# Paper-K (GIT and Hepatobiliary-2)

## Table-3: MCQs

| Subject | Total MCQs |
|---|---|
| Pharmacology | 16 |
| Pathology | 41 |
| Forensic medicine | 16 |
| Community medicine | 18 |
| PRIME | 01 |
| Medicine | 11 |
| Surgery | 12 |
| Pediatrics | 03 |
| Family medicine | 02 |
| **Total** | **120** |

## Table-4: OSPE

| Subject | Viva stations | OSPE/OSCE stations | Total |
|---|---|---|---|
| Pharmacology | 2 | 2 | 4 |
| Pathology | 2 | 2 | 4 |
| Forensic medicine | 2 | 2 | 4 |
| Community medicine | 2 | 4 | 6 |
| Medicine (GIT examination) | x | 1 | 1 |
| Surgery (GIT/local examination) | x | 1 | 1 |
| Total | 8 | 12 | 20 |

* A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station).

# Pit viper

- Head scales large
- vasculotoxic

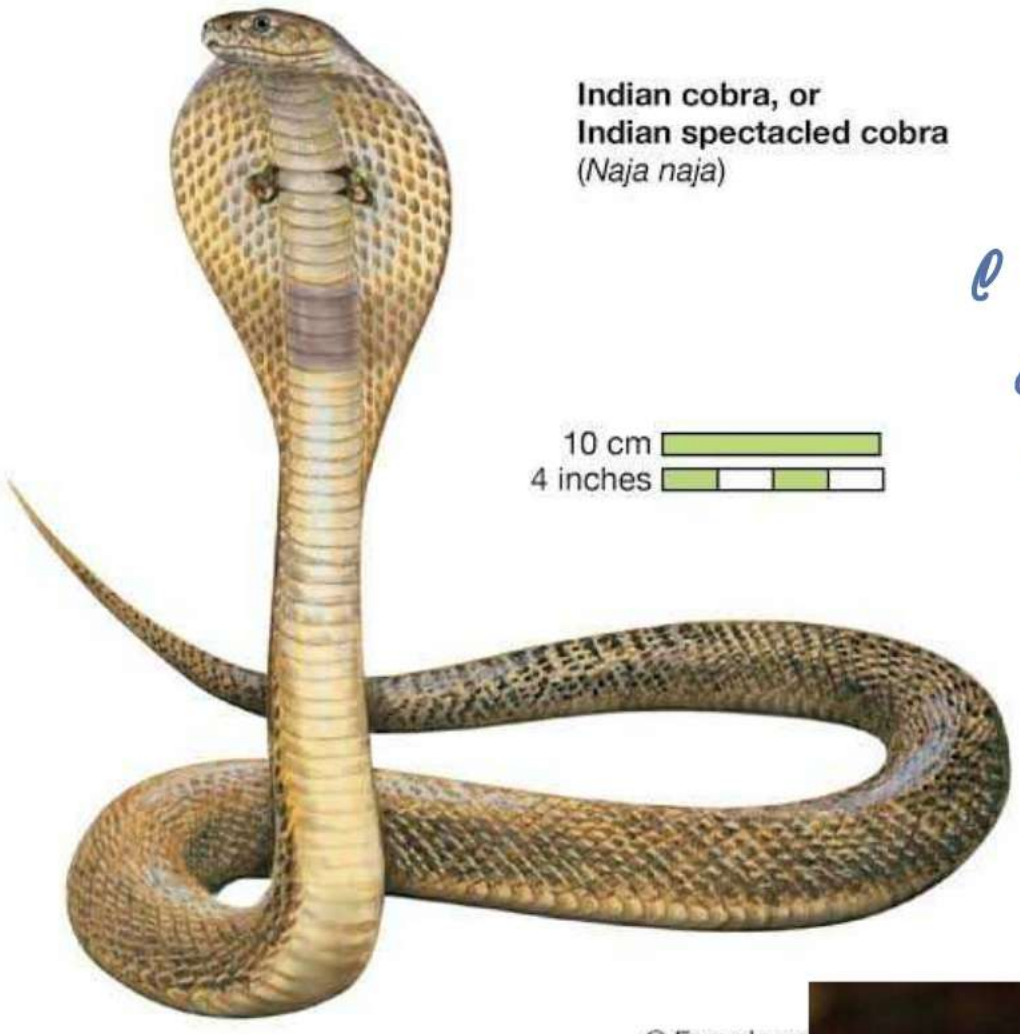
Pit b.w eye and nostril

Vertical pupils

Head is triangular and wider

# Cobra (Elapid)

- neurotoxic




- cannot bite through clothing and inject complete poison

Fangs present anteriorly but covered with a fold of mucus

↑ King cobra

Round pupils

- Glistening black
- creamy white belly

Common krait

- Alternate black and yellow bands

Banded Krait

- Triangular head
- pit b/w eyes and nostrils
- Flanks have yellowish white line

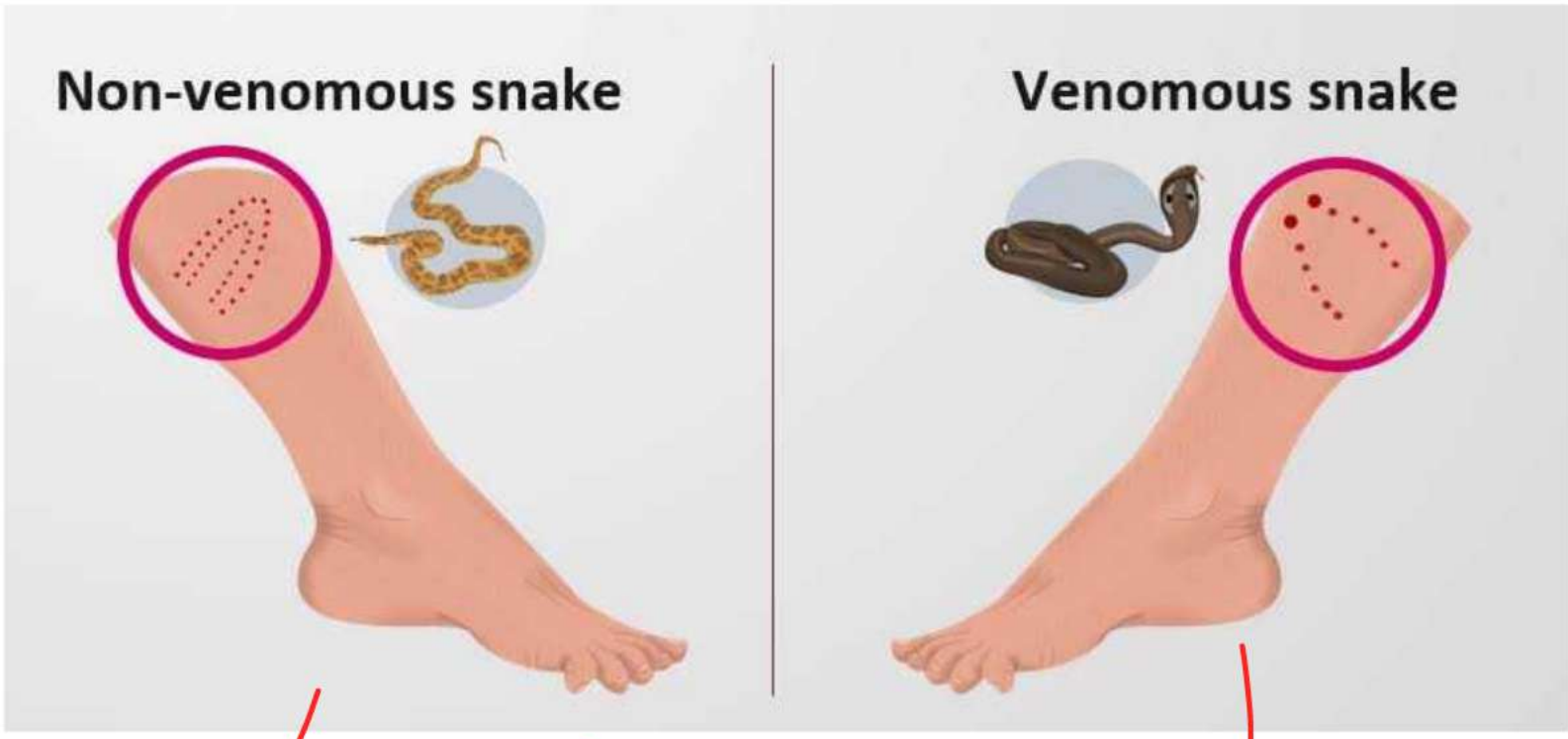
Common Green pit viper

- Three rows of black diamond shaped spots
- Terrific hissing sound when about to bite


