

APPROACH TO PATIENT WITH JAUNDICE

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You are in the hospital and a patient came with **yellowish** eyes, mucosal membrane skin, what should you do?

WHAT IS JAUNDICE?

Jaundice is the yellowish discoloration of the tissue and the sclera, occurs if serum bilirubin >3 mg% (normal: <1 mg).



Healthy

Jaundice

Healthy skin color

Whites of eyes turn yellow

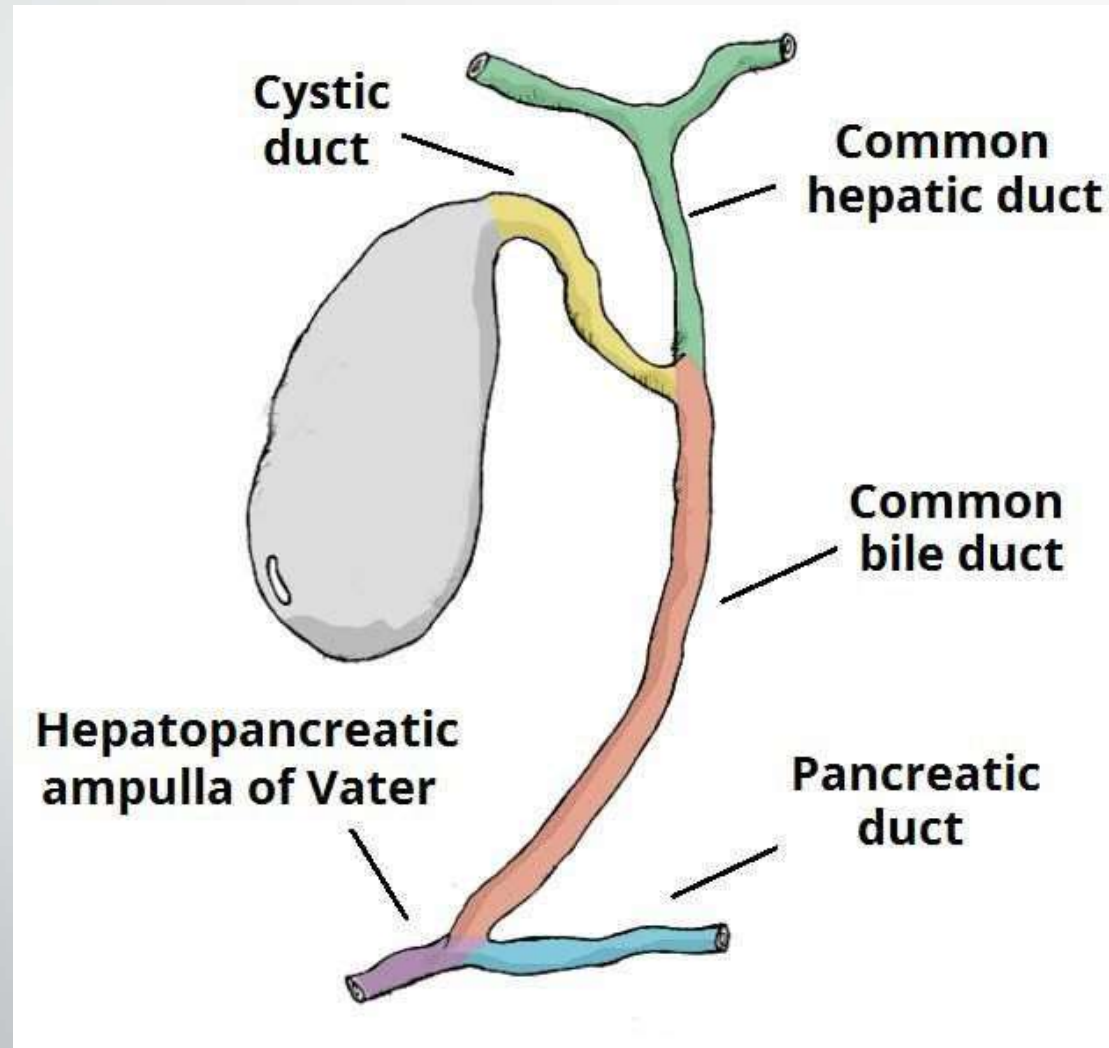
Yellow skin



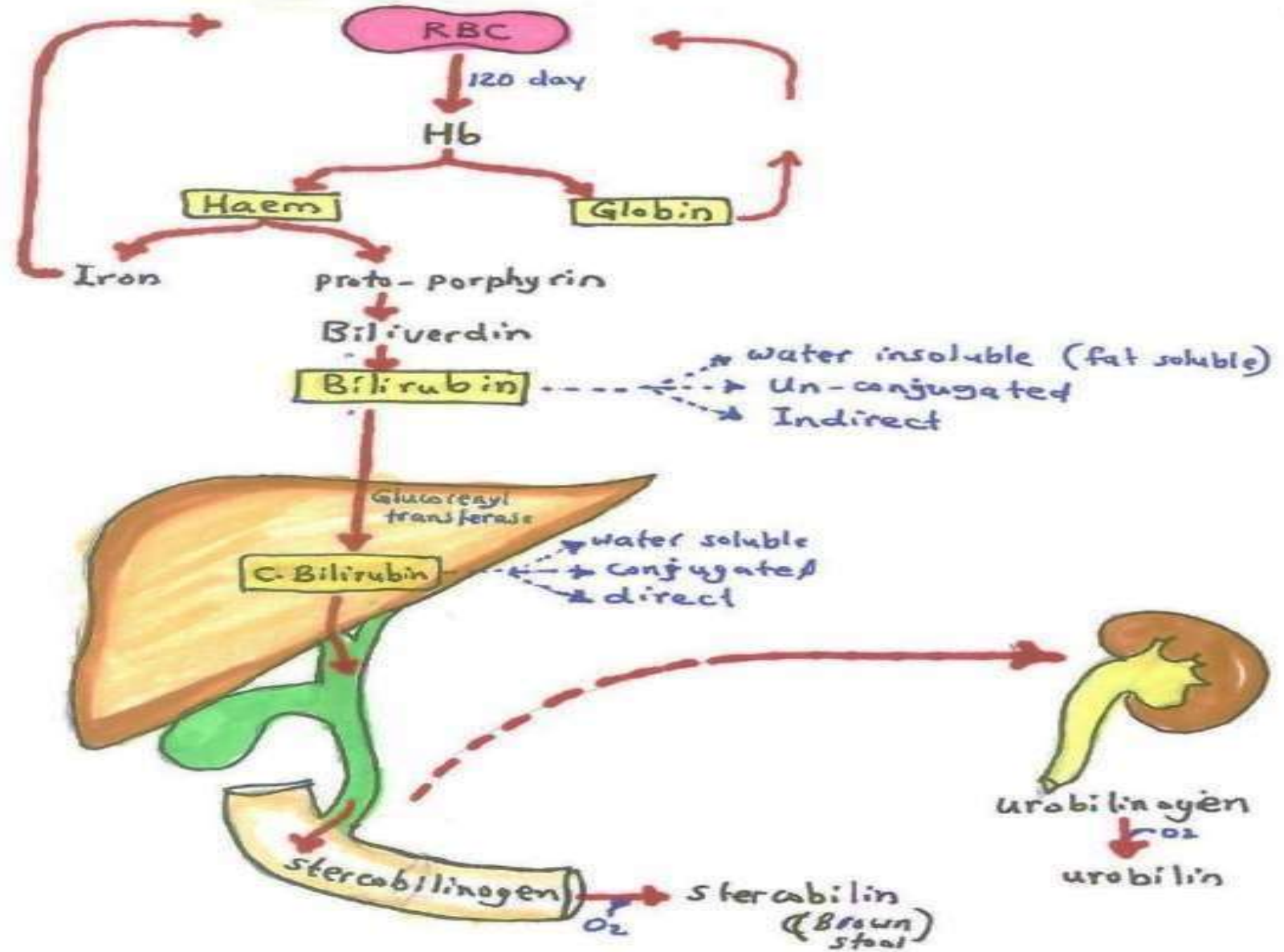
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BILIARY TREE



