successful insertion of the needle, then contrast media is injected, and radiographs are taken or recorded through a spot film device or by an image recorder.
- The radiologist evaluates the patency and the abnormalities or blockage in the duct, then the surgeons will advance a catheter over the needle. This catheter is called a bile drainage tube for the therapeutic and diagnostic aid.
- After completion of the procedure, the Chiba needle is removed and dressing is applied to the puncture site.



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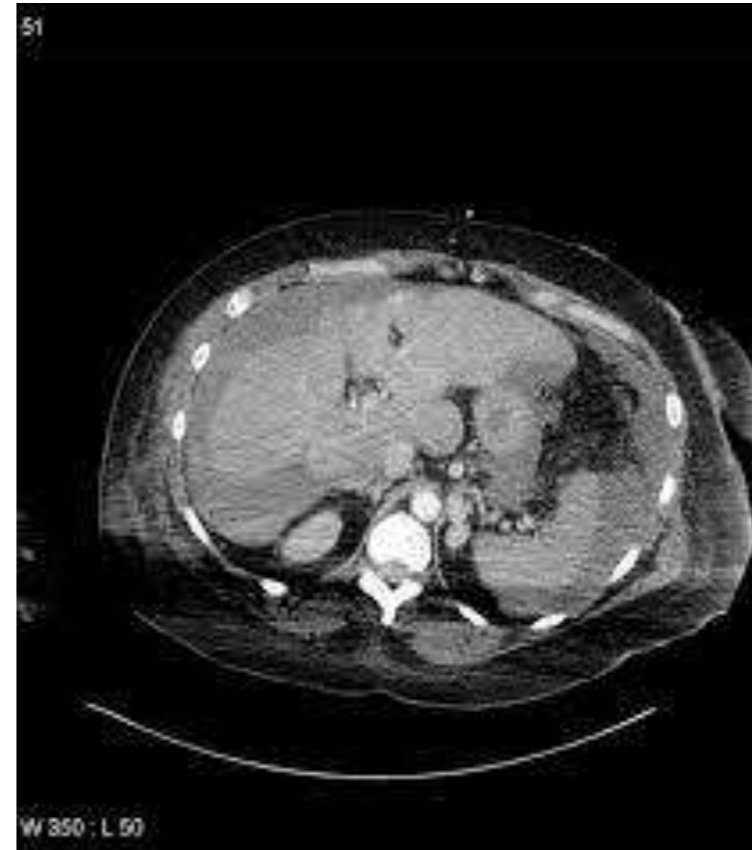




COMPLICATIONS



- Liver hemorrhage.
- A possibility of gall bladder perforation.
- Infection and bleeding on puncture site.
- Peritonitis.



PERITONITIS

Sandeep Beral
LMCH, Final year





AFTERCARE



- The patient should be kept under observation. The blood pressure, heart rate, oxygen level, fluid balance and other vital signs must be monitored.
- If the vital signs are normal, then the patient is allowed to leave the examination room.







THANK YOU