بسم الله الرحمن الرحيم

CLINICAL

FINAL | Lecture:

# 1) Upper GIT Bleeding
# 2) Liver Cirrhosis
# 3) Viral Hepatitis

وَإِن تَتَوَلَّوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَالَكُم

اللهم استعملنا ولا تستبدلنا


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# An Overview of Key Clinical Manifestations in Common Gastrointestinal Disorders


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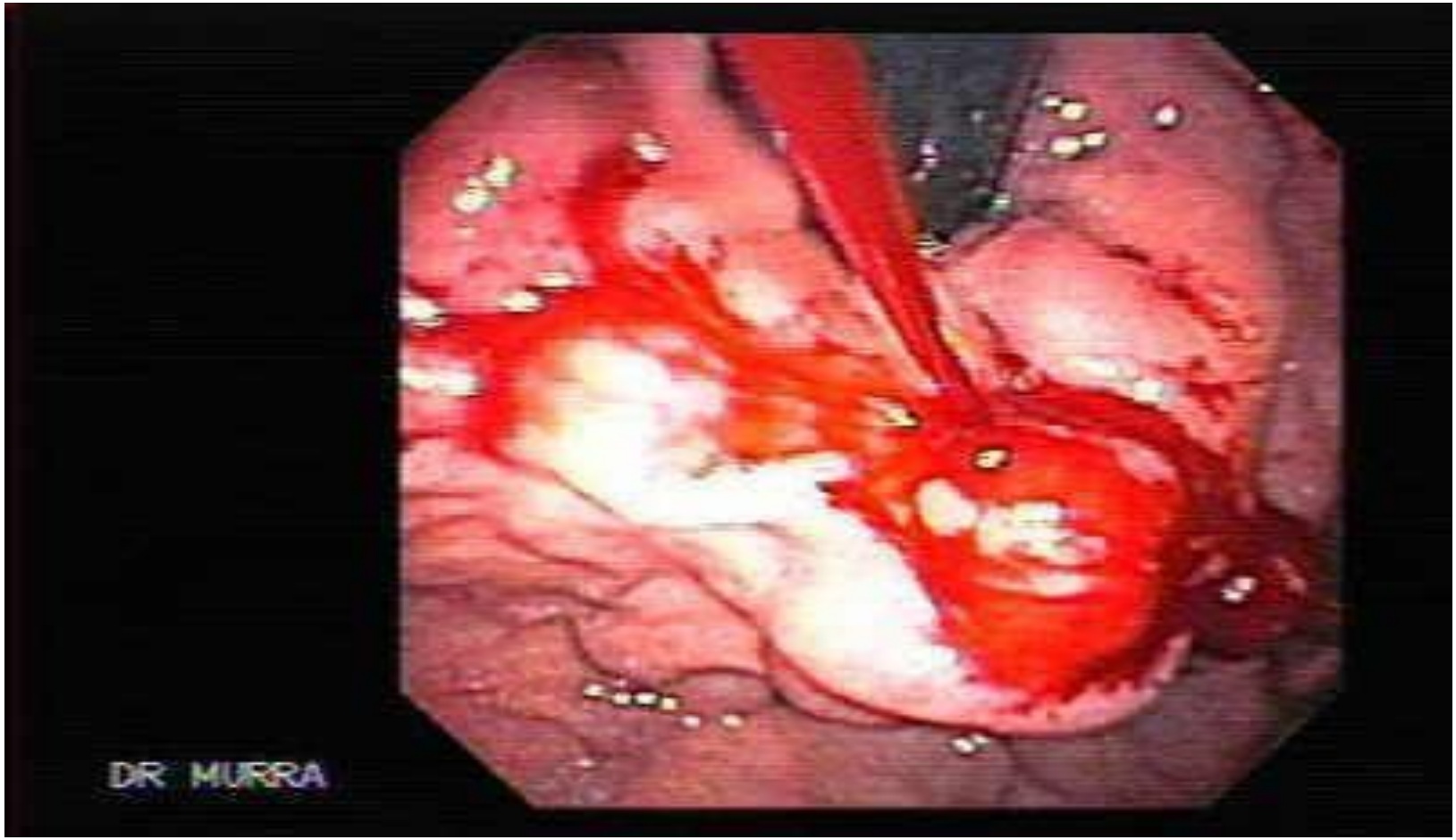
# 1) Upper GI bleeding




Note: Upper GI bleeding means bleeding that starts above the ligament of Treitz, also known as the suspensory ligament of the duodenum.

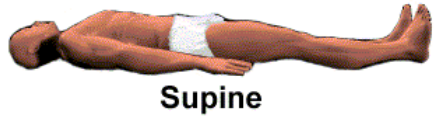
# UPPER GI BLEEDING

Upper gastrointestinal bleeding presents with a range of clinical signs and symptoms, including:

- **Hematemesis;** vomiting blood.
- **Melena;** black, tarry stools that are foul-smelling, loose, and have a shiny appearance.
- **Dizziness;** because of hypotension and fluid loss.
- **Abd. Pain and symptoms of Peptic ulcer disease**

*Tarry = thick, sticky and shiny resembling tar* (القطران أو الزفتة)

- **History of NSAID's use.**
- **Pallor;** because of anemia.
- **Hypotension;** detected during measurement.



Supine

Prone

- **Orthostatis:**

  Refers to a drop in blood pressure that occurs when a person moves to a standing position, often due to underlying hypotension.

- ✓ **Important Clinical Note:**

  In patients with upper gastrointestinal bleeding, it is essential to measure blood pressure in both the **supine and standing positions**, as **supine blood pressure may appear normal**, while a **significant drop may occur upon standing**. This positional change can reveal **orthostatic changes**, which may **precede frank hypotension**, serving as an early indicator of volume depletion.

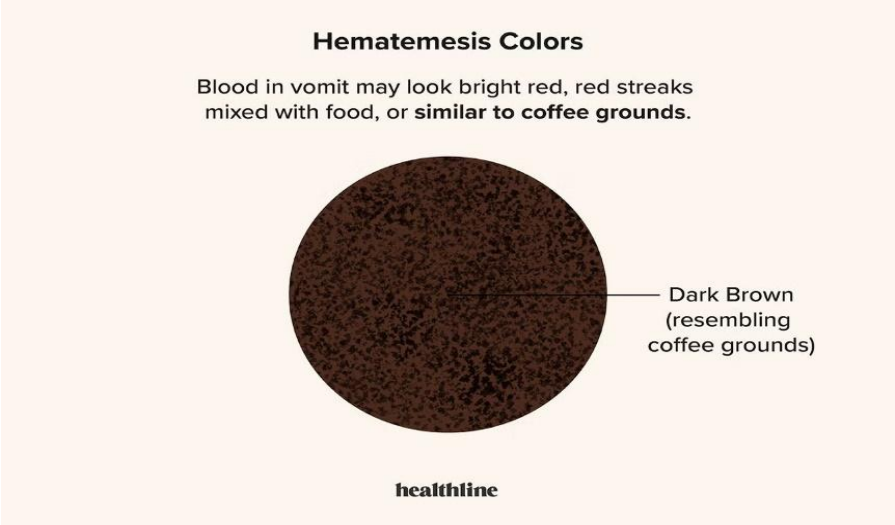
- **Jaundice and other stigmatas** (clinical signs) **of chronic liver diseases.**

## ➢ Hematochezia:

The passage of fresh blood through the anus, usually in or with the stool. Patients with upper gastrointestinal bleeding may also present with hematochezia, particularly in cases of massive hemorrhage. In such instances, the bleeding is so rapid that the blood does not remain in the gastrointestinal tract long enough to be digested and turn black, as seen in melena.

## ➢ Coffee Ground vomiting:

It is a type of hematemesis where the vomited blood looks dark and grainy because it has been partially digested in the stomach.

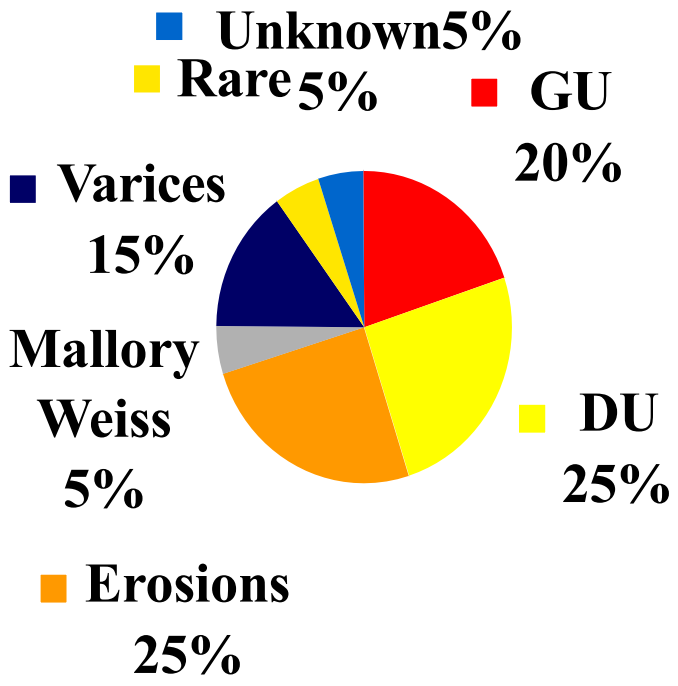


# UPPER GI BLEEDING

## CAUSES

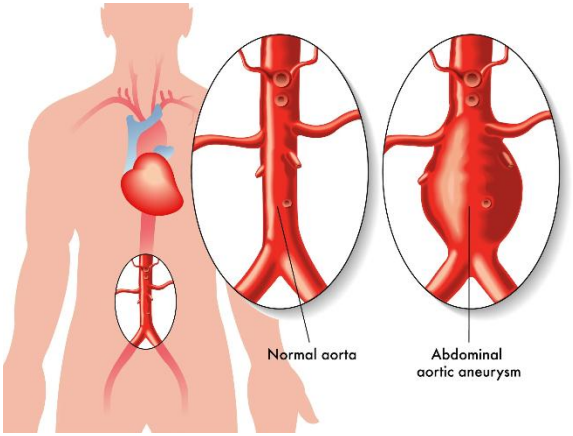
- ✓ Peptic ulcer disease, which primarily includes gastric ulcers (GU) and duodenal ulcers (DU), is one of the most common causes of upper gastrointestinal bleeding.

- GU
- DU
- Erosions
- Mallory Weiss Tears
- Esophageal Varices
- Rare
- Unknown



# RARE CAUSES

- ✓ Neoplasms
- ✓ AVM (arterio-venous malformations) /Ectasia
- ✓ Dieulafoy's
- ✓ Stoma ulcers
- ✓ Esophageal ulcers
- ✓ Duodenitis
- ✓ Hemobilia (bleeding into the bile ducts, which can occur as a result of cholangiocarcinoma).
- ✓ Aorto-enteric fistulas




It a rare but serious condition that can occur in patients with a history of aortic aneurysm (bulge in blood vessel) repair (after surgery; sometimes on its own).

It involves the formation of an abnormal connection between the aorta and the gastrointestinal tract – most commonly the colon – leading to massive bleeding.

# UPPER GI BLEEDING

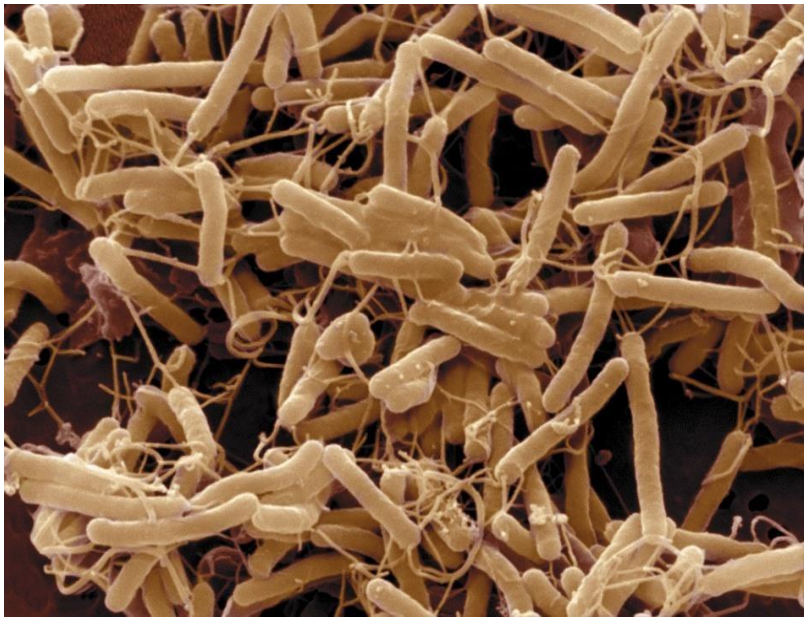
## Peptic Ulcer Disease

- PUD definition: Defect in the GI mucosa extending through the muscularis mucosa.
- Decreasing incidence.
- Caused by imbalance between the aggressive and defensive factors.