* Bilirubin metabolism :-

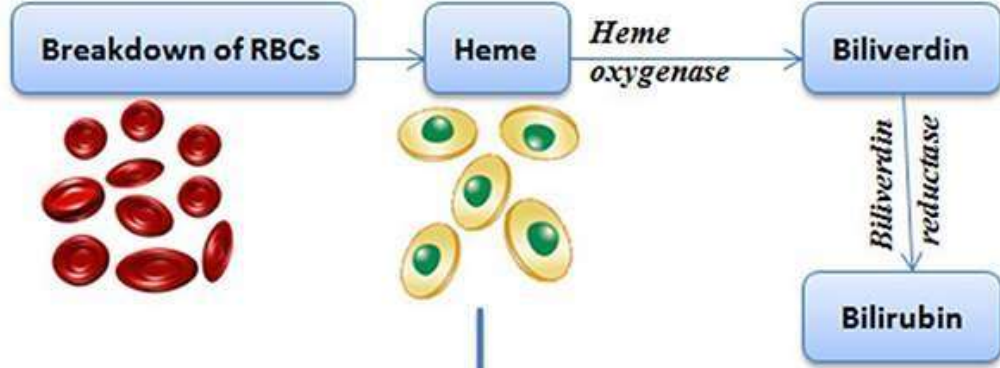




Causes

Jaundice

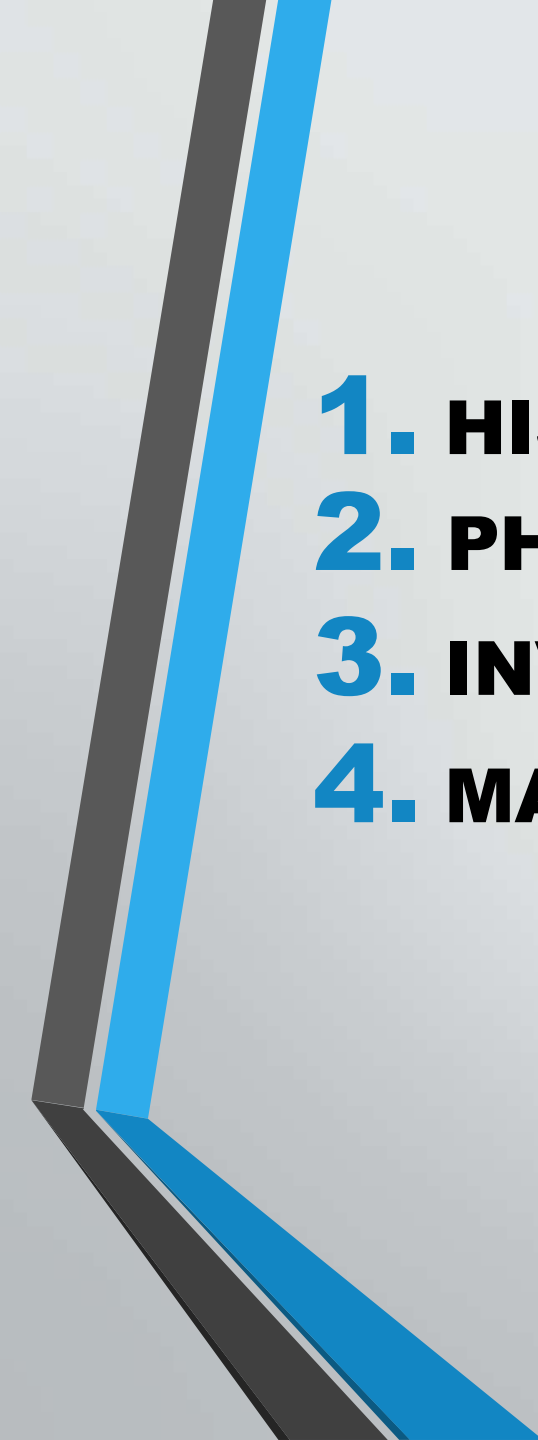
Metabolism



Bilirubin level exceeds 3mg/dl

Symptoms

Yellow pigmentation of skin, mucous membrane and sclera

- 
- 1. HISTORY**
 - 2. PHYSICAL EXAMINATION**
 - 3. INVESTIGATION**
 - 4. MANAGEMENT**

HISTORY

- **Patient profile**
- **The presenting complain (history of presenting complain)**
- **Past history (surgical, medical, drug, family, social,)**
- **Systematic review**

