

Jaundice

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Learning objectives

- **Jaundice definition**
- **Causes**
- **Clinical features**
- **Diagnosis**
- **Prevention**

Jaundice definition

- Jaundice (also called icterus) is a condition characterized by a yellow discoloration of the skin, sclera (whites of the eyes), and mucous membranes.
- It is caused by the deposition of bilirubin secondary to increased bilirubin levels in the circulation.



Hyperbilirubinemia (Jaundice, Icterus):

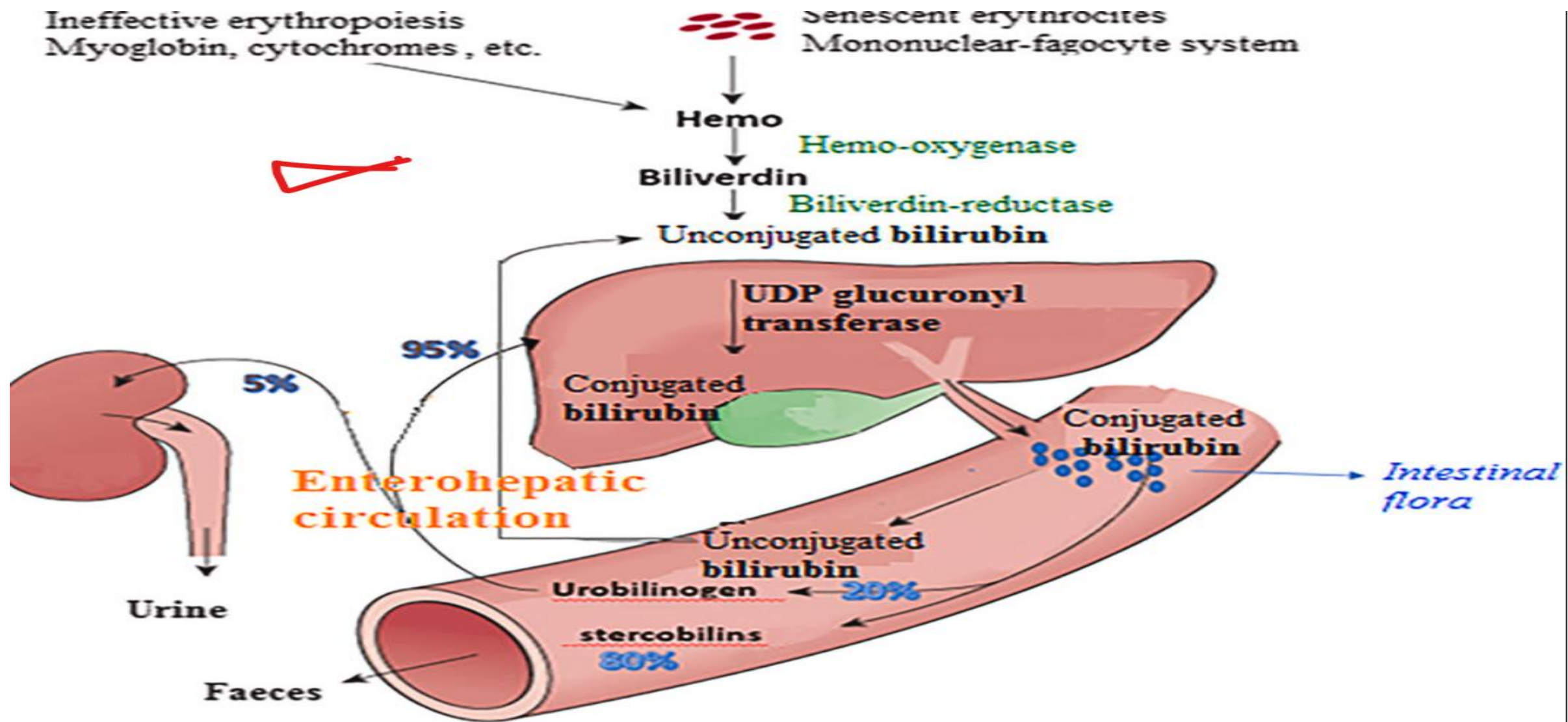
- The usual cause is large quantities of bilirubin in the ECF, either free or conjugated bilirubin.
- The normal plasma concentration of total bilirubin is 0.5 mg/dl.(0.3-1.2 mg/dl of blood)

- However, in certain abnormal conditions this can rise up to 40 mg/dl.
- The skin usually begins to appear jaundiced when the concentration of total bilirubin in the plasma is greater than 2 mg/dl (34 μ mol/l). (Clinical)
- Bilirubin level from 0.5 to 2 mg/dl is called subclinical jaundice. (has jaundice but can't be seen)

- It can be caused by other yellow substances such as carotene(hypercarotenemia) or certain drugs.
- Conjugated bilirubin causes more jaundice than unconjugated bilirubin because of its easier absorption into tissues and higher water solubility.