# UPPER GI BLEEDING

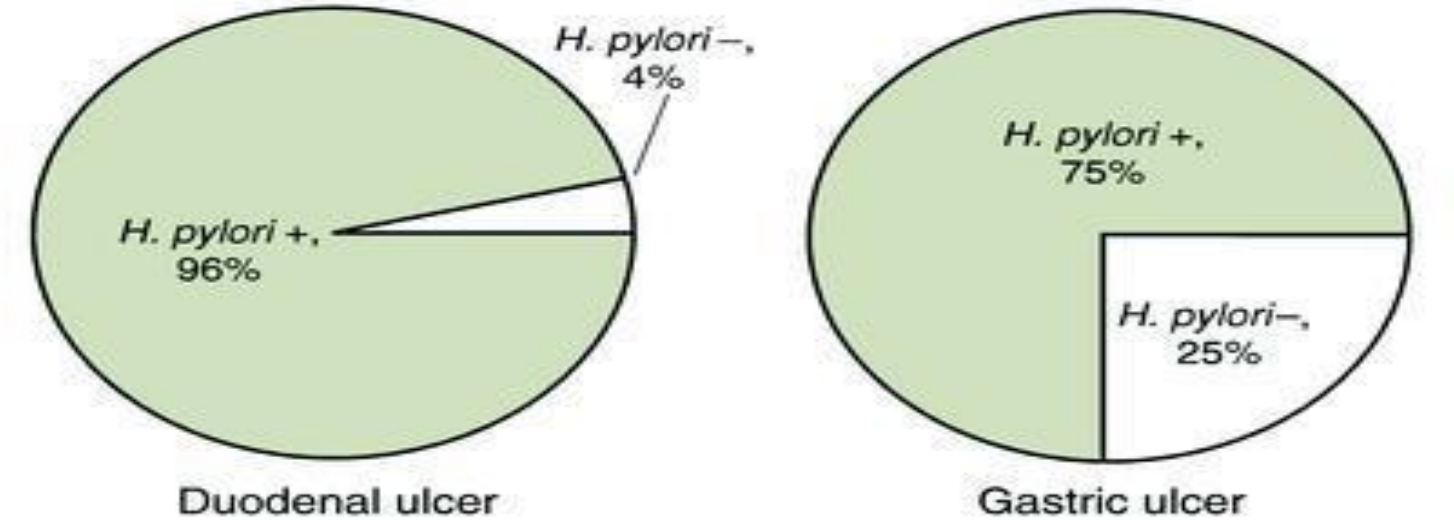
## Peptic Ulcer Disease

- **Helicobacter Pylori**
- **NSAID's**
  - Helicobacter Pylori And NSAID's are the **most common causes of** peptic ulcer disease.
- **Acid Hypersecretory state.**
- **Antral G cell Hyperplasia**



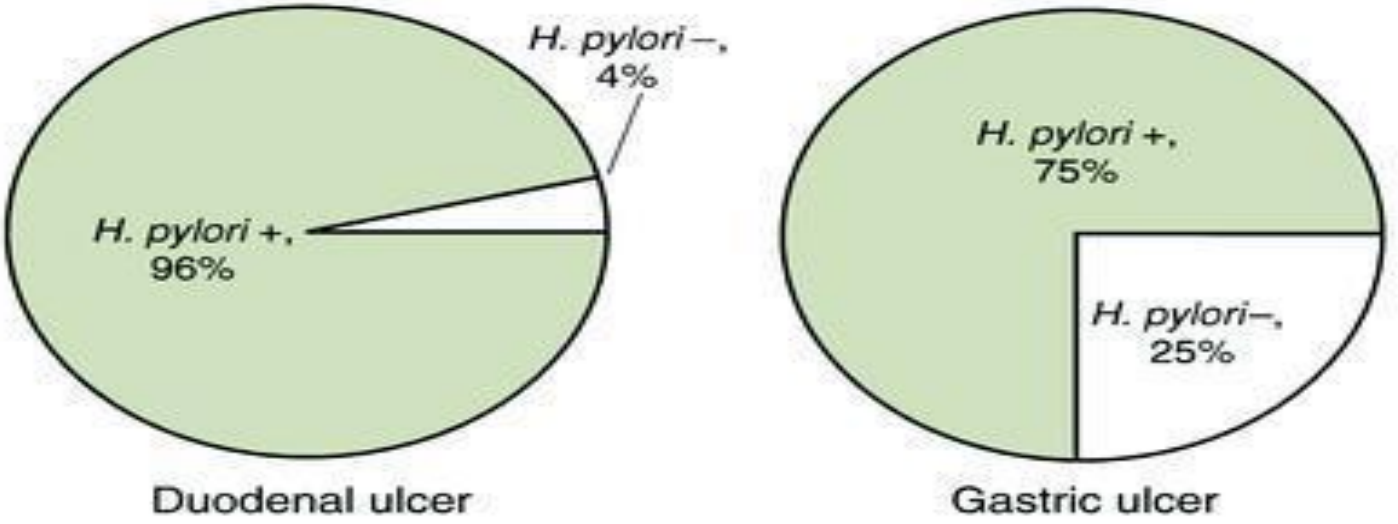
# UPPER GI BLEEDING

## Peptic Ulcer Disease




- This image shows two pie charts comparing the **association of *Helicobacter pylori* (H. pylori)** infection with:
  - **Duodenal ulcers**
  - **Gastric ulcers**

✓ *See the next slide for detailed interpretation.....*




- **Duodenal ulcers:**

✓ 96% are associated with *H. pylori* infection.

✓ Consequently, in the past, *H. pylori* was often treated without prior testing because of its strong association with ulcers.

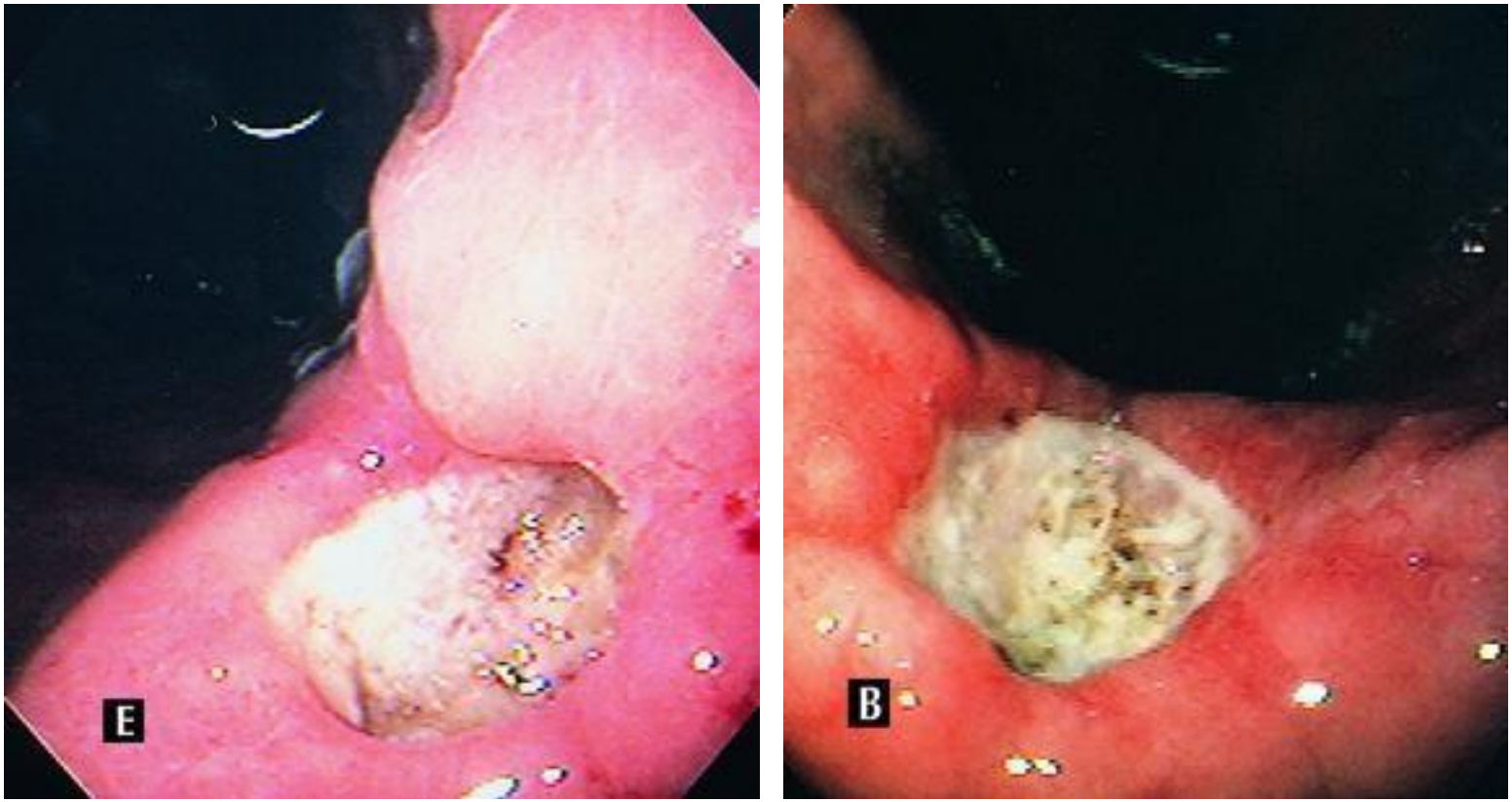
- **Gastric ulcers:**

✓ Only 75% are associated with *H. pylori* infection.

✓ **Testing is necessary** before treatment, as 25% of cases are *H. pylori*-negative. possible causes include NSAID use or malignancy.

# UPPER GI BLEEDING

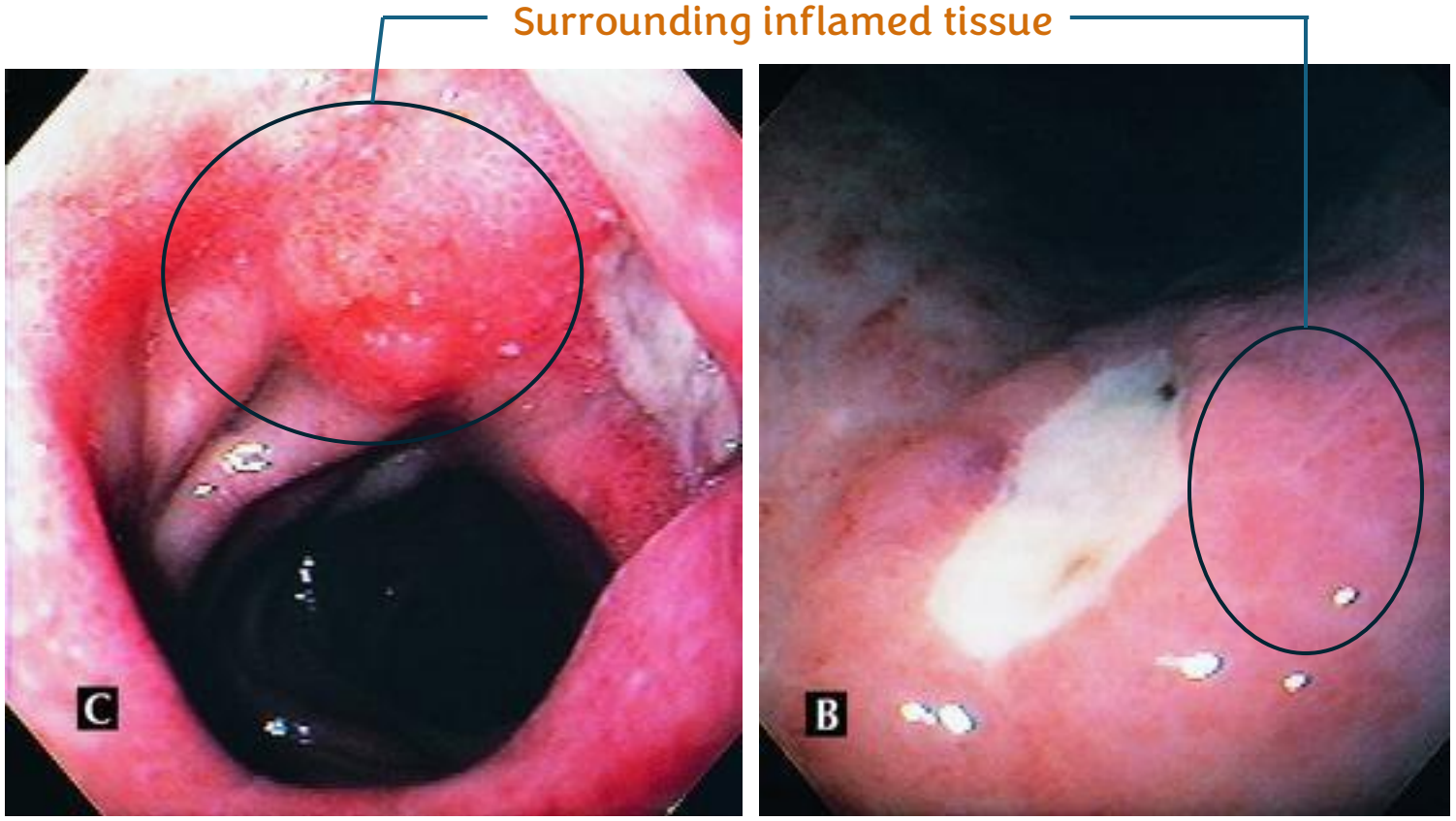
## Gastric Ulcers




**Note:** This is a *clean-based ulcer*, characterized by the absence of active bleeding and the lack of visible blood vessels on endoscopic examination.

# UPPER GI BLEEDING

## Duodenal Ulcers

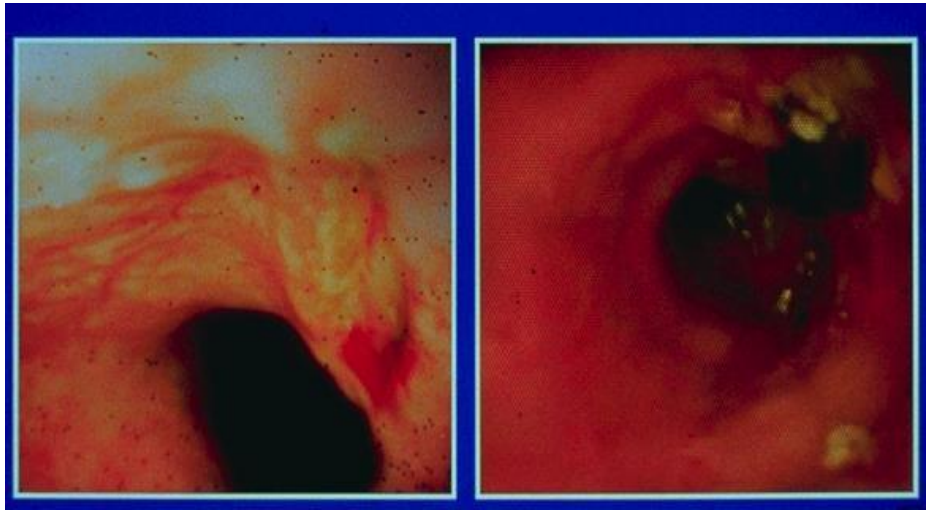


# UPPER GI BLEEDING

## Mallory - Weiss

- **Mallory-Weiss Tear:**
  - ✓ It is a mucosal laceration at the gastroesophageal (GE) junction.
  - ✓ Commonly occurs after forceful or prolonged vomiting.
- **Frequently seen in:**
  - ✓ Alcoholic patients (They have increased vomiting).
  - ✓ Pregnant women with hyperemesis gravidarum (severe vomiting in the first trimester).

- **Presentation:**
  - ✓ Bleeding following vomiting.
  - ✓ This classic presentation is seen in approximately 50% of cases.
- **Nature of bleeding:**
  - ✓ Typically minimal, not massive.
  - ✓ Bleeding is usually self-limiting and resolves without intervention.