Patient profile

- Name
- gender
- Age
 - neonate:
 - Young : viral hepatitis, young female: pregnancy
 - Middle aged/elderly: alcohol, malignancy
- Marital status
- Occupation
 - health care workers are in risk of needle stick or blood contact
- address

Presenting complain

- What is your main problem?
- Yellowish eyes, mucosal membrane, skin

History of presenting complain

- Since when? Today, a week ago?
- Did it appear sudden or gradually?
 - - Days to a week----acute hepatitis
 - - 2 weeks : subacute hepatitis or biliary obstruction .
 - - More than two weeks : malignant biliary obstruction, chronic hepatitis (cirrhosis) , chronic pancreatitis, stricture in the common bile duct, or toxin exposure (especially alcohol).
- Had this problem happen to you before?
 - - Recurrent short episodes over months to years + RUQ abdominal pain, implicate gallstones , chronic hepatitis, cirrhosis.
- How did you noticed it? (friends, family, you noticed it?)
- Is it continuous?
 - - Fluctuating intensity : gallstones, ampullary carcinoma, or drug-induced hepatitis .

Important questions to differentiate between jaundice causes

- Pale (clay colored) stool?
- Dark urine?
- Itching?

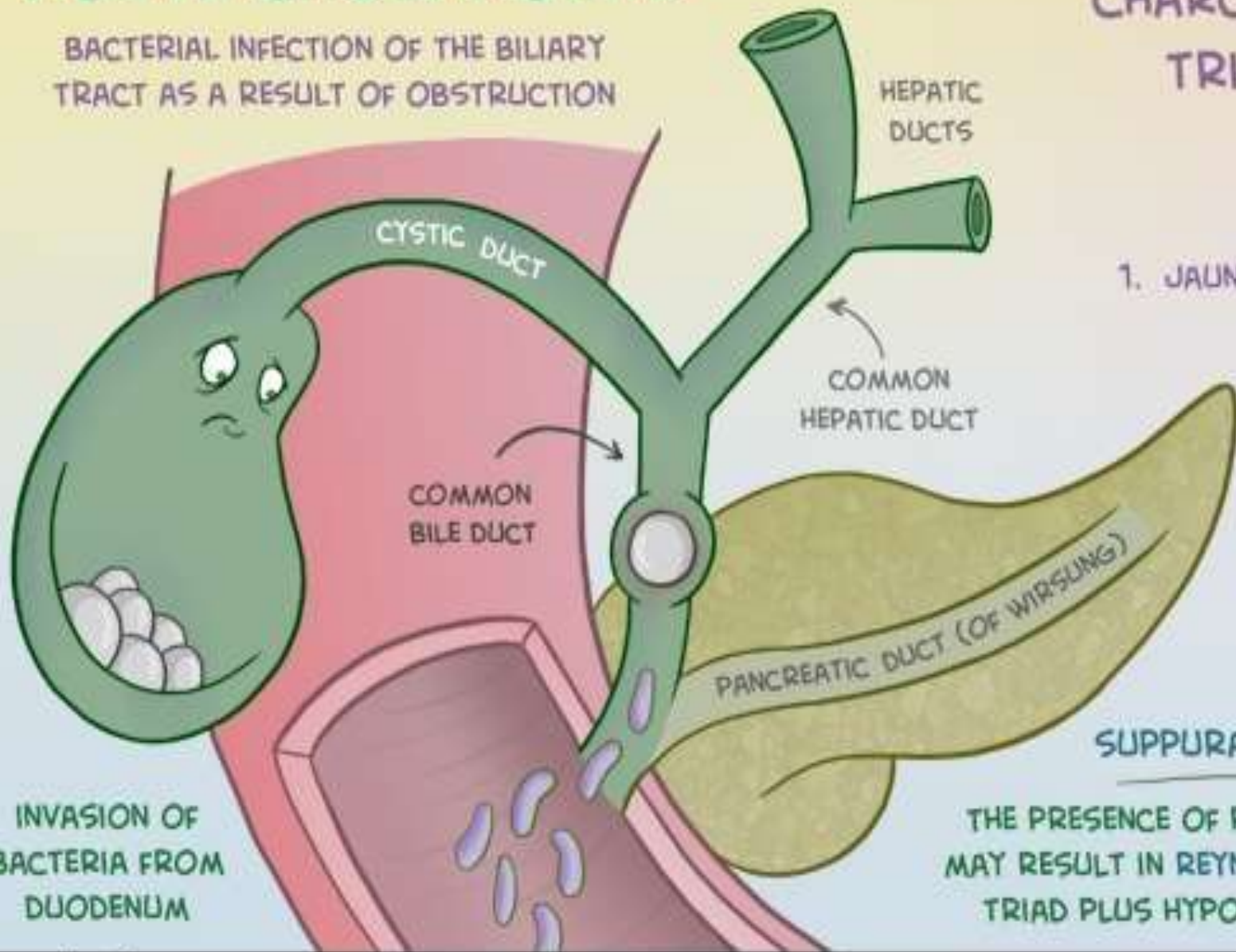
-----→ These indicates obstructive jaundice