How jaundice develops:

- **Red blood cell breakdown:**
- Your body regularly breaks down old red blood cells and replaces them with new ones. This breakdown process makes bilirubin.
- **Bilirubin processing:** Normally, your liver processes bilirubin, making it a part of bile (a bitter, greenish-brown fluid that helps digest food). Your liver then releases the bile into your digestive system.



- **Too much bilirubin:** Jaundice happens when your liver can't process all the bilirubin your body makes, or if your liver has a problem releasing bilirubin.
- **Yellow color:** When there's too much bilirubin in your blood, it starts to leak into tissues around your blood vessels.
- This leaking bilirubin makes your skin and the whites of your eyes yellow.
- This yellow color is a common sign of jaundice

Types of jaundice

Jaundice can be classified into three major forms:

A. Hemolytic jaundice (prehepatic). Too much red blood cell breakdown takes over your liver's ability to filter out bilirubin from your blood. hematoma hemolytic anemias ,

B. Hepatocellular jaundice (Hepatic).

This type happens when your liver can't remove enough bilirubin from your blood. Hepatic jaundice can happen if you have liver failure.

Viruses, including hepatitis A, chronic hepatitis and C, and Epstein --Barr virus infection (infectious mononucleosis)

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Gilbert Syndrome

- Gilbert syndrome is a common genetic disorder affecting bilirubin metabolism in the liver.
- This autosomal recessive condition leads to mild to moderate unconjugated hyperbilirubinemia, often presenting as recurrent episodes of jaundice.
- The prognosis for individuals with Gilbert syndrome is excellent, and the condition does not lead to significant liver disease.
- However, patients with Gilbert syndrome may have an increased risk of drug toxicity when exposed to medications that affect bilirubin metabolism.

Post hepatic jaundice causes

- **C. Obstructive jaundice (Post hepatic).**

In both prehepatic and posthepatic jaundice, the function of the liver itself is not impaired. Also called obstructive jaundice, this type happens when a blockage stops bilirubin from draining into your bile ducts

1. Gallstones
2. Inflammation
3. Gallbladder cancer
4. Pancreatic tumor

Jaundice signs & Symptoms

- Jaundice may have no symptoms. Any signs you have may depend on how quickly the condition is getting worse.
- Well-known symptoms are yellowing of the skin and jaundiced eyes (also called scleral icterus). But there are others to watch for, including:
 - Fever
 - Stomach pain
 - Chills
 - Dark urine

- Tar- or clay-colored stools
- Flu-like symptoms
- Itchy skin
- Weight loss
- Feeling unusually irritated
- Confusion
- Abnormal drowsiness
- Bruising or bleeding easily
- Bloody vomit

Diagnosis

- Blood tests: for bilirubin

Check serum bilirubin levels, liver function, and overall bloodwork to assess for signs of anemia, infection, or hemolysis

- Imaging scans:
- An abdominal ultrasound, computed tomography (CT) scan, magnetic resonance imaging (MRI), or endoscopic retrograde cholangiopancreatography (ERCP) can help look for a bile duct blockage by taking detailed images of the bile and pancreatic ducts

	Prehepatic jaundice	Hepatic jaundice	Posthepatic jaundice
Total serum bilirubin	Normal / increased	Increased	Increased
Conjugated bilirubin	Normal	Increased	Increased
Unconjugated bilirubin	Normal / increased	Increased	Normal
Urobilinogen	Normal / increased	Decreased	Decreased / negative
Urine color	Normal	Dark (urobilinogen, conjugated bilirubin)	Dark (conjugated bilirubin)
Stool color	Brown	Slightly pale	Pale, white
Alkaline phosphatase levels	Normal	Increased	Highly increased
Alanine transferase and aspartate transferase levels		Highly increased	Increased

- **Liver biopsy:** Takes a small sample of tissue from your liver to check for signs of damage, disease, infection, or inflammation
- **Laparoscopy:** Makes a small incision (cut) near your belly button and inserts a tube with a camera to get a direct view of your liver and gallbladder to check for damage

Prevention

- **Primary vaccination**
- **Secondary treatment**
- **Tertiary prevent complication
and rehabilitation**

How to Prevent Jaundice

- Getting the hepatitis vaccination
- Washing your hands after using the bathroom or before handling food
- Avoiding sharing needles or personal items like toothbrushes or razors
- Practicing safe sex by using condoms or dental dams
- Reducing your alcohol intake
- Limiting eating foods high in cholesterol
- Getting treatment for underlying liver, pancreatic, or gallbladder conditions