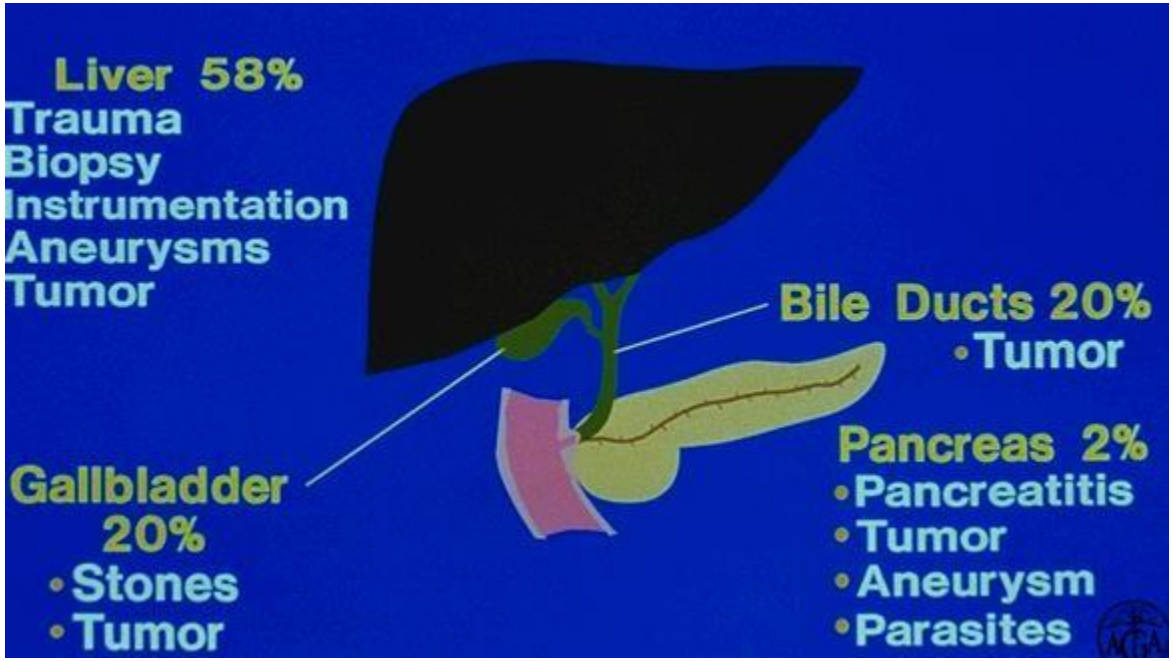
# UPPER GI BLEEDING

## Hemobilia

**Hemobilia:**

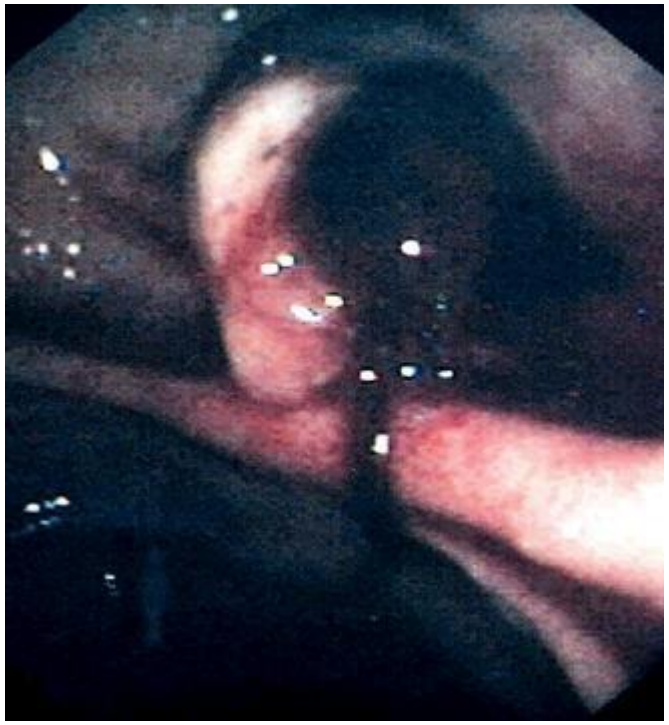
- ✓ Refers to the **presence of blood within the biliary tract**, which may eventually be discharged into the gastrointestinal system.

- **Common Causes :**
  - ✓ **Pancreatic disorders**, including **tumors**.
  - ✓ **Biliary tract malignancies**, such as **cholangiocarcinoma**.
  - ✓ **Gallbladder stones.**



# UPPER GI BLEEDING

## Hemobilia



- ✓ Endoscopic image showing active bleeding from the ampulla of Vater, indicative of hemobilia.

# UPPER GI BLEEDING

## Stress Ulcers

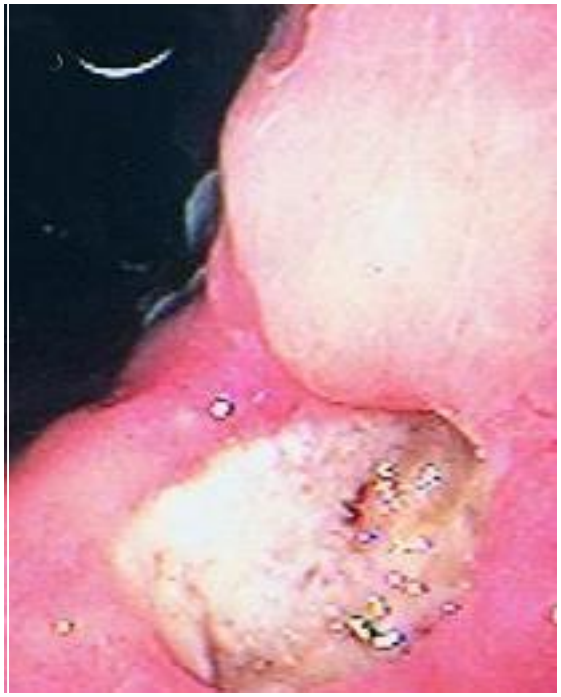
- Occur in patients experiencing:
  1. **Vagal hyperstimulation**, such as:
     - ✓ **Head injury patients**
     - ✓ **Burn patients**
  2. **Vascular hypoperfusion** in patients with other major diseases.

- Typically found in the **fundus and body** of the stomach (unlike *H. pylori* ulcers which are usually in the antrum).

- Often **multiple in number**, especially in **critically ill patients**.

- Prophylaxis is indicated in critically ill ICU patients

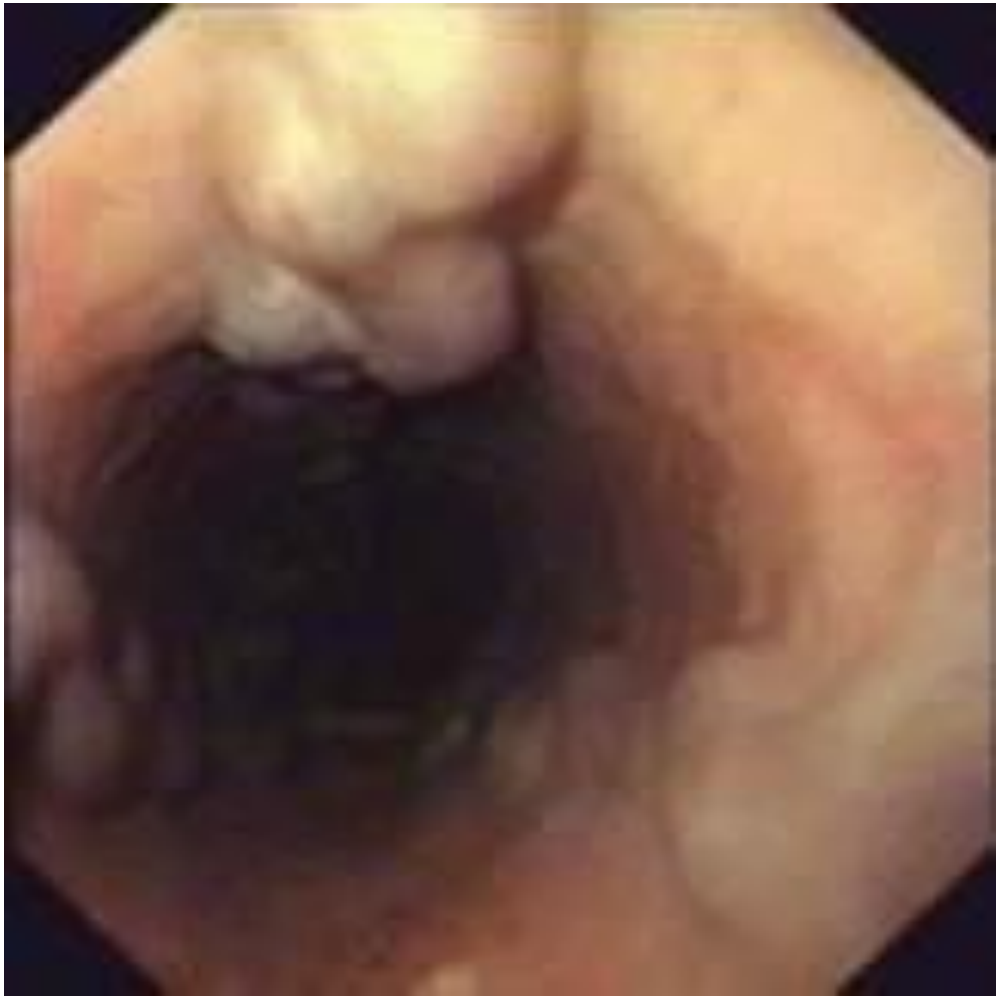
- **Not associated with:**
  - ➢ **H. pylori infection.**
  - ➢ **NSAID use.**
- **Subtypes of Stress Ulcers:**
  1. **Cushing Ulcers:**
     - Seen in patients with **head trauma.**
  2. **Curling Ulcers:**
     - Seen in patients with **extensive burns.**



**Cushing** Head Injury
**Curling** Extensive burn

# UPPER GI BLEEDING

## BLEEDING ESOPHAGEAL VARICEAL



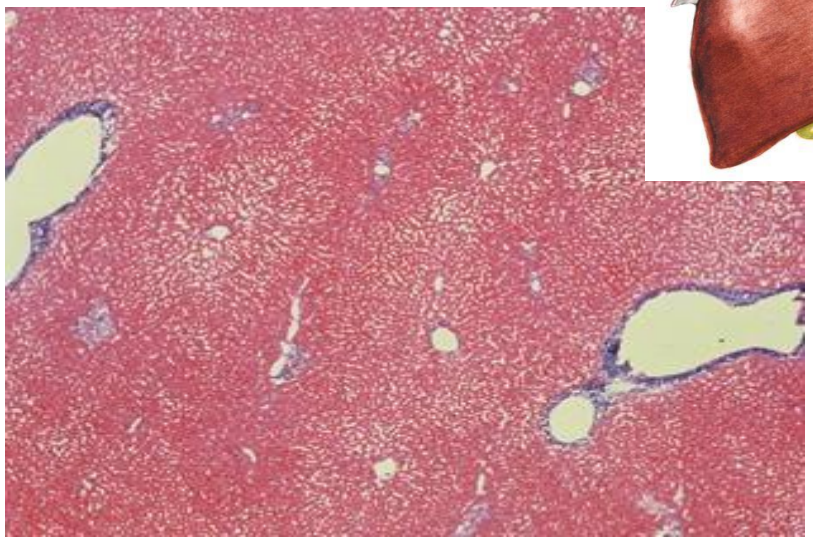
- ✓ Dilated tortuous veins of the lower and mid esophagus.
- ✓ Secondary to portal hypertension (HTN).
- ✓ 30% mortality after the first episode (very high mortality rate).
- ✓ 60% Rebleeding rate.

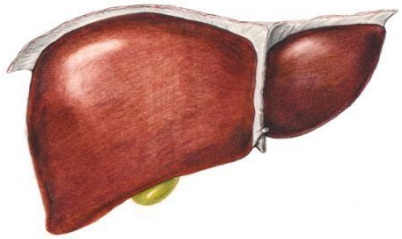
✓ Upper endoscopy showing dilated, tortuous veins at the distal esophagus.

# 2) Cirrhosis and Portal Hypertension

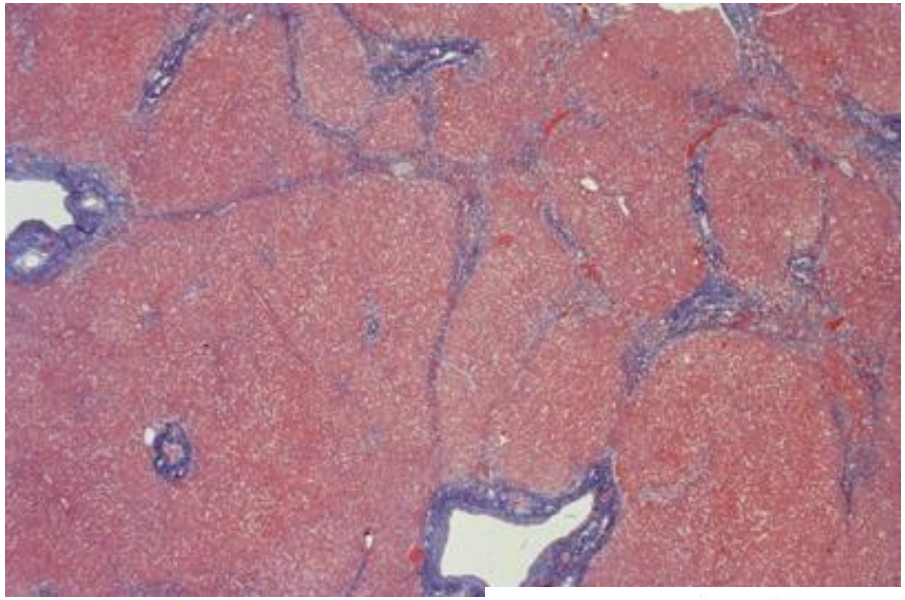
Clinical Manifestations and Complications of Liver Cirrhosis and Portal Hypertension

## Healthy Liver

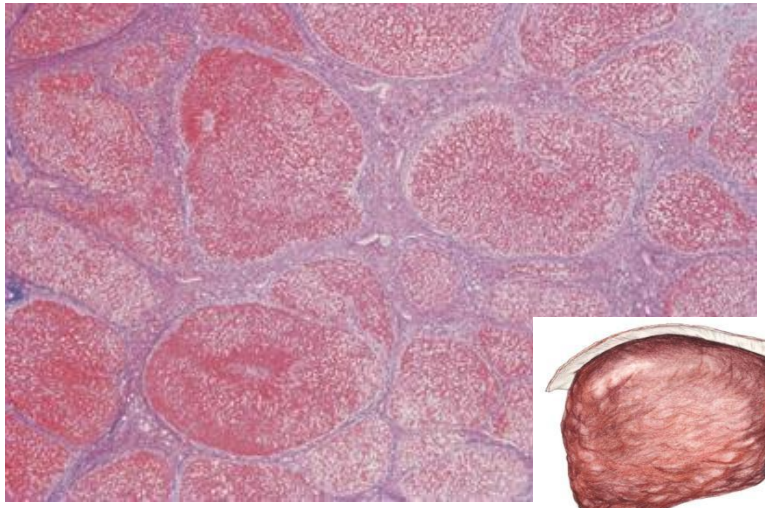


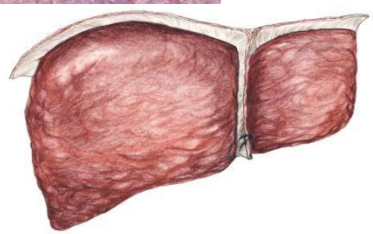


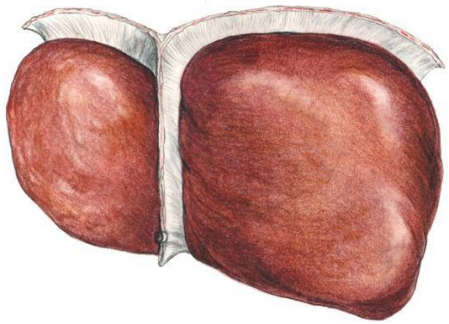
## Liver Fibrosis



## Cirrhosis (nodular liver)







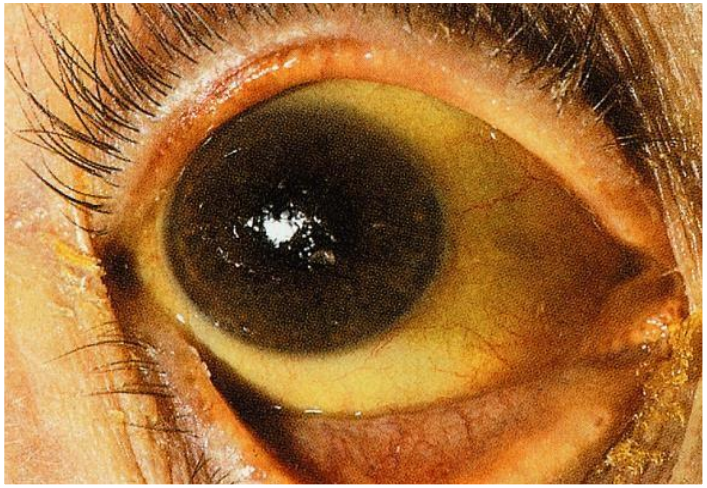
# Clinical Signs of Cirrhosis and Portal Hypertension