- Fever, chills?
- RUQ pain

-----→ These indicates cholangitis

ACUTE CHOLANGITIS

BACTERIAL INFECTION OF THE BILIARY TRACT AS A RESULT OF OBSTRUCTION



CHARCOT'S TRIAD

1. JAUNDICE



2. RUQ PAIN

3. FEVER

ACUTE SUPPURATIVE CHOLANGITIS

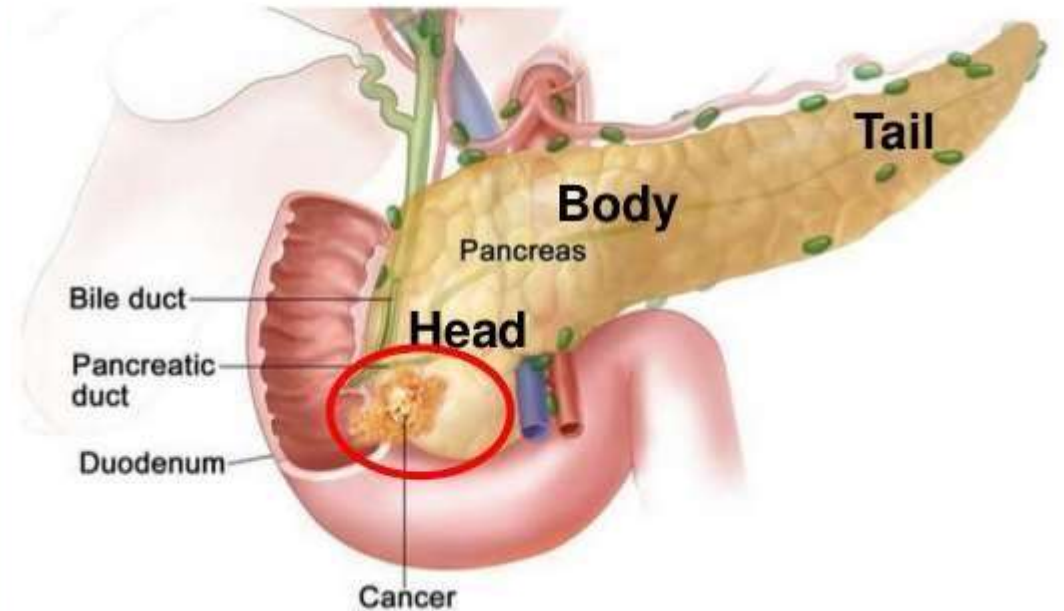
THE PRESENCE OF PUS IN THE BILIARY DUCTS MAY RESULT IN REYNOLD'S PENTAD: CHARCOT'S TRIAD PLUS HYPOTENSION AND CONFUSION



Cancer in the Head of the Pancreas

- Anorexia (loss of appetite)?
- Weight Loss?
- Fatigue?
- Bloating?
- Steatorrhea?
- Diarrhea?

-----→ These indicates pancreatic head cancer



- Change in bowel habits?
- Nausea, vomiting, and distention (ascites) ?
- Melena, hematemesis, hematochezia?

-----→ These indicates liver disease complications

- Pallor
- Fatigue
- Shortness of breath
- Dizziness

-----→ These may indicate hemolytic anemia

Pain Differentiation

- Hepatocellular jaundice is usually painless.
- Dull ache or “heavy sensation” in the right upper quadrant → acute hepatitis
- Painful obstructive jaundice → presence of gall stones (biliary obstruction)
- Fever + pain + jaundice = charcot’s triad → indicates ascending cholangitis
- Painless obstructive jaundice → indicates malignant biliary obstruction

Important past medical and surgical history

- Gallbladder stones
- Pancreatitis
- Biliary surgeries (stricture)
- Autoimmune diseases (ibd)
- hemoglobinopathy

Important questions to ask

- Certain drug history (paracetamol, sulpha drugs, OCPs, atazanavir)
- Alcohol drinking?
- Travel? (hep A, or fasciolosis (parasitic) (poor areas))
- Immunization? (hep A)
- Blood transfusion? Skin tattooing? IV drug use? Addiction? Sexual and contact history? (hep B or C)
- Missed menses (pregnancy)

Family history

- recurrent mild jaundice in family, hereditary liver disorders, Autoimmune, metabolic syndromes



Continue..

OTHER SURGICAL AND MEDICAL HISTORY

DRUG HISTORY

FAMILY HISTORY

SOCIAL HISTORY

Physical examination



"FOR STARTERS, YOU HAVE **JAUNDICE** . . . "

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Preparation:

