Obstructive Jaundice: Causes, Symptoms and Treatment

Obstructive jaundice refers to yellow discoloration of the skin, sclerae, and mucous membranes due to elevated conjugated bilirubin caused by blockage of bile flow from the liver to the duodenum. It is also termed **cholestatic** , **surgical** , or **mechanical jaundice** .

Etiologic Classification

1. By Anatomical Location

- **Intrahepatic** (Functional cholestasis or small bile duct obstruction):
  - Cirrhosis
  - Primary biliary cholangitis (PBC)
  - Primary sclerosing cholangitis (PSC)
  - Drug-induced cholestasis (e.g., anabolic steroids, chlorpromazine, erythromycin)
- **Extrahepatic** :
  - **Intraductal** : Choledocholithiasis, cholangiocarcinoma, parasitic infestations
  - **Extraductal** : Pancreatic head carcinoma, metastatic lymphadenopathy (e.g., at the porta hepatis)

2. By Mechanism of Obstruction

- **Intraluminal** :
  - Gallstones
  - Parasites (e.g., *Ascaris lumbricoides* , *Clonorchis sinensis*)
- **Intramural** :
  - Benign strictures (post-surgical)
  - Cholangiocarcinoma
  - Sclerosing cholangitis
- **Extramural** :
  - Pancreatic head carcinoma
  - Lymphoma (e.g., Hodgkin’s, NHL)
  - Pancreatic pseudocyst compression

3. By Timing and Cause

- **Congenital** :
  - Choledochal cyst
  - Caroli disease
  - Biliary atresia
- **Acquired** :
  - Gallstones (most common cause)
  - Malignancy (pancreatic, biliary, ampullary, gallbladder)
  - Strictures (post-cholecystectomy or ERCP)
  - Infections: CMV, HIV-related cholangitis, TB lymphadenitis

- Drug-induced or TPN-induced cholestasis

Pathophysiology

Obstruction ? Accumulation of bile ? Elevated conjugated bilirubin ? Hepatocyte dysfunction (late) ? Clinical cholestasis
Persistent obstruction leads to **bile duct proliferation** , **portal inflammation** , and **eventual fibrosis** (secondary biliary cirrhosis).

Clinical Features

General Symptoms

- Jaundice (yellow eyes/skin)
- Dark urine (bilirubinuria)
- Pale (acholic) stools
- Pruritus (due to bile salt deposition in skin)
- Fatigue, malaise
- Anorexia and weight loss (suggest malignancy)
- Nausea, vomiting

Other Clues

- Fever with rigors ? consider **ascending cholangitis**
- RUQ or epigastric pain (often colicky) ? suggests gallstones
- History of gallstones, prior biliary surgery, or hepatobiliary malignancy

Investigations

1. Laboratory Tests

- **Liver Function Tests (LFTs)** :
  - ? Conjugated (direct) bilirubin
  - ? Alkaline phosphatase (ALP) – disproportionately high
  - ? Gamma-glutamyl transferase (GGT)
  - Mild ? AST/ALT
  - ? Albumin (if chronic disease/malignancy)
  - ? PT/INR (vitamin K malabsorption)
- **CBC** :
  - Leukocytosis in cholangitis or cholecystitis
  - Anemia (chronic disease or malignancy)
- **Tumor Markers** :
  - **CA 19-9** : Pancreatic/biliary cancers
  - **CEA** : Colorectal or biliary malignancy
  - **AFP** : Hepatocellular carcinoma
- **Serology** : Hepatitis B/C panel, AMA (for PBC), ANCA (for PSC)

2. Imaging Studies

- **Abdominal Ultrasound (1st line)** :
  - Biliary ductal dilatation
  - Gallstones
  - Masses, ascites
- **CT Abdomen with Contrast** :
  - Better visualization of pancreatic/biliary tumors
  - Detects lymphadenopathy
- **MRCP (Magnetic Resonance Cholangiopancreatography)** :
  - Non-invasive visualization of biliary tree
  - Ideal for detecting strictures, choledocholithiasis, and malignancy
- **ERCP (Endoscopic Retrograde Cholangiopancreatography)** :
  - Diagnostic and therapeutic
  - Stone extraction, stenting, biopsy
- **PTC (Percutaneous Transhepatic Cholangiography)** :
  - Alternative if ERCP is not feasible
- **HIDA Scan** :
  - Functional test; assesses bile flow

Differential Diagnosis

- Viral hepatitis
- Hemolytic anemia
- Primary biliary cholangitis
- Primary sclerosing cholangitis
- Acute or chronic pancreatitis
- Pancreatic or gallbladder cancer
- Liver cirrhosis
- Drug-induced liver injury (e.g., chlorpromazine, erythromycin)
- Cholangiocarcinoma
- Ampullary carcinoma

Management

A. Supportive Care

- IV fluids: NS or 5% dextrose
- Correct electrolytes and coagulopathy (vitamin K)
- Pain management
- Nutritional support: Low-fat, high-carb diet
- Pruritus: Cholestyramine, antihistamines

B. Specific Therapy

- **ERCP with stone extraction/stenting** for choledocholithiasis
- **Cholecystectomy** for symptomatic gallstones
- **Antibiotics** for ascending cholangitis (e.g., ceftriaxone + metronidazole)
- **Biliary stenting or bypass surgery** for malignancies
- **Oncologic treatment** : Surgery, chemotherapy, or palliative care for unresectable tumors

- **Immunosuppression** for autoimmune causes (e.g., PBC or PSC)

Complications

- Ascending cholangitis
- Secondary biliary cirrhosis
- Coagulopathy (fat-soluble vitamin malabsorption)
- Hepatic failure
- Sepsis (especially in malignant obstruction)
- Malabsorption of fats and vitamins A, D, E, K

High-Yield Notes

- Most common cause: **Choledocholithiasis**
- Most common malignancy: **Pancreatic head carcinoma**
- Pruritus without jaundice: Early intrahepatic cholestasis
- ERCP is both diagnostic and therapeutic – **risk of pancreatitis**
- Charcot’s triad: Fever + RUQ pain + jaundice ? Ascending cholangitis
- Reynolds' pentad adds: Hypotension + altered mental status (septic shock)