# 1- Jaundice

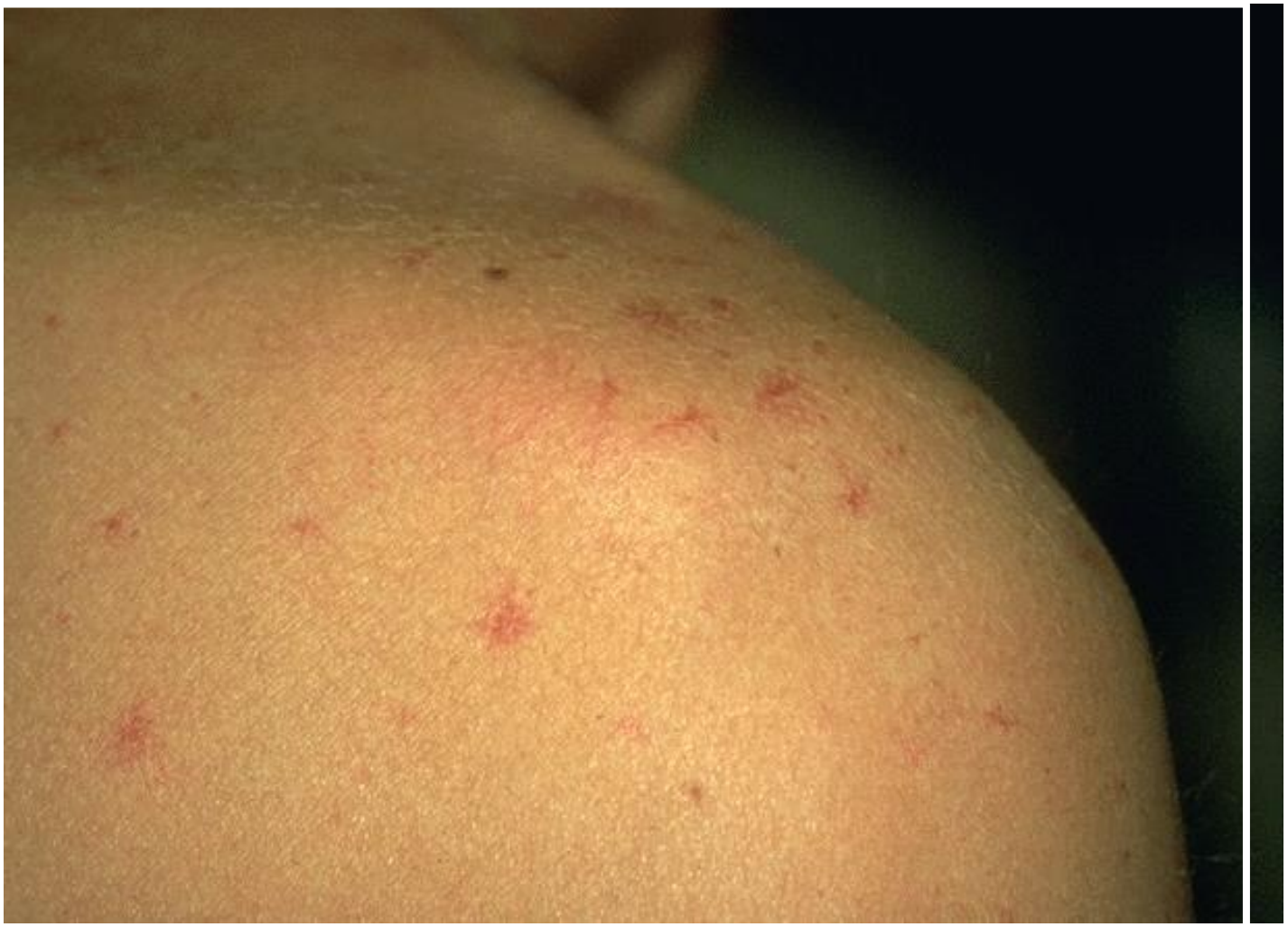
- ## Jaundice in Liver Cirrhosis :

  - ✓ **Jaundice** is a common clinical manifestation of **liver cirrhosis**.
  - ✓ Accumulation of bilirubin in the blood stream causing yellowish discoloration of plasma and heavily perfused tissues

  - ✓ It becomes **clinically detectable** when **serum bilirubin** levels exceed (2.5mg/dl – 3.0mg/dl)
  - ✓ At these levels, patients typically show **yellow discoloration of the sclera and mucous membranes.**

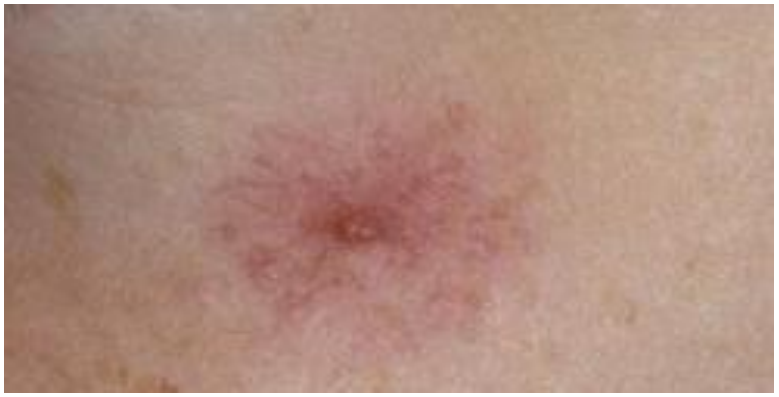


# 2- Spider Angiomas



- Spider angiomas observed on the upper back, *See next Slide.....*

# 2- Spider Angiomas

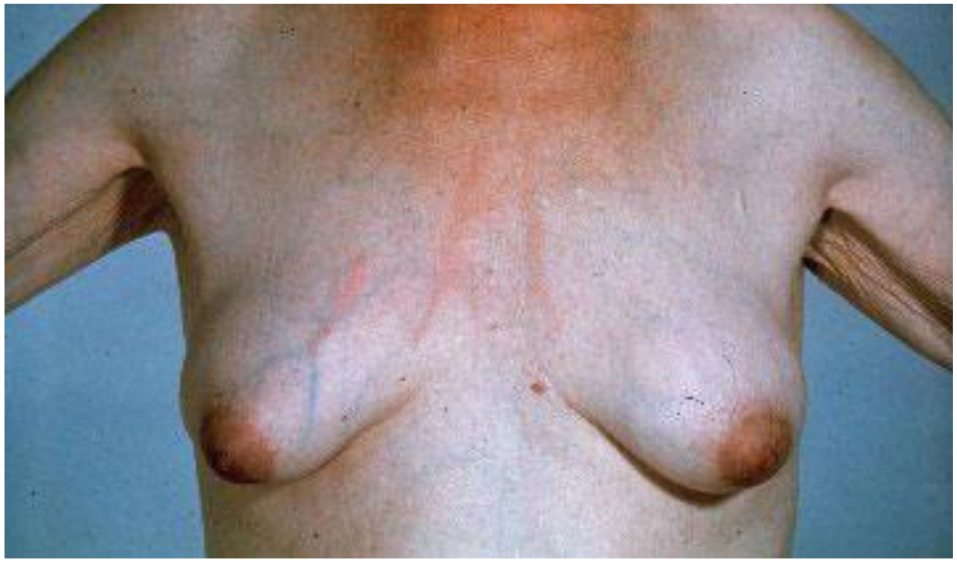


- ✓ Small, centrally raised bumps (papules) caused by a dilated arteriole (small artery).
- ✓ A network of dilated capillaries (tiny blood vessels) radiate from the arteriole, giving it the appearance of a spider.
- ✓ Pressing on the lesion causes the redness to disappear briefly, and there is a rapid return of redness once the pressure is lifted.
- ✓ Commonly found on the **anterior and posterior chest.**
- ✓ They appear because of Hyperestrogenemia, frequently seen in patients with liver cirrhosis.

# 3- Finger Clubbing

- ✓ Common manifestation of liver cirrhosis and other diseases such as IBD and cyanotic congenital heart diseases.
- ✓ A condition where there is enlargement of the terminal end of the digit over the distal phalanx.
- ✓ It is usually symmetrical and affects the fingers
- ✓ In some cases, it may be of familial origin.

# 4- Gynecomastia



Gynecomastia:

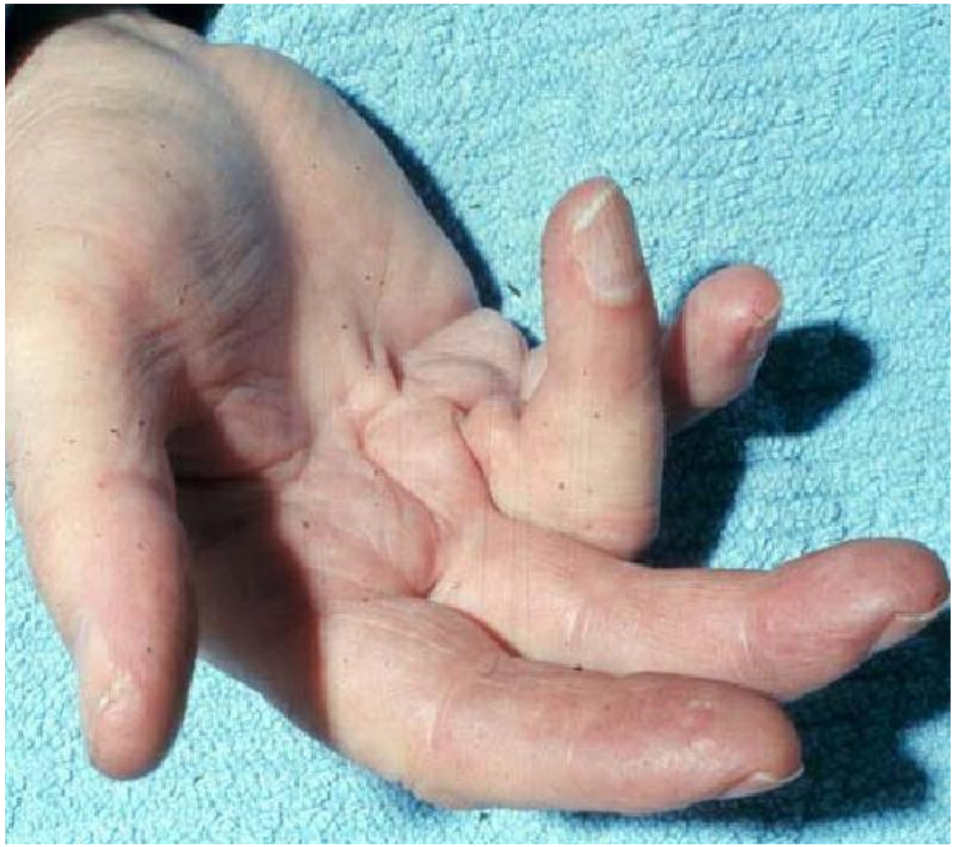
- ✓ Breast development in men.
- ✓ It can occur as a result of **liver cirrhosis**, due to **hormonal imbalances**, particularly **increased estrogen levels**

- In contrast, **female patients with liver cirrhosis** typically experience **breast atrophy** rather than enlargement.

# 5- Dupuytren's Contractures

Dupuytren's Contractures:

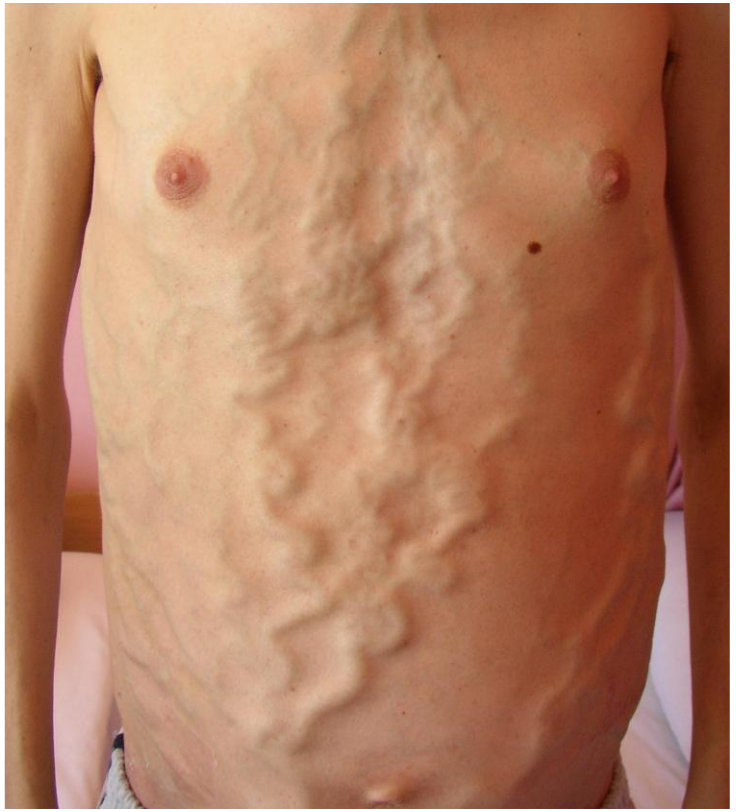
- ✓ Joint contractures (انكماش)
- ✓ **Progressive thickening and shortening of the palmar fascia**, leading to **flexion deformities of the fingers.**
- ✓ Fingers become permanently bent toward the palm.