- Environment
- Examination couch (hard, 15-20°)
- Exposure

Examination

- GENERAL
- INSPECTION
- PALPATION
- PERCUSSION
- AUSCULTATION

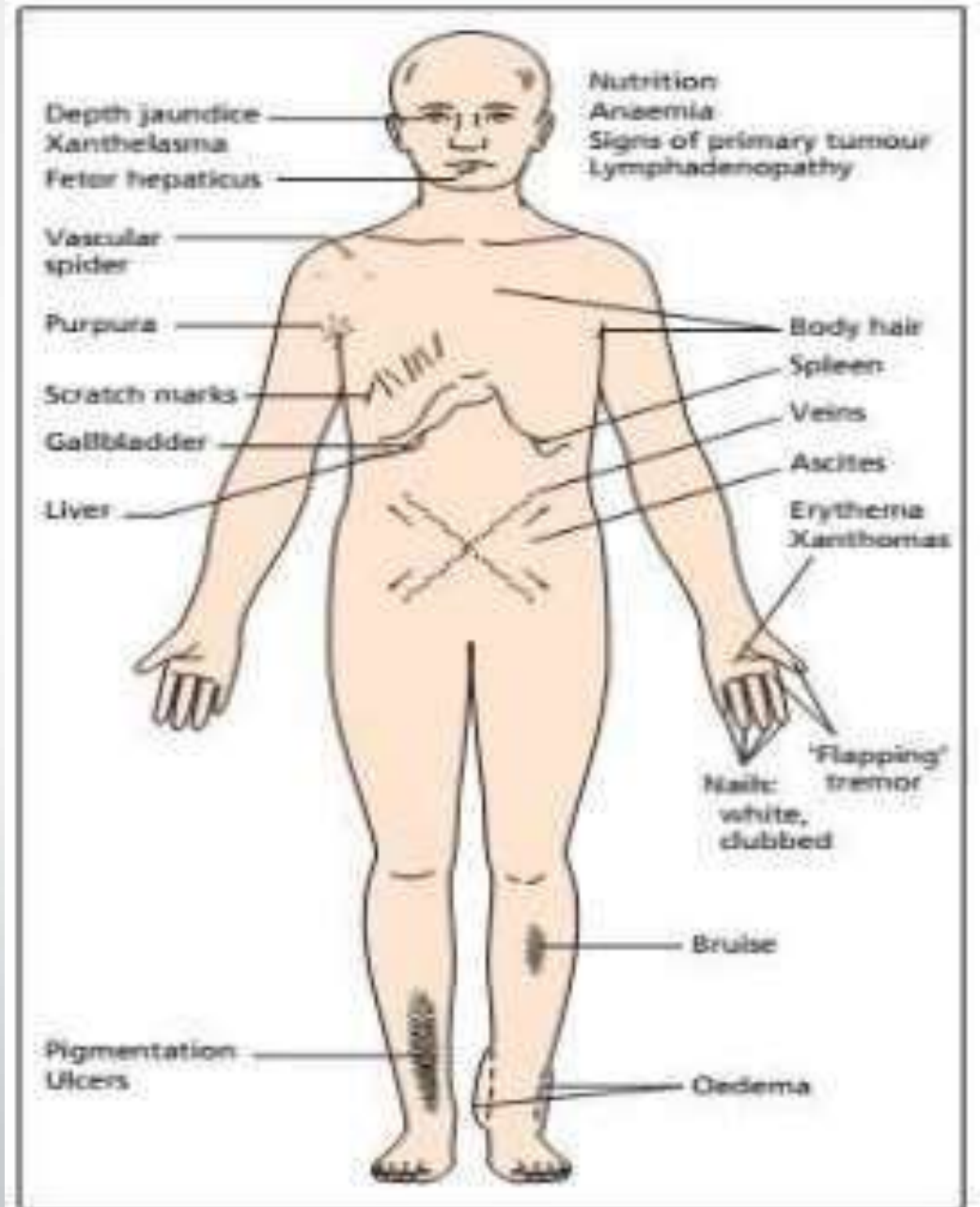


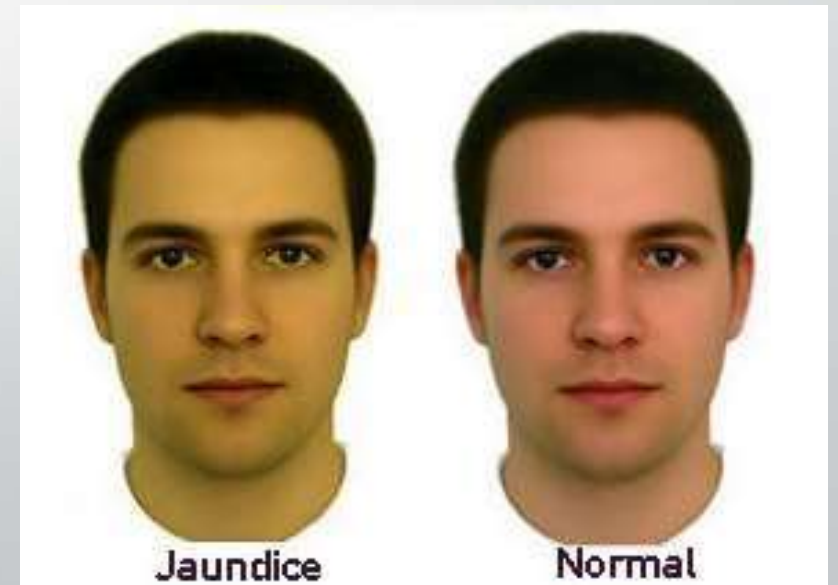
Fig. 11.11. Physical signs in jaundice.

General:

- **Patient general condition:**
In pain,
Irritability or mental confusion (due to bile salts): Cholangitis, hepatic encephalopathy.
- **Vitals signs:** fever, might have hypotension and tachycardia (signs of systemic toxicity).
- **Jaundice in sclera, skin, mucous membrane.**
- **Pallor (Hemolytic anemia).**
- **Cachexia (Malignancy).**
- **Itch marks.**
- **Bruises or mucosal bleeding (liver failure).**
- **Signs of using needles or tattoos (liver disease)**

Cholangitis:

- Charcot triad: Pain, fever and jaundice
- Raynold pentad: (+) confusion and hypotension.



Sequential sites of jaundice

- First stage: *sclera of eye*
($>1.5\text{mg/dl}$)
most important to exclude carotinemia
- Second stage: *frenulum of tongue*
($>2.5\text{mg/dl}$)
- Third stage: *skin*
($>3.5\text{mg/dl}$)



INSPECTION

- **Inspect the abdomen from the foot of the bed**
 - Right hypochondrial fullness or not
 - Distention
 - Asymmetry
- **Bulge**
- **Scars, sinuses, fistula**
- **Dilated veins**
 - Portal hypertension
 - IVC occlusion



PALPATION

- **Superficial palpation**
 - Tenderness or not (tenderness at right upper quadrant).
 - Guarding
 - Superficial masses.
- **Deep palpation.**
- **Palpation of the solid viscera**
 - Assess liver for: size (hepatomegaly), outline (nodular) and tenderness.
 - Palpable gallbladder.
 - Splenomegaly.
 - Murphy's sign.

Courvoisier sign:

- **non-tender** enlarged **palpable** gallbladder
- mild **jaundice**

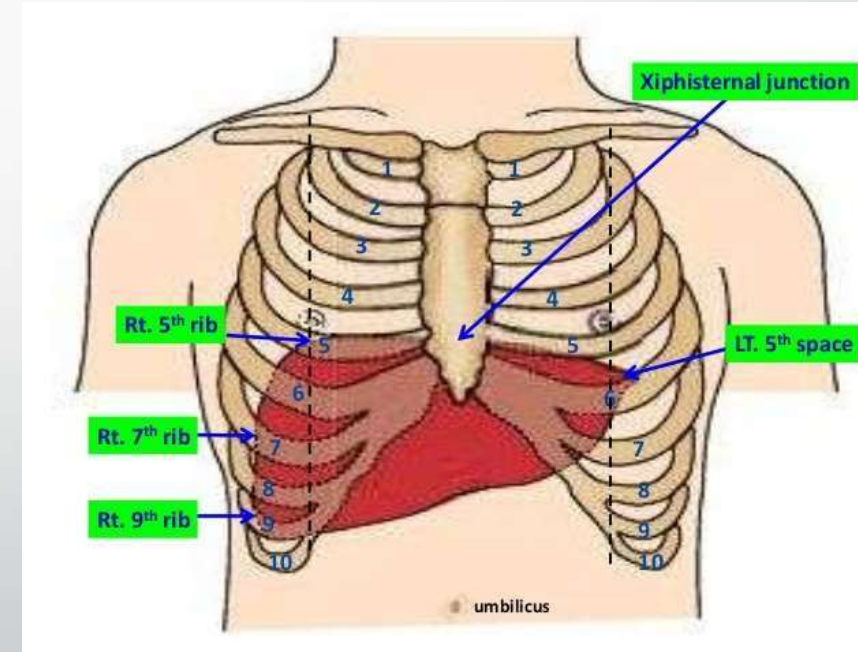
Courvoisier law:

Obstructive jaundice due to obstruction by a stone in common bile duct is noted associated with gallbladder enlargement.

Carcinoma of head of pancreas is associated with distended palpable gallbladder.

PALPATION OF THE LIVER

- Place your right hand on the right side of the abdomen at the level of the umbilicus, parallel with the right costal margin.
- Ask the patient to take a deep breath.
- Repeat the process after moving your hand upwards inch by inch.
- Don't forget the gross hepatomegaly!



PERCUSSION

- Hepatomegaly
 - Dullness
 - Starting from 5th intercostal space
- Splenomegaly
- Ascites
- Masses

AUSCULTATION

- Bowel sounds
 - 1/ 5-10 sec
- Over the liver
 - Friction rub -> Hepatitis

To complete your examination:

- **Head and neck:**
eyes (kayser fleischer ring > Wilson's disease),
fetor hepaticus (liver failure),
- **Skin:** Scratch marks, hyperpigmentation, xanthelesma, needle marks, tattoos.
- **Upper limbs:** Flapping tremor (sign of liver disease), xanthoma, finger clubbing.
- **Lower limb:** edema.
- **If male patient:** Check for testicular atrophy and gynecomastia.
- **Neurologic examination.**
- **Examine for lymph node enlargement especially for left supraclavicular lymph node (Virchow's) and para-umbilical lymph nodes sister-marie-joseph).**



INVESTIGATIONS

1. Assessment of jaundice

- Serum bilirubin normally to 1mg
 - 1-3mg subclinical
 - Over 3 clinical jaundice
- Serum direct and indirect bilirubin
 - Indirect
 - Increased production : multiple transfusion, transfusion reactions, hemolysis..
 - Hepatic : gilbert's disease, neonatal jaundice, hepatitis..
 - Direct
 - Hepatic : cancer, cirrhosis, amyloidosis, hepatitis (drug induce, viral, alcoholic)
 - Biliary obstruction : choledocholithiasis, benign stricture, cancers, chronic pancreatitis

Investigations cont'd...

2. Proving it's obstructive jaundice

- Raised direct bilirubin
- Stool analysis:
 - History: Clay colored, bulk, offensive
 - Decreased sterchobilin
- Urine analysis
 - History: dark
 - Decreased urobilin
 - Detection of bilirubin and bile salts
- Increased Alkaline phosphatase
 - Sensitive



Investigations cont'd...

3. Exclude other types of jaundice

- Blood examination; hemolytic

4. Effect on coagulation

- Prothrombin time and concentration
- Both normal: hemolytic jaundice
- Prolongation of prothrombin time due to diminished prothrombin concentration: hepatocellular and obstructive jaundice
- How to differentiate between them?
 - IVVit.K

5. CBC

Investigations cont'd...

6. Effect on liver function test

- AST/ALT/Albumin

Investigation cont'd...

7. Proving cause of obstructive jaundice

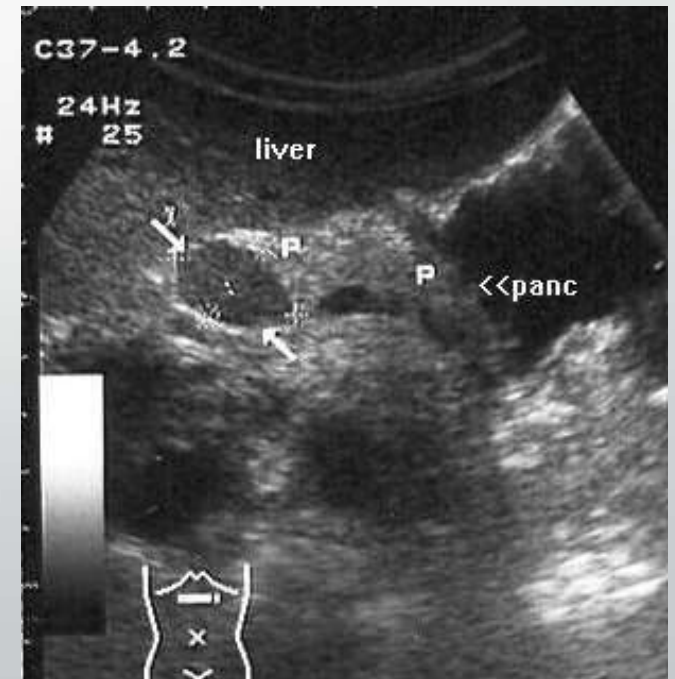
- Abdominal UltraSound



INTRALHEPATIC DUCTS DILATION
OBSTRUCTIVE



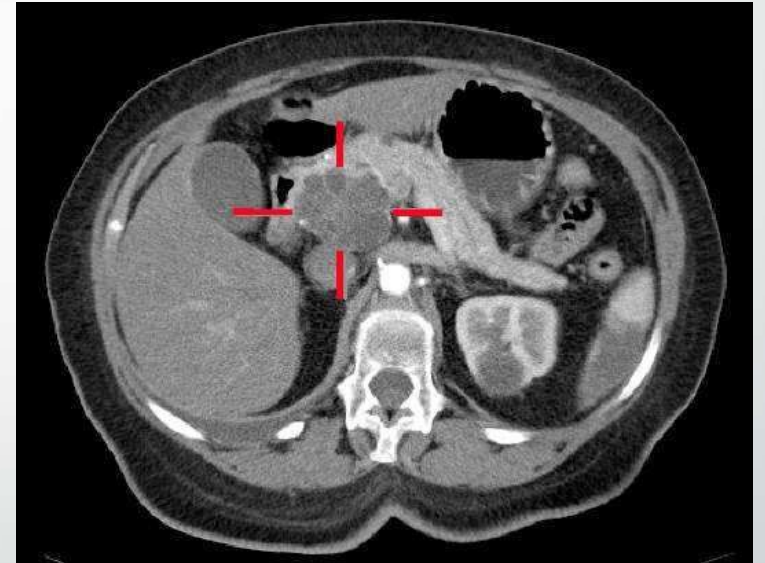
DILATED CBD WITH STONES
N<=7MM



HEAD PANCREATIC MASS

Investigations cont'd...