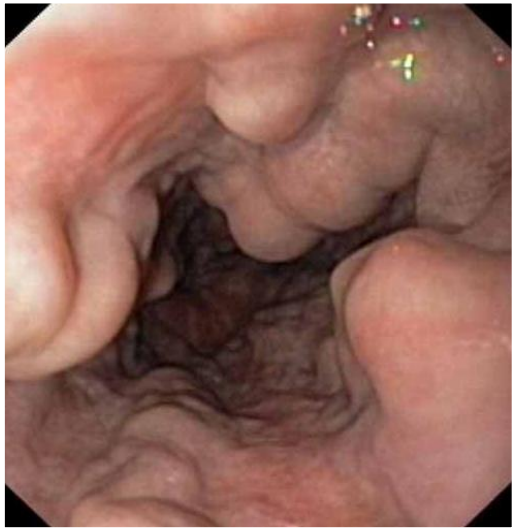
# 6- Caput Medusae

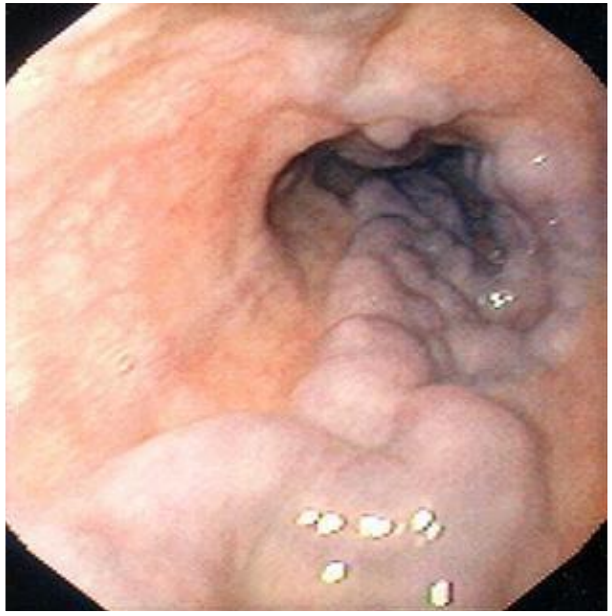
## Caput Medusae

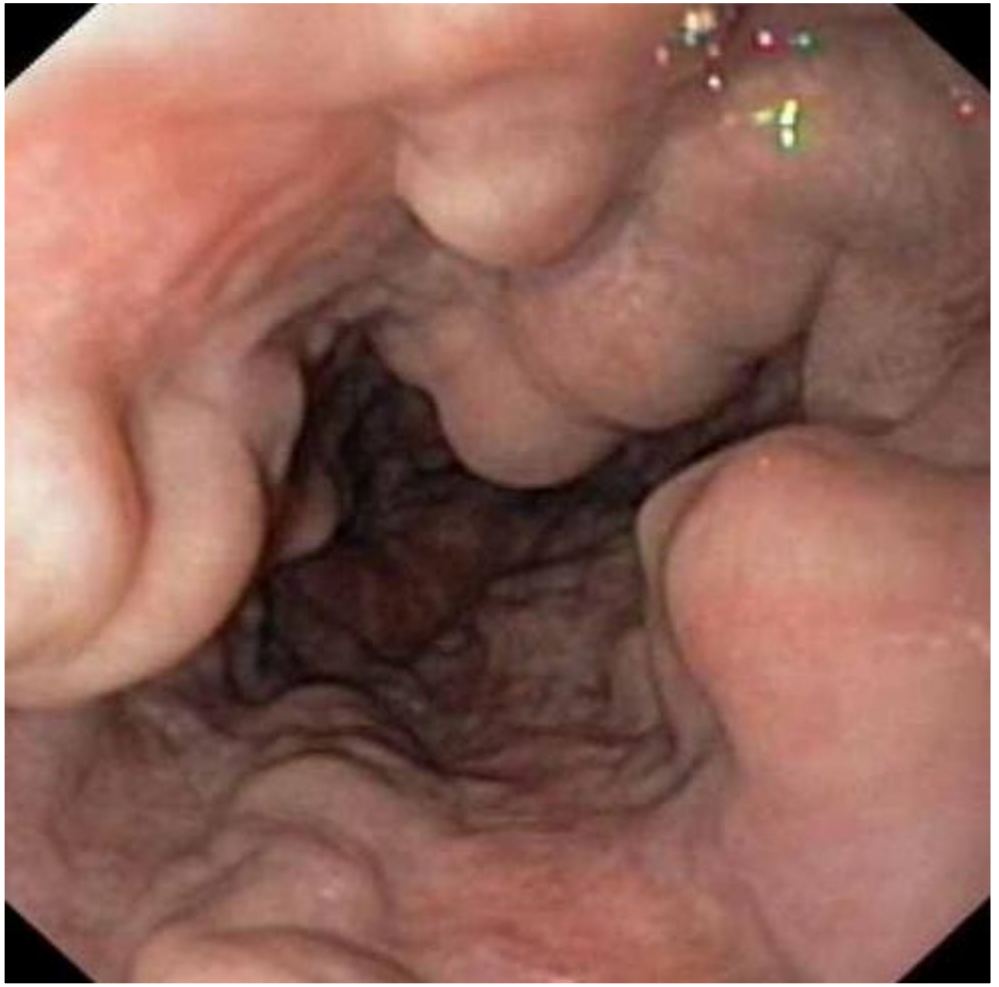
- ✓ Distended and engorged umbilical veins which are seen radiating from the umbilicus across the anterior abdomen to join systemic veins.



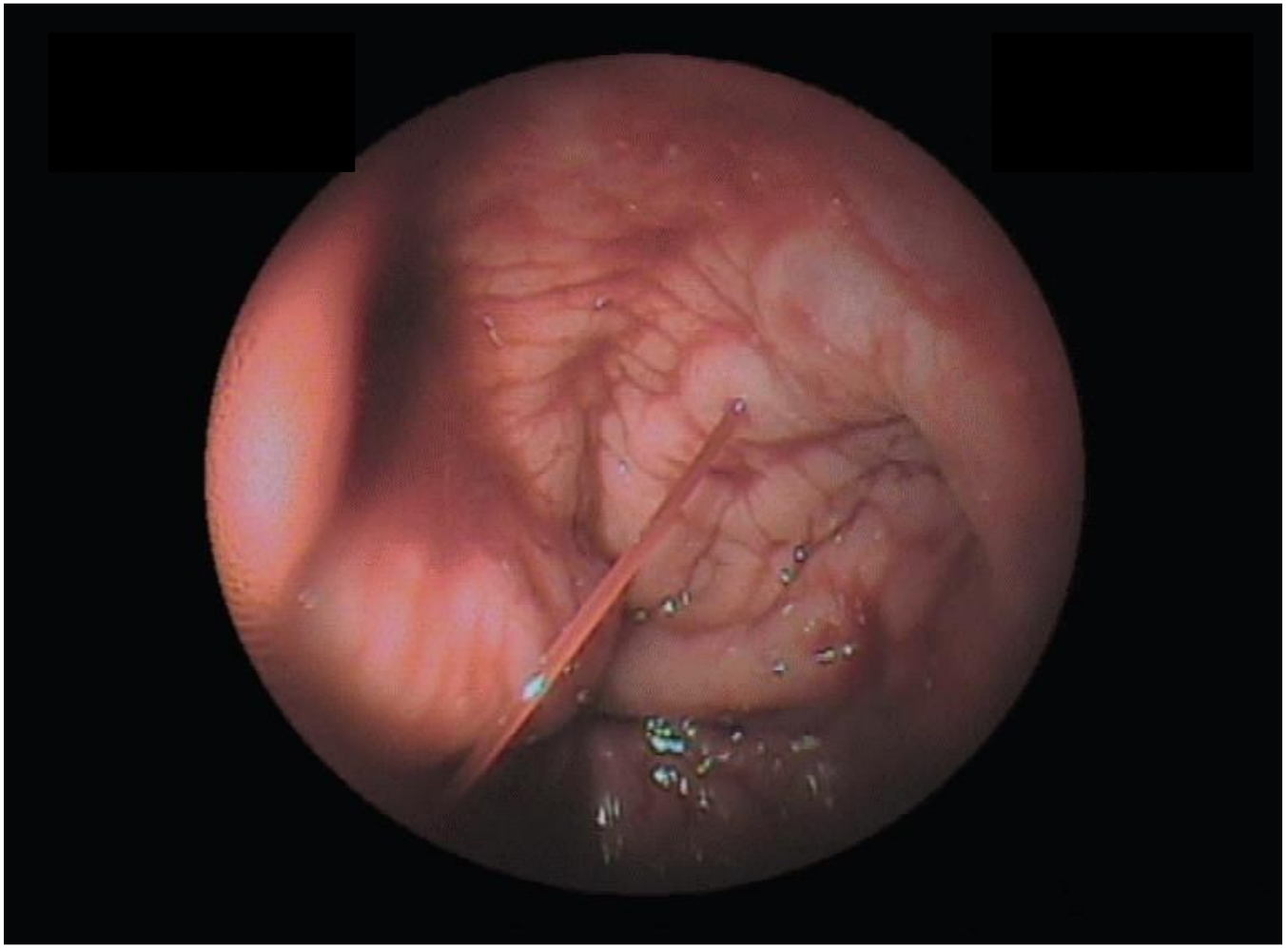
# 7- Esophageal varices





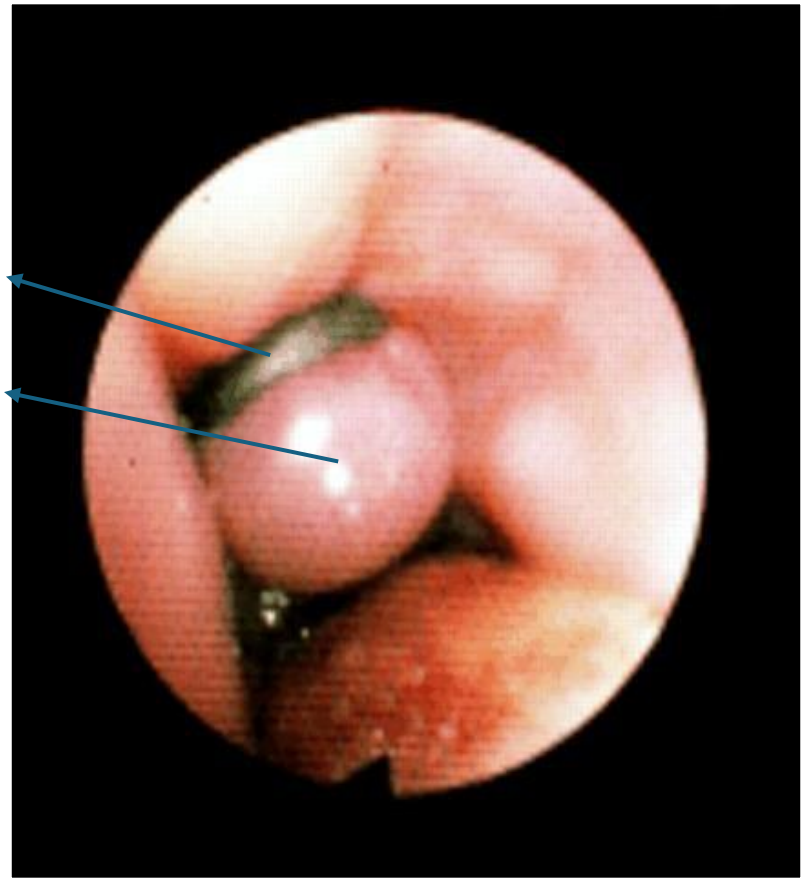


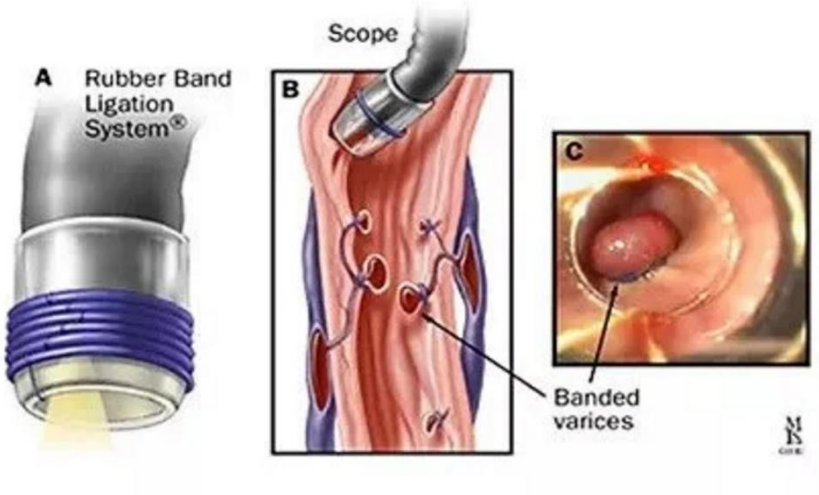
# 7- Esophageal varices



# 7- Esophageal varices

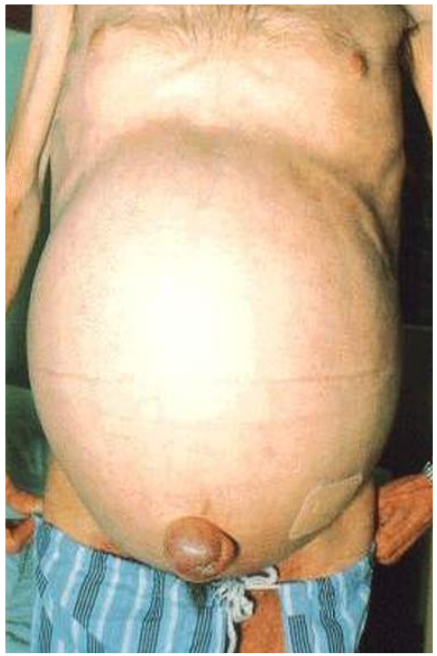
- ✓ This image shows **esophageal band ligation** (a therapeutic procedure used to treat bleeding esophageal varices by applying rubber bands to occlude the varices and prevent further hemorrhage) performed during endoscopy.