7. proving cause of obstructive jaundice (cont'd)
 - Abdominal CT
 - Pancreatic lesions or metastatic lymph nodes



Investigations cont'd...

7. Proving cause of obstructive jaundice (cont'd)

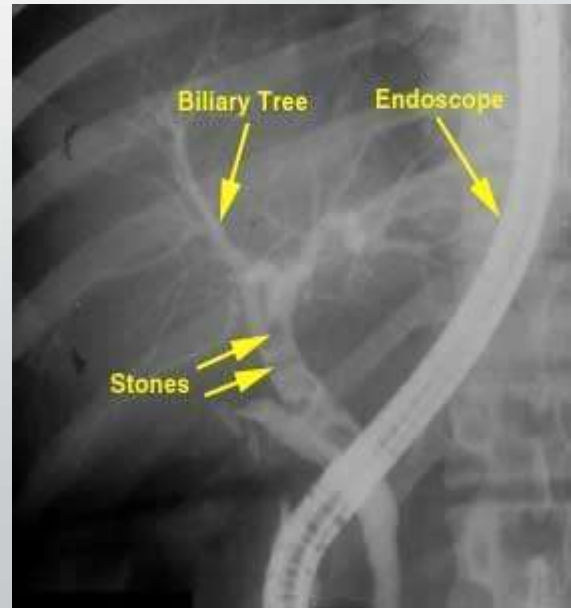
- Ba meal
 - Wide distorted "C" curve of duodenum; head pancreatic carcinoma
- PTC
 - Suspected patients of having upper end of CBD lesions; P.O. strictures, hepatic duct carcinoma.



Investigations cont'd...

7. Proving cause of obstructive jaundice (cont'd)

- MRCP
- ERCP
 - Lesions of the ampula
 - CBD and pancreatic ducts can be seen; stones
 - WARNING! Cholangitis...



MANAGEMENT

- Jaundice management depends on the underlying cause.
- Hospitalization MAY or MAY NOT be needed.
- It's either medical (to relieve the symptoms) or surgical.

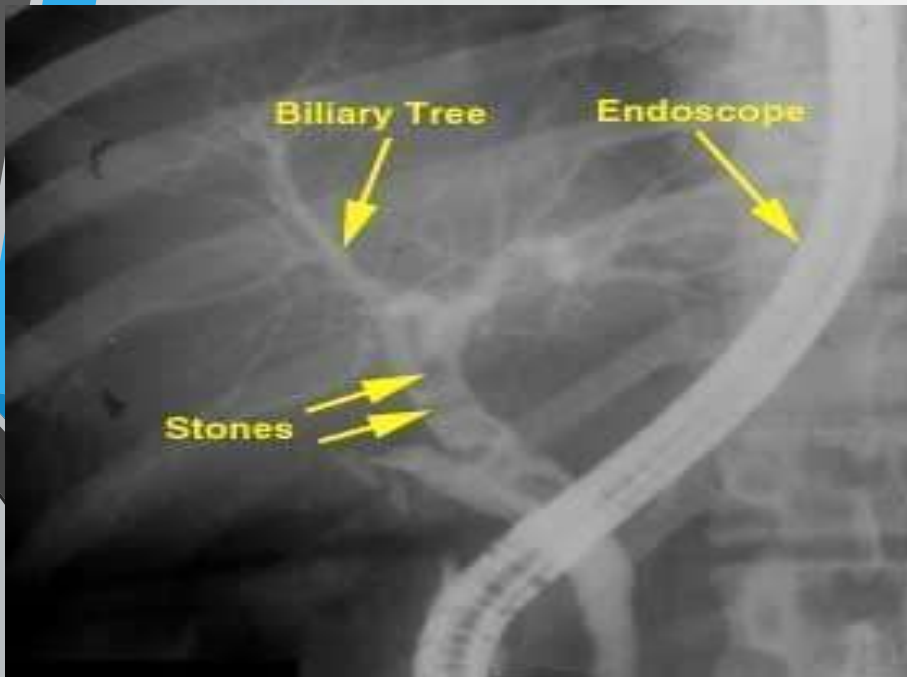
medical Treatment depends on the cause

- Medications for nausea, vomiting, pain, pruritus(symptomatic relief).
- IV fluids (In cases of dehydration)
- Antibiotics (Infection, e.g. Cholangitis)
- Antivirals (Viral infections e.g. Viral hepatitis)
- Blood transfusions (Anemia)
- Steroids (Autoimmune diseases, e.g. autoimmune hepatitis)
- Chemotherapy, radiation (Tumors, e.g. head of pancreas CA).
- Phototherapy (Jaundice in newborns).