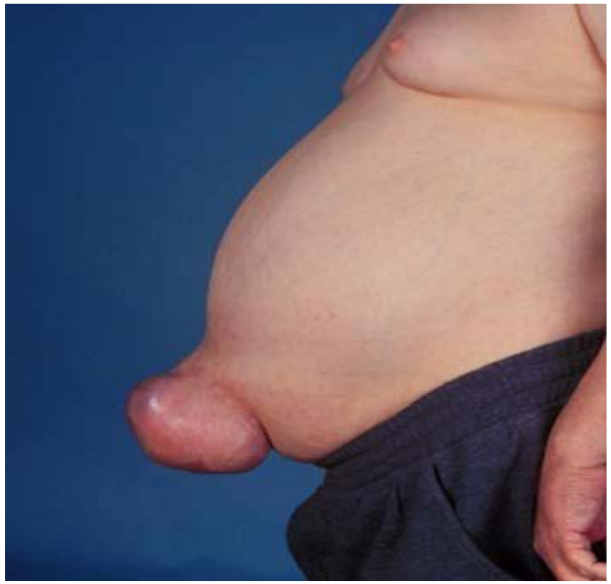


# 8- Ascites

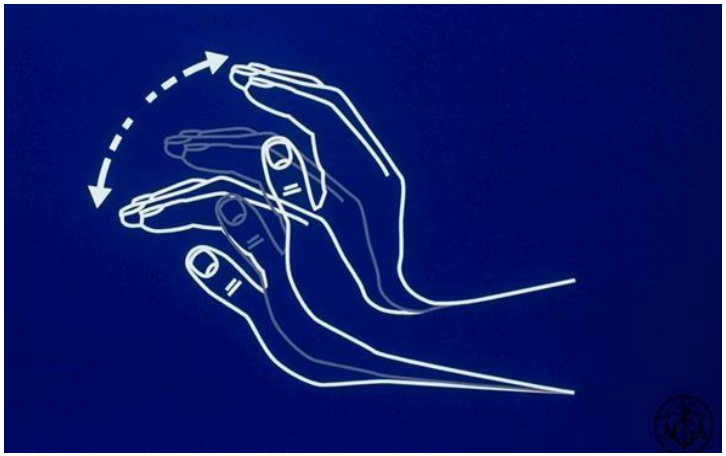
- ✓ This patient presents with **massive ascites.**
- ✓ There is a visible **umbilical hernia,** caused by increased **intra-abdominal pressure** due to the ascites.
- ✓ This condition is commonly seen in **advanced liver disease with portal hypertension.**





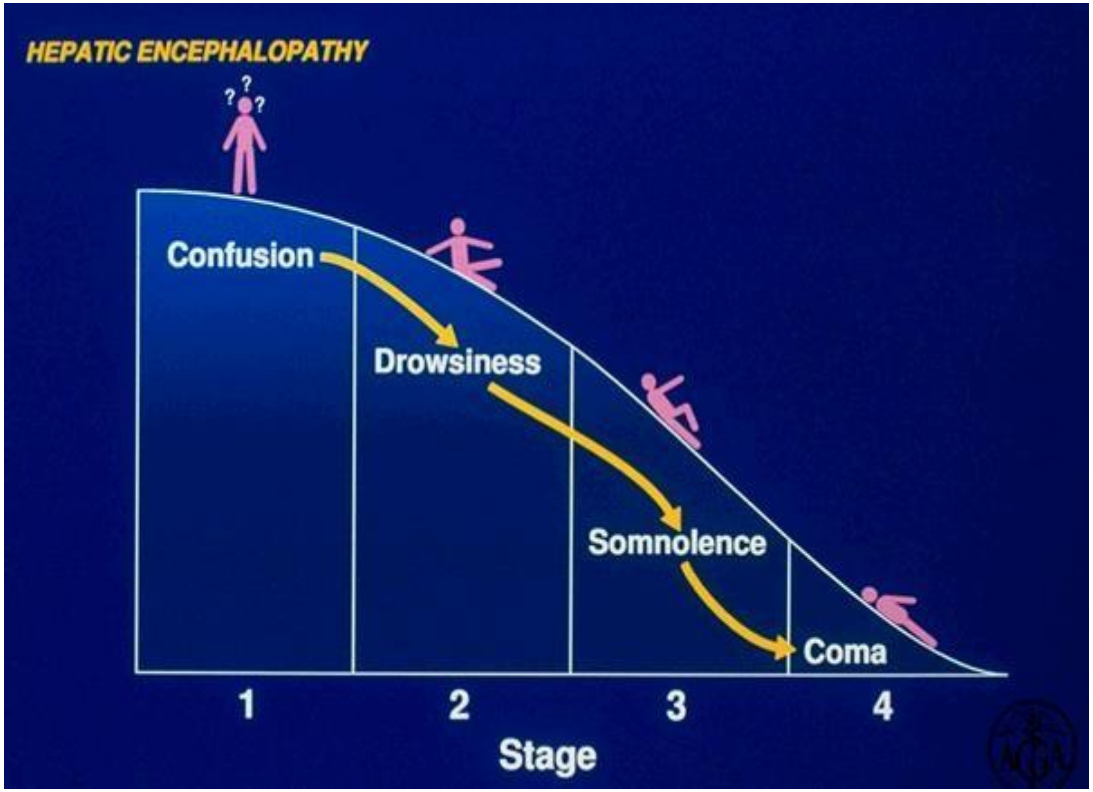
# 9- Asterixis

- Asterixis:
  - ✓ Flapping tremors (involuntary shaking), quick arrythmic movement in background tonic muscle contraction
  - ✓ It is a clinical sign commonly seen in patients with **hepatic encephalopathy**.
  - ✓ **Asterixis** can also be observed in patients with:
    - **Heart failure**
    - **Respiratory failure**



Video for Astraxia

# 10- Hepatic encephalopathy




- **West Haven Staging of Hepatic Encephalopathy:**

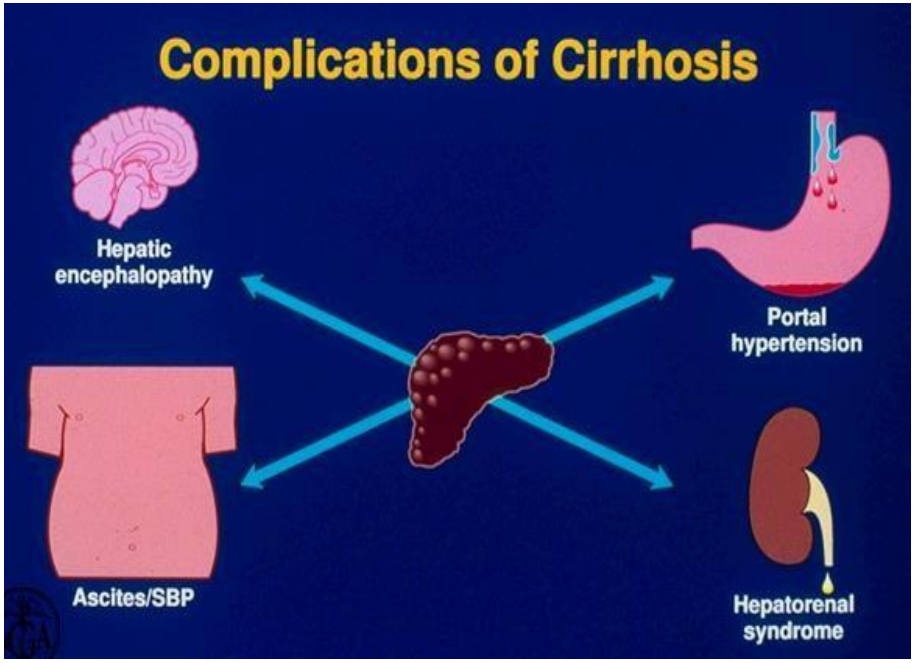
1. **Confusion** and **reversal of the sleep-wake cycle** (Stage 1).
2. **Drowsiness** (Stage 2).
3. **Somnolence** (sleepiness) (Stage 3).

✓ Throughout stages 1 – 3, the patient is **arousable.**

✓ Finally, in **Stage 4**, the condition progresses to a **coma**, with the patient being **unresponsive.**

# Common Complications of Liver Cirrhosis and Portal Hypertension

- ✓ **Variceal bleeding** may occur and is associated with a **very high mortality rate**.
- ✓ **Hepatorenal syndrome** may develop, which is a form of **acute kidney injury** in patients with advanced liver disease.
- ✓ **Ascites** can form and may be complicated by **spontaneous bacterial peritonitis (SBP)**.
- ✓ **Hepatic encephalopathy** may arise due to **elevated ammonia levels**.
- ✓ Patients may experience a **decreased level of consciousness** as the encephalopathy progresses.



# 3) Hepatitis A-E Viruses

## An Overview

This topic is way more comprehensively tackled in the microbiology lectures.

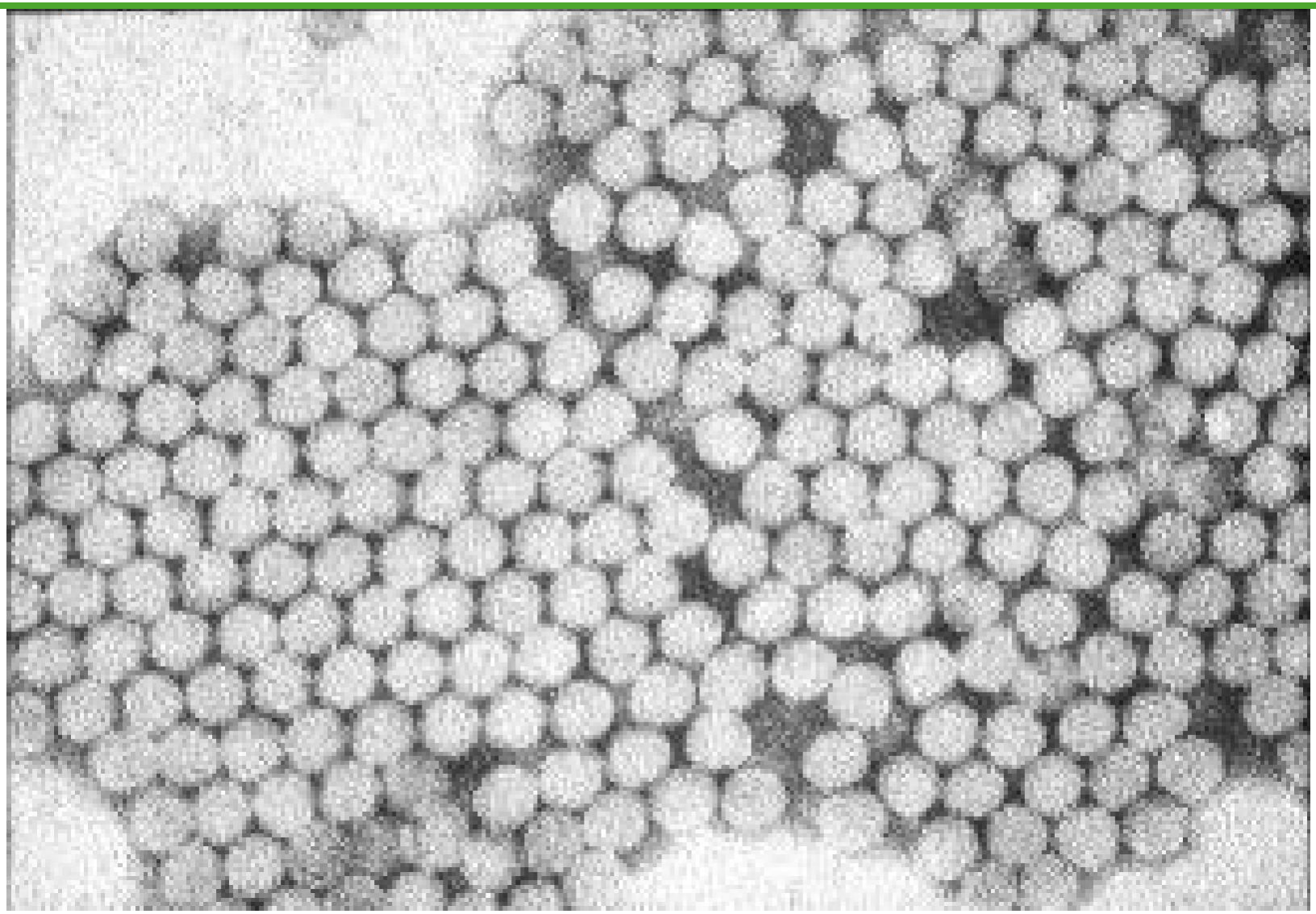
بس أكيد كملوا الملف..

# Type of Hepatitis

Summary for Viral Hepatitis; *see next slides for details*.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| Source of virus | feces | blood/ blood-derived body fluids | blood/ blood-derived body fluids | blood/ blood-derived body fluids | feces |
| Route of transmission | fecal-oral | percutaneous permucosal | percutaneous permucosal | percutaneous permucosal | fecal-oral |
| Chronic infection | no | yes | yes | yes | no |
| Prevention | pre/post-exposure immunization | pre/post-exposure immunization | blood donor screening; risk behavior modification | pre/post-exposure immunization; risk behavior modification | ensure safe drinking water |

# Hepatitis A Virus

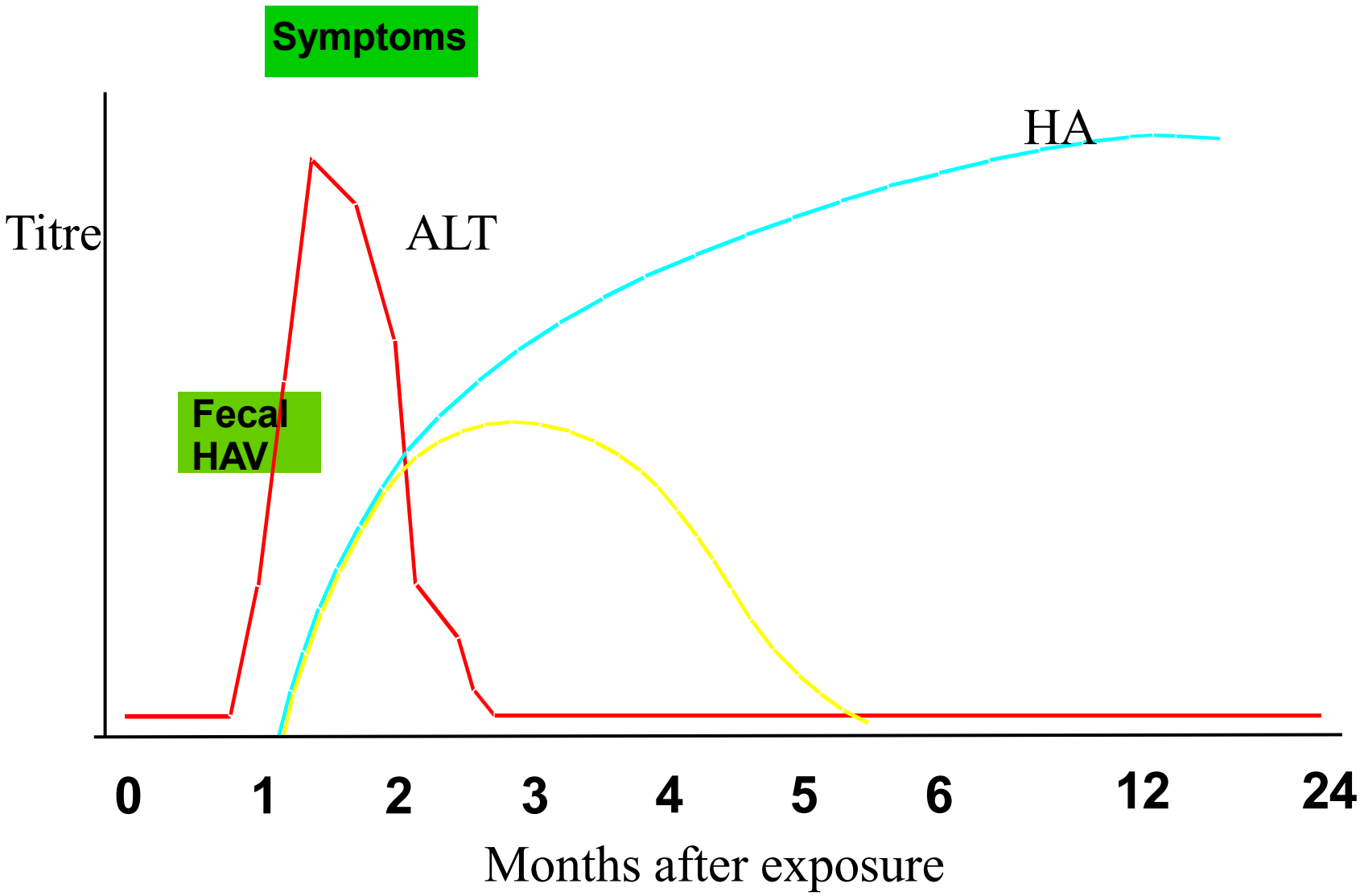


# Hepatitis A - Clinical Features

| | |
|---|---|
| Incubation period: | • Average 30 days<br>• Range 15-50 days |
| Jaundice by age group: | • <6 yrs, <10% , (1)<br>• 6-14 yrs, 40%-50%<br>• >14 yrs, 70%-80% |
| Complications: | • Fulminant hepatitis<br>➢ Less than 1% of cases<br>➢ Might require a liver transplant and may result in death if untreated.<br>• Cholestatic hepatitis<br>• Relapsing hepatitis |
| Chronic sequelae | ✓ None<br>➔ There is no Chronic Hepatitis A infection.<br>✓ 99% of patients fully recover. |

(1): This means that in patients under six years of age with Hepatitis A, less than 10% will present with jaundice, lowering the chance for Hepatitis A detection.

# Hepatitis A Infection
## Typical Serological Course



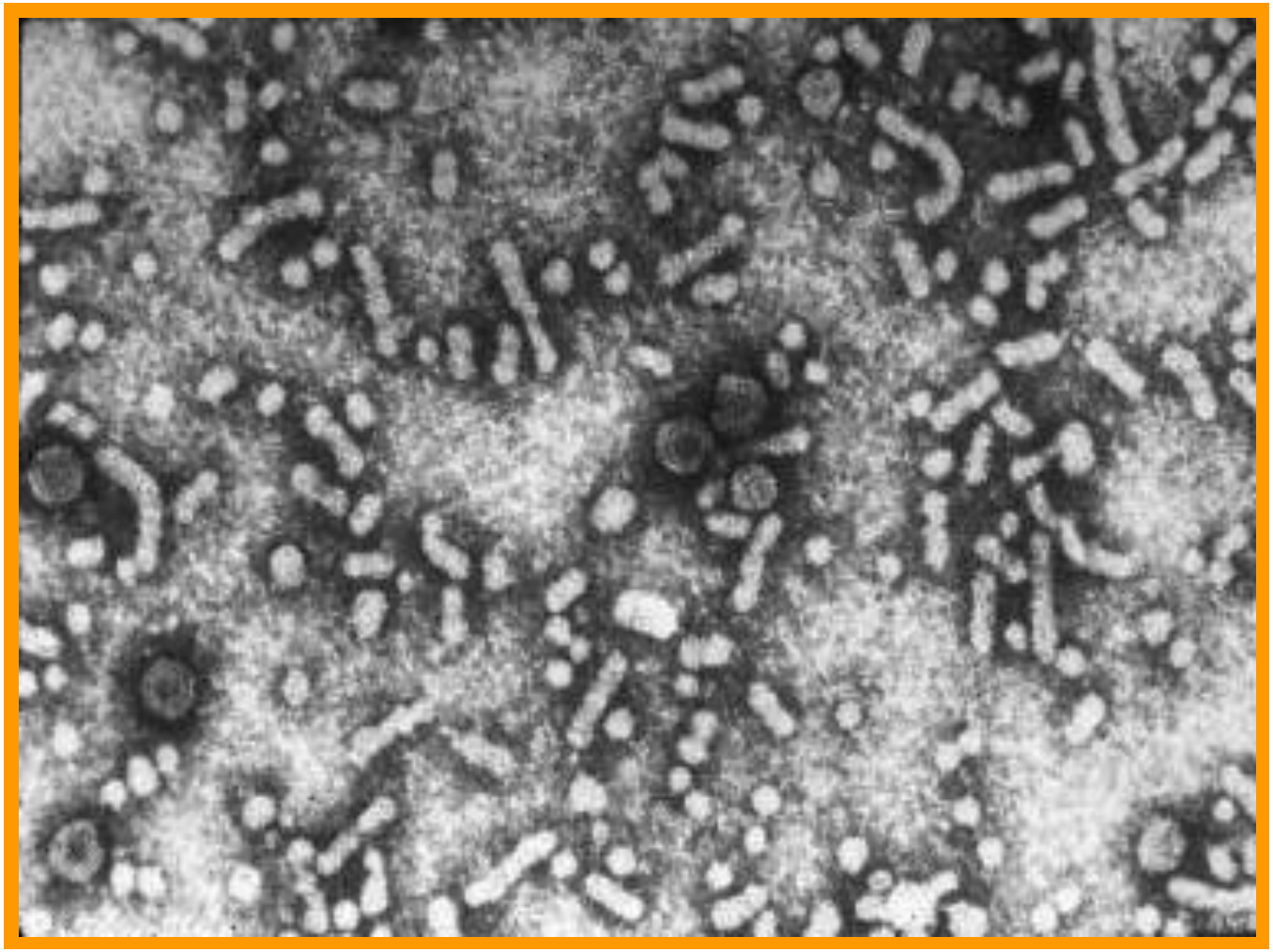
# Hepatitis A Virus Transmission

- **Close personal contact (e.g., household contact, sex contact, child day care centers)**
- **Contaminated food, water (e.g., infected food handlers, raw shellfish)**
- **Blood exposure (rare) (e.g., injecting drug use, transfusion)**

# Laboratory Diagnosis

- **Acute infection** is diagnosed by the detection of **HAV-IgM** in serum by EIA.
- **Past Infection i.e. immunity** is determined by the detection of **HAV-IgG** by EIA.

# Hepatitis B Virus



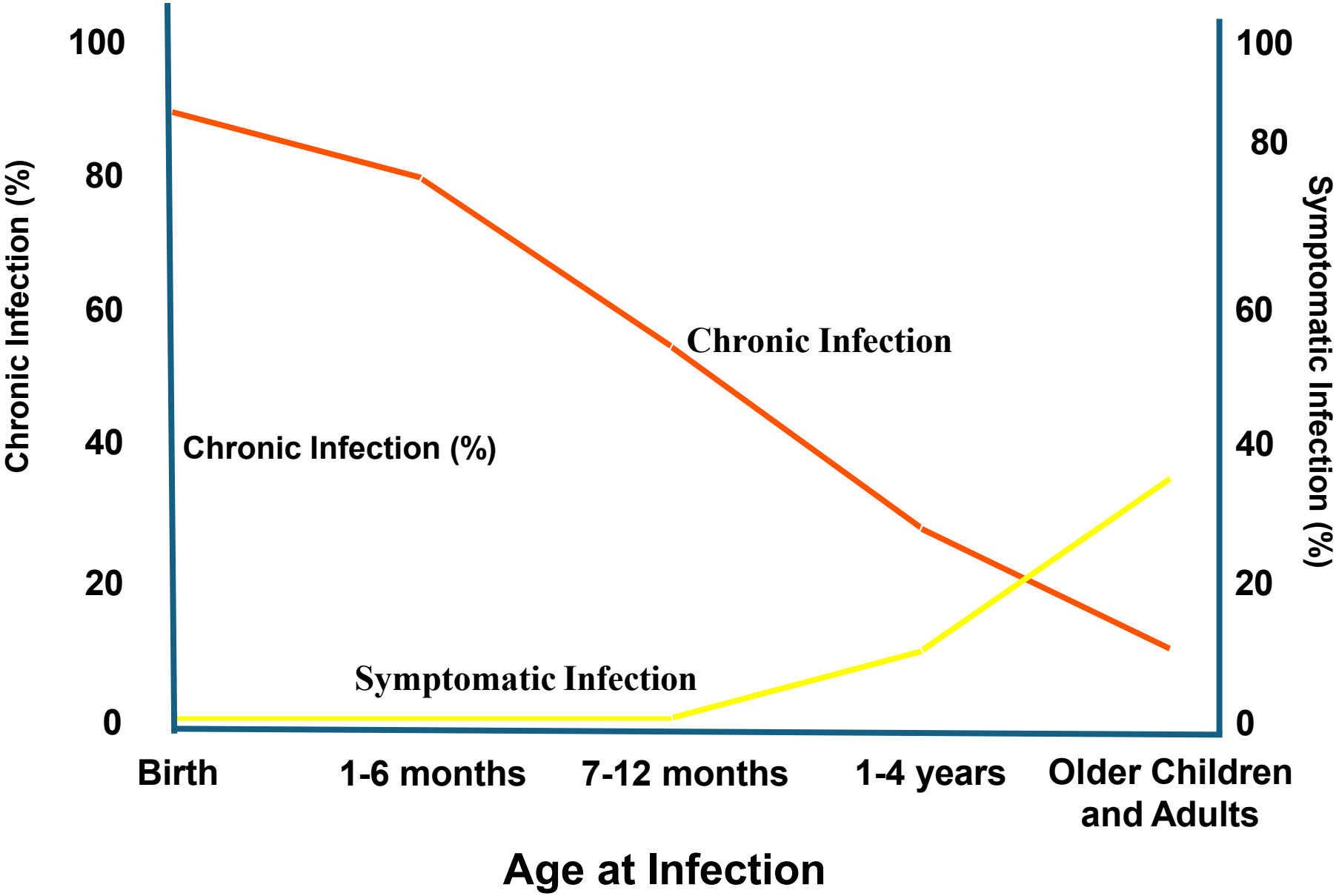
# Hepatitis B - Clinical Features

| | |
|---|---|
| • Incubation period: | • Average 60-90 days<br>• Range 45-180 days |
| • Clinical illness (jaundice): | • <5 yrs, <10%,<br>✓ Hepatitis B infection in pediatric patients often goes unnoticed, as **up to 90% of infected infants and young children** remain **asymptomatic during the early stages.** The virus persists silently in the liver and may **only manifest years later as a chronic infection.**<br>>5 yrs, 30%-50% |
| • Acute case-fatality rate: | • 0.5%-1% |
| • Chronic infection: | • <5 yrs, 30%-90%, Mostly Chronic in Children.<br>• 5 yrs, 2%-10%, Mostly acute in Adults. |
| • Premature mortality from chronic liver disease: | • 15%-25% |

# Hepatitis B - Clinical Features

- ✓ **Hepatitis B virus (HBV)** can be transmitted from mother to child during childbirth (vertical transmission).
- ✓ If the mother has a high viral load and no preventive measures are taken, the baby is very likely to become infected.
- ✓ Without intervention, the newborn's immune system may **fail to recognize the virus** as harmful.
- ✓ During childhood, the patient remains **asymptomatic** despite active viral replication.
- ✓ As a result, **HBV coexists silently** with liver cells (hepatocytes) during childhood.
- ✓ The virus replicates without triggering an immune response in early life.
- ✓ In adulthood (typically in the 20s or 30s), the immune system may suddenly recognize the virus and begin an **acute inflammatory response**.

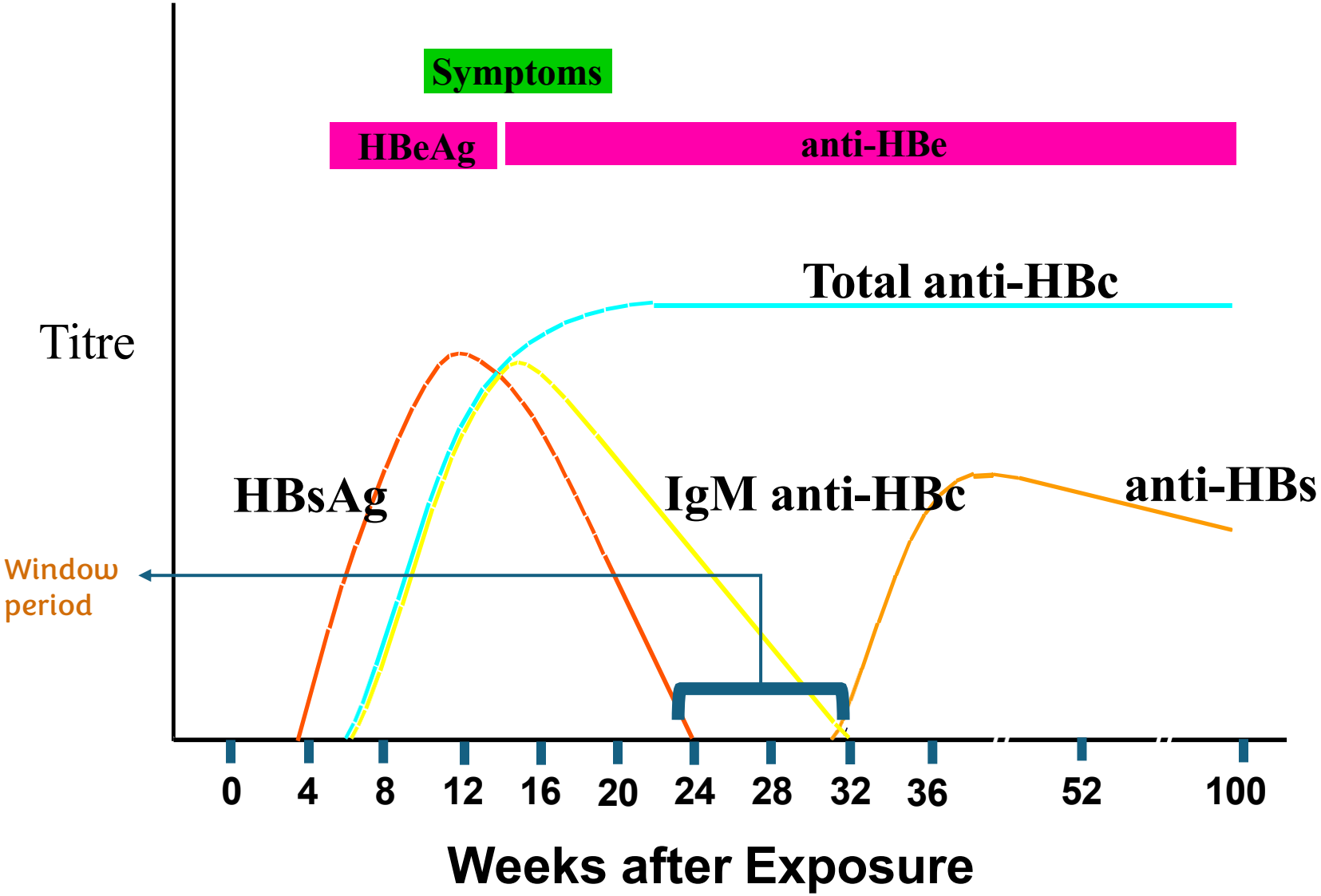
# Outcome of Hepatitis B virus infection by Age at Infection



# Spectrum of Chronic Hepatitis B Diseases

- Chronic HBV infection may manifest as:
  - ✓ **Chronic Persistent Hepatitis: asymptomatic.**
  - ✓ **Chronic Active Hepatitis: symptomatic exacerbations of hepatitis.**
  - ✓ **Cirrhosis of Liver.**
  - ✓ **Hepatocellular Carcinoma.**

# Acute Hepatitis B Virus Infection with Recovery
## Typical Serologic Course (not chronic)



# Acute Hepatitis B Virus Infection with Recovery Typical Serologic Course

- **Notes regarding the previous timeline:**

✓ The presence of HBsAg is a general marker for HBV infection.

✓ During the active illness, HBsAg is detectable, but anti-HBs shows later.

✓ The presence of HBeAg indicates acute replication.

✓ **Anti-Hbe antibodies** develop **only after** the patient begins to recover from the infection.

✓ **Diagnosis Tip**: Always test **anti-HBc IgM** to avoid missing cases in the window period.