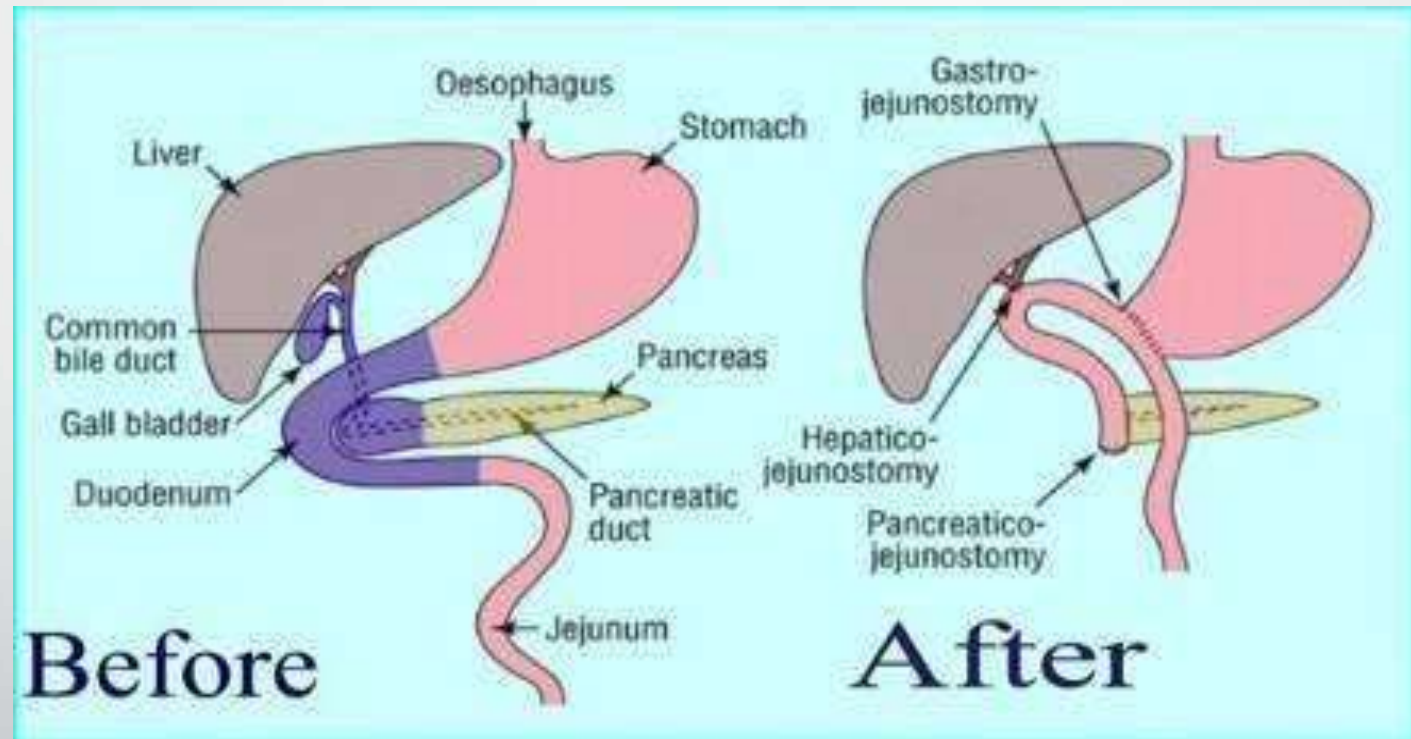
Surgical Treatment depends on the cause

1) Cholethiasis

- ERCP followed by laproscopy
- open cholecystectomy with CBD exploration



- 2) Ca Head of Pancreas / Periapillary Carcinoma
- Whipple resection



3) Choledocholithiasis (stones in the CBD)

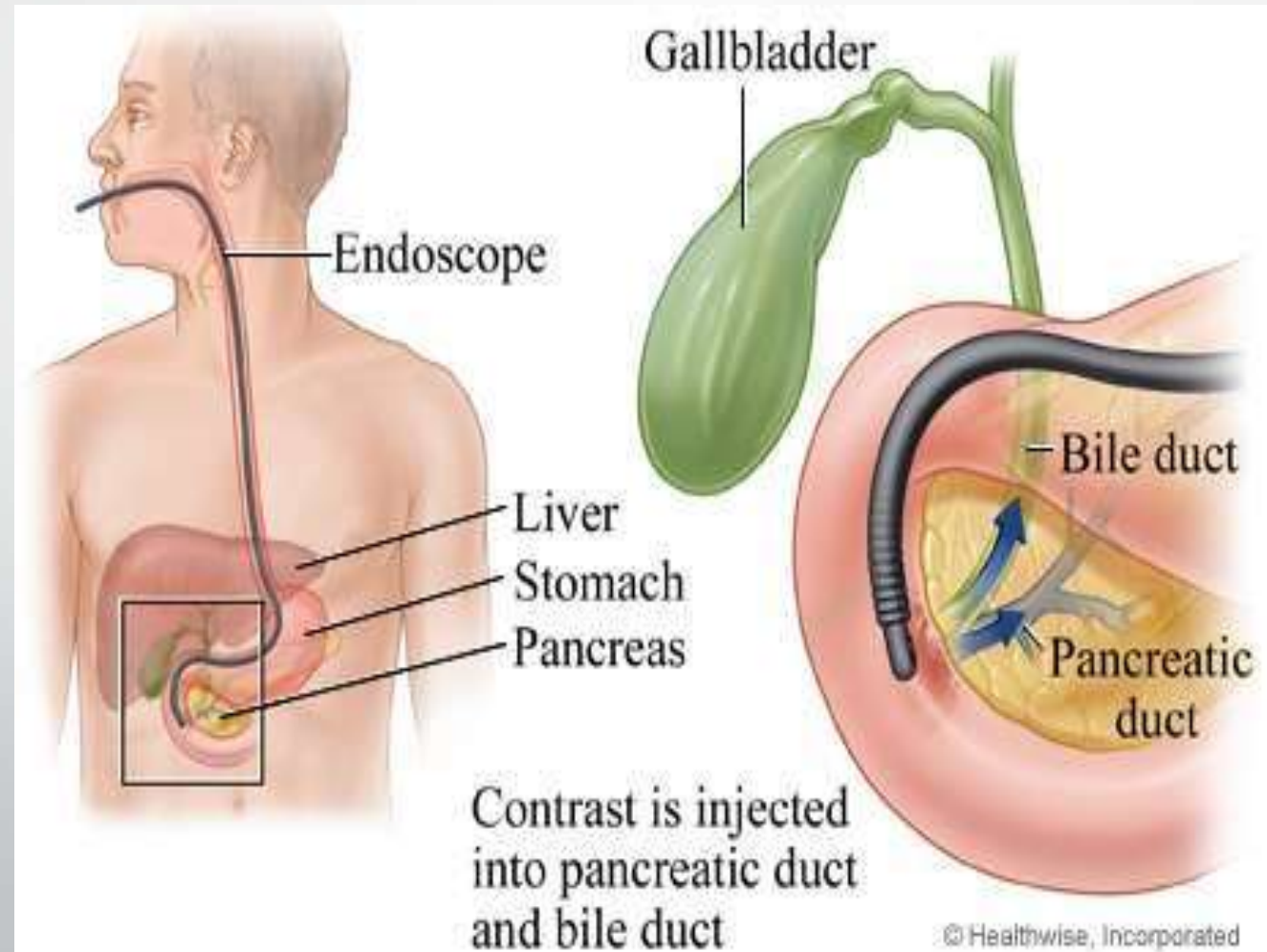
- Treatment of choice is stone extraction through ERCP

4) Endoscopic stenting

- it may be possible to relieve the blockage through stents through ERCP or PTC
- remove the tumour is not possible
- Strictures

5) Bypass of irresectable lesion

ERCP





THANK YOU