✓ **Window Period**: Time between loss of HBsAg and appearance of anti-HBs; only **IgM anti-HBc** is detectable.

# Concentration of Hepatitis B Virus in Various Body Fluids

| High | Moderate | Low/Not Detectable |
|---|---|---|
| blood | semen | urine |
| serum | vaginal fluid | feces |
| wound exudates | saliva | sweat |
| | | tears |
| | | breastmilk |

# Hepatitis B Virus
# Modes of Transmission

- Sexual - sex workers and homosexuals are particular at risk.
- Parenteral - IVDA, Health Workers are at increased risk.
- Perinatal - Mothers who are HBeAg positive are much more likely to transmit to their offspring than those who are not. Perinatal transmission (vertical transmission) is the main means of transmission in high prevalence populations.

# Diagnosis

**Important Note from the Doctor: "It is not required for you in the exam to know the serological markers of the HBV."** بس مطلوبين بالمايكرو فادرسوهم من هناك

- **A battery of serological tests are used for the diagnosis of acute and chronic hepatitis B infection.**
- **HBsAg - used as a general marker of infection.**
- **HBsAb - used to document recovery and/or immunity to HBV infection.**
- **anti-HBc IgM - marker of acute infection.**
- **anti-HBcIgG - past or chronic infection.**
- **HBeAg - indicates active replication of virus and therefore infectiveness.**
- **Anti-Hbe - virus no longer replicating. However, the patient can still be positive for HBsAg which is made by integrated HBV.**
- **HBV-DNA - indicates active replication of virus, more accurate than HBeAg especially in cases of escape mutants. Used mainly for monitoring response to therapy.**

# Prevention

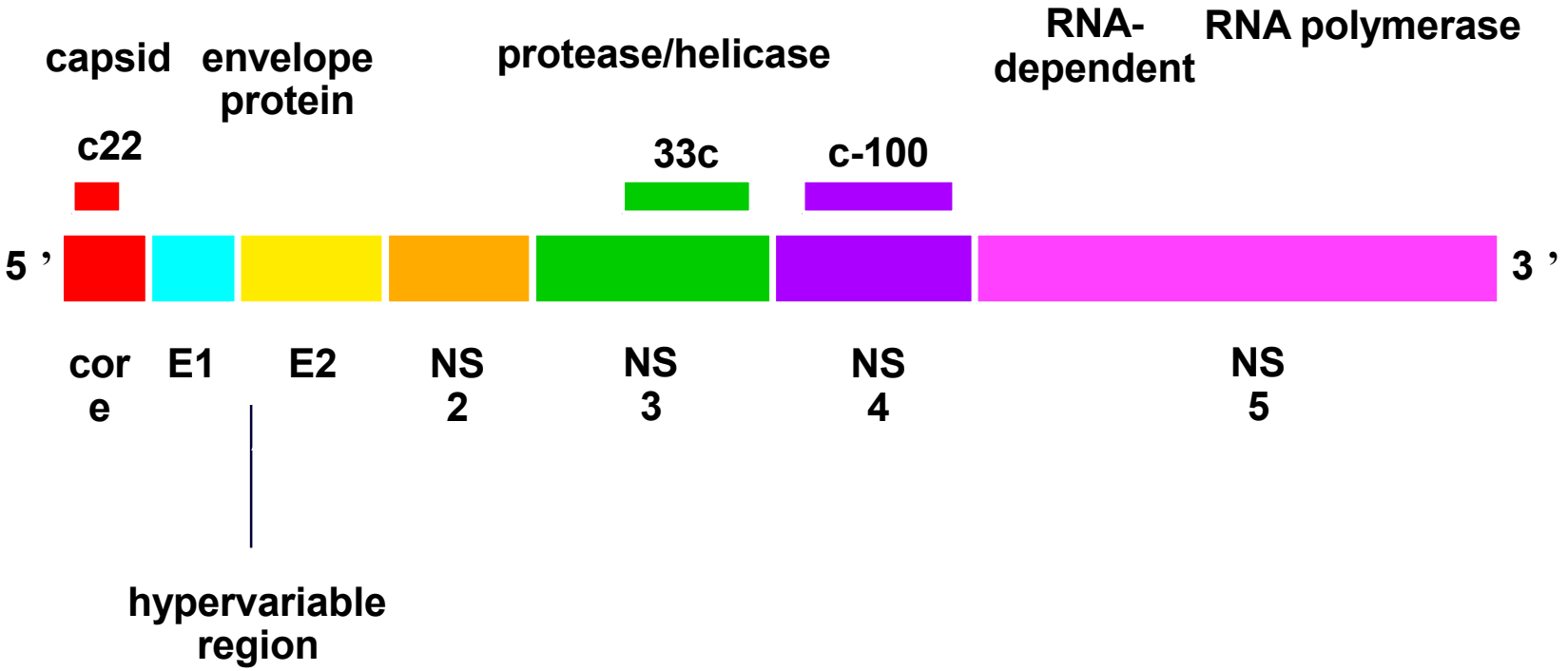
- **Vaccination - highly effective recombinant vaccines are now available. Vaccine can be given to those who are at increased risk of HBV infection such as health care workers. It is also given routinely to neonates as universal vaccination in many countries.**

  - **Pregnant women with a high Hepatitis B viral load should receive antiviral treatment during the third trimester. Immediately after birth, their newborn should be given both Hepatitis B immunoglobulin (HBIG) and the first dose of the Hepatitis B vaccine simultaneously (one on Right and one on Left hand).**
  - These steps are essential to prevent mother-to-child transmission.

- **Hepatitis B Immunoglobulin - HBIG may be used to protect persons who are exposed to hepatitis B. It is particular efficacious within 48 hours of the incident. It may also be given to neonates who are at increased risk of contracting hepatitis B i.e. whose mothers are HBsAg and HBeAg positive.**

- **Other measures - screening of blood donors, blood and body fluid precautions.**

# Hepatitis C Virus



# Hepatitis C - Clinical Features

| | |
|---|---|
| • Incubation period: | • Average 6-7 wks<br>• Range 2-26 wks |
| • Clinical illness (jaundice): | • 30-40% (20-30%) |
| • Chronic hepatitis: | • 70% |
| • Persistent infection: | • 85-100% |
| • Immunity: | • No protective antibody response identified (No proven vaccine) |

# Chronic Hepatitis C Infection

- **The spectrum of chronic hepatitis C infection is essentially the same as chronic hepatitis B infection.**
- **All the manifestations of chronic hepatitis B infection may be seen, albeit with a lower frequency i.e. chronic persistent hepatitis, chronic active hepatitis, cirrhosis, and hepatocellular carcinoma.**

# Risk Factors Associated with Transmission of HCV

- **Blood Transfusion or transplant from infected donor**
- **Injecting drug use (IV drug users)**
- **Hemodialysis (yrs on treatment)**
- **Accidental injuries with needles/sharps**
- **Sexual/household exposure to anti-HCV-positive contact**
- **Multiple sex partners & Homosexuals**
- **Birth to HCV-infected mother**

# Laboratory Diagnosis

- **HCV antibody - generally used to diagnose hepatitis C infection. Not useful in the acute phase as it takes at least 4 weeks after infection before antibody appears.**
- **HCV-RNA - various techniques are available e.g. PCR and branched DNA. May be used to diagnose HCV infection in the acute phase. However, its main use is in monitoring the response to antiviral therapy.**
- **HCV-antigen - an EIA for HCV antigen is available. It is used in the same capacity as HCV-RNA tests but is much easier to carry out.**

# Laboratory Diagnosis

- Note: When utilizing the HCV antibody test to identify potential chronic (HCV) infections, it is essential to confirm positive results with an HCV RNA test.
- This is necessary to distinguish between current active infection and past resolved infection, as the presence of antibodies alone does not indicate whether the virus is still replicating.

- So Basically:
  - HCV antibody positive + HCV RNA negative = Past resolved infection
  - HCV antibody positive + HCV RNA positive = Chronic infection

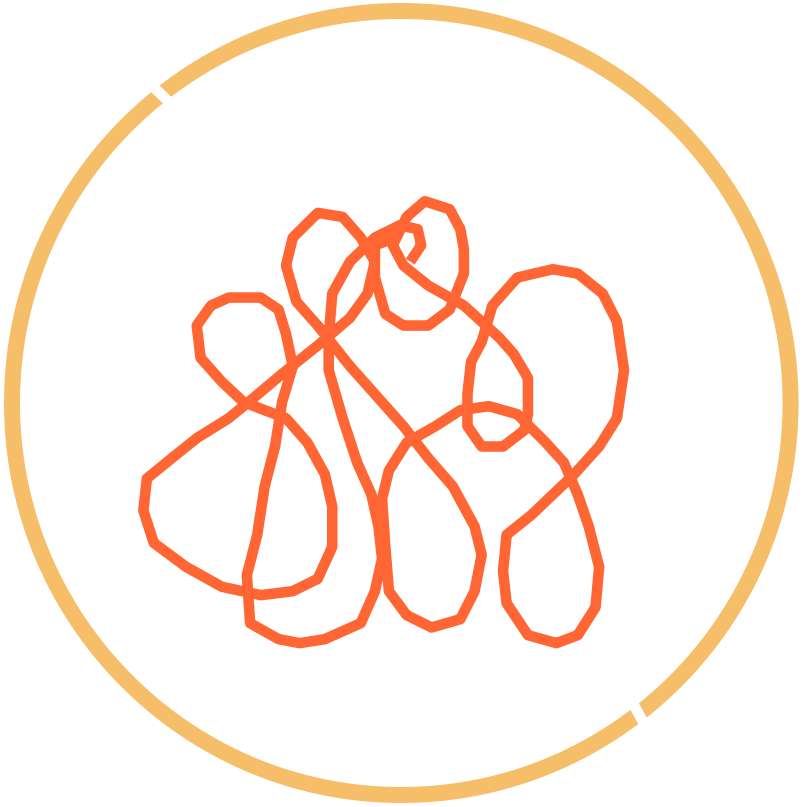
# Prevention of Hepatitis C

- Screening of blood, organ, tissue donors
- High-risk behavior modification
- Blood and body fluid precautions

# Hepatitis D (Delta) Virus

δ antigen

HBsAg



RNA

Defective virus; it relies on HBsAg for transmission and replication.

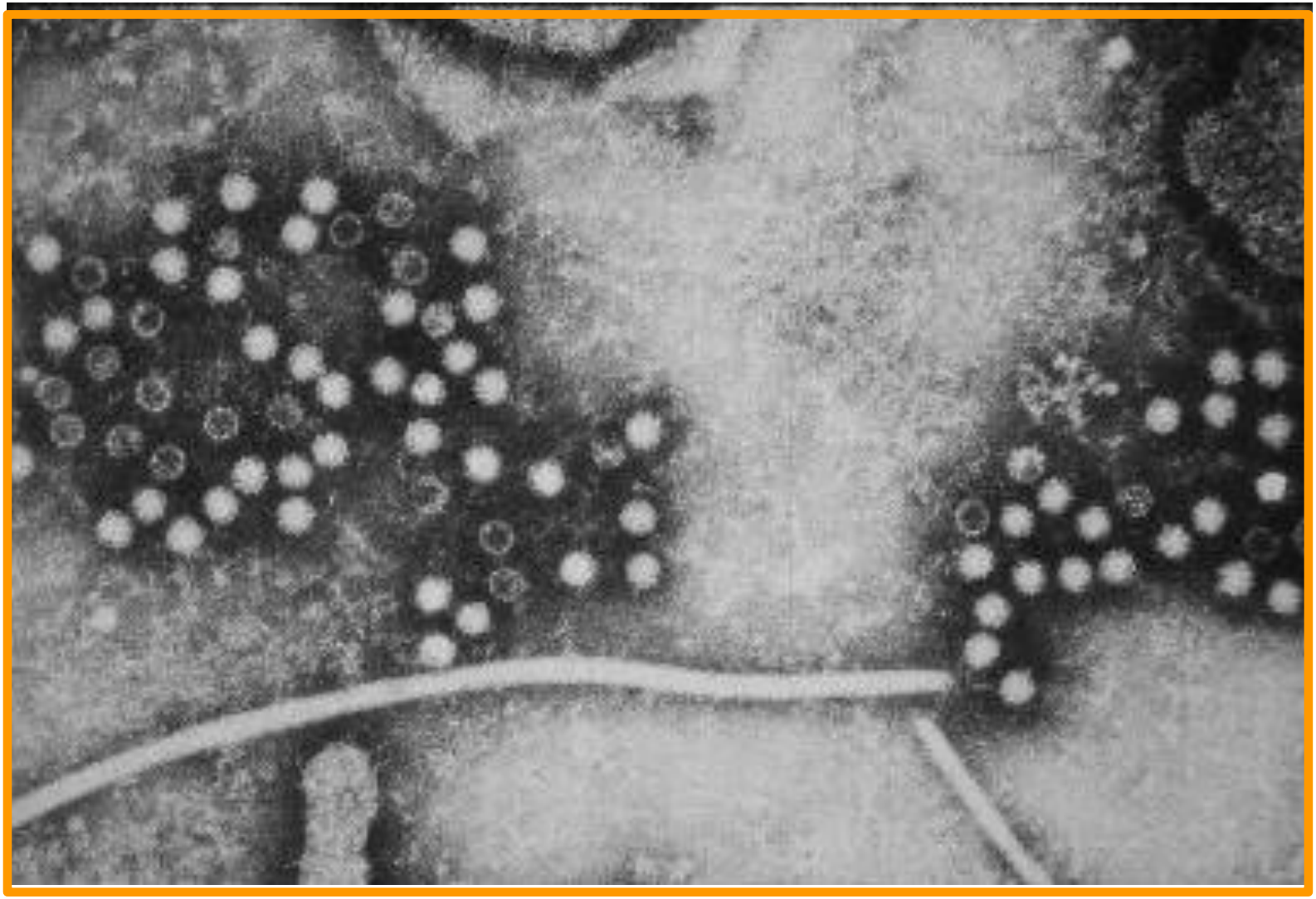
# Hepatitis D - Clinical Features

- Coinfection (same source of infection as HBV)
  - severe **acute** disease.
  - low risk of chronic infection.
- Superinfection (patient has an existing HBV infection and gets HDV from another source)
  - usually develop **chronic** HDV infection.
  - high risk of severe chronic liver disease.
  - may present as an acute hepatitis.

# Hepatitis D Virus Modes of Transmission

- Percutanous exposures
  - injecting drug use
- Permucosal exposures
  - sex contact

# Hepatitis E Virus



# Hepatitis E - Clinical Features

| | |
|---|---|
| • Incubation period: | • Average 40 days<br>• Range 15-60 days |
| • Case-fatality rate: | • Overall, 1%-3%<br>• **Pregnant women**, 15%-25% (high mortality) |
| • Illness severity: | • Increased with age |
| • Chronic sequelae: | • None identified (acute infection only) |

✓ Hepatitis E is mostly self-limiting.

# For any feedback, scan the code or click on it.

Corrections from previous versions:

| Versions | Slide # and Place of Error | Before Correction | After Correction |
|---|---|---|---|
| V0 → V1 | 8 | Stomach ulcers | Stoma ulcers |
| V1 → V2 | | | |

# رسالة من الفريق العلمي