Russel's viper

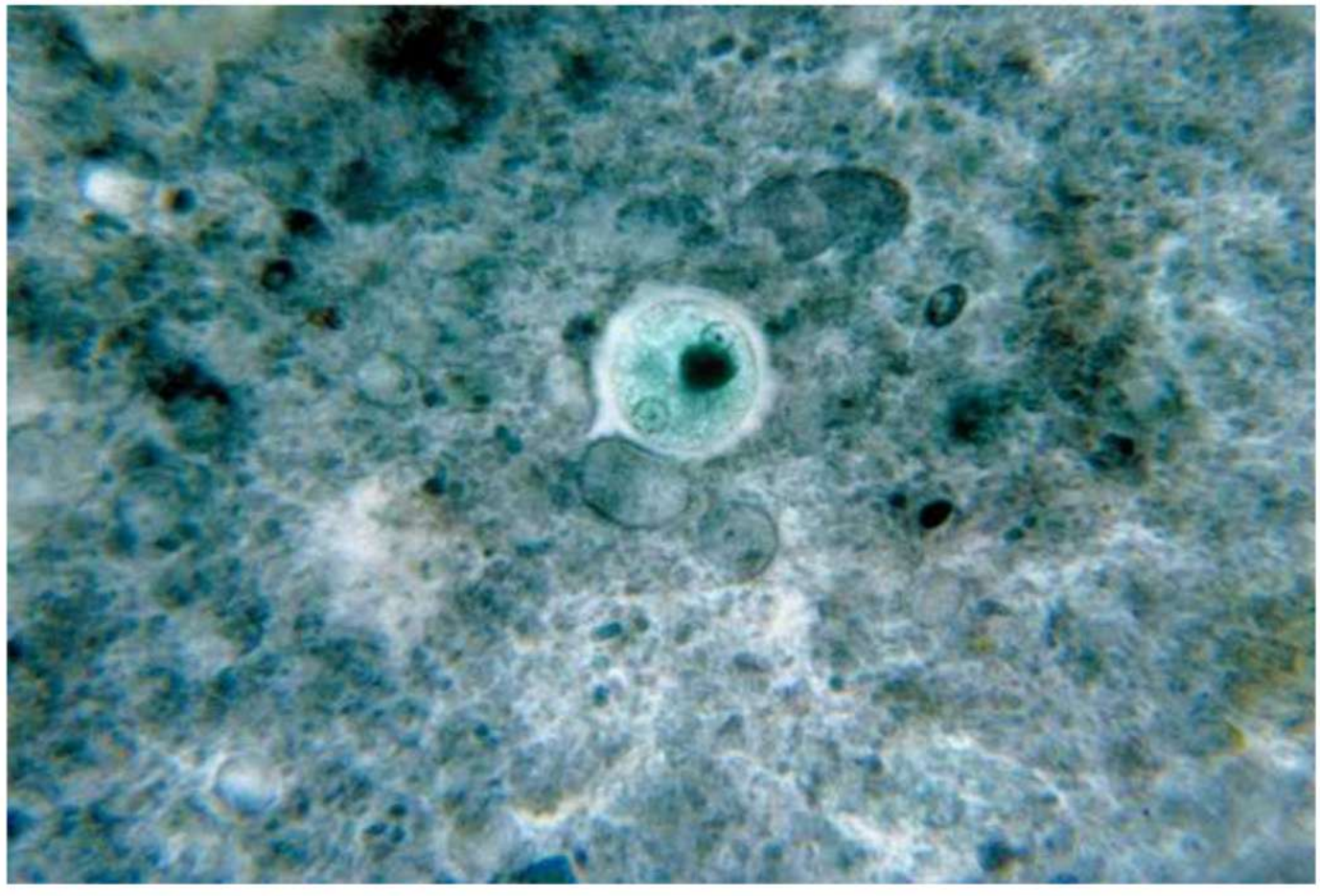
Saw Scaled Viper

- body scales serrated like a saw
- peculiar hissing sound when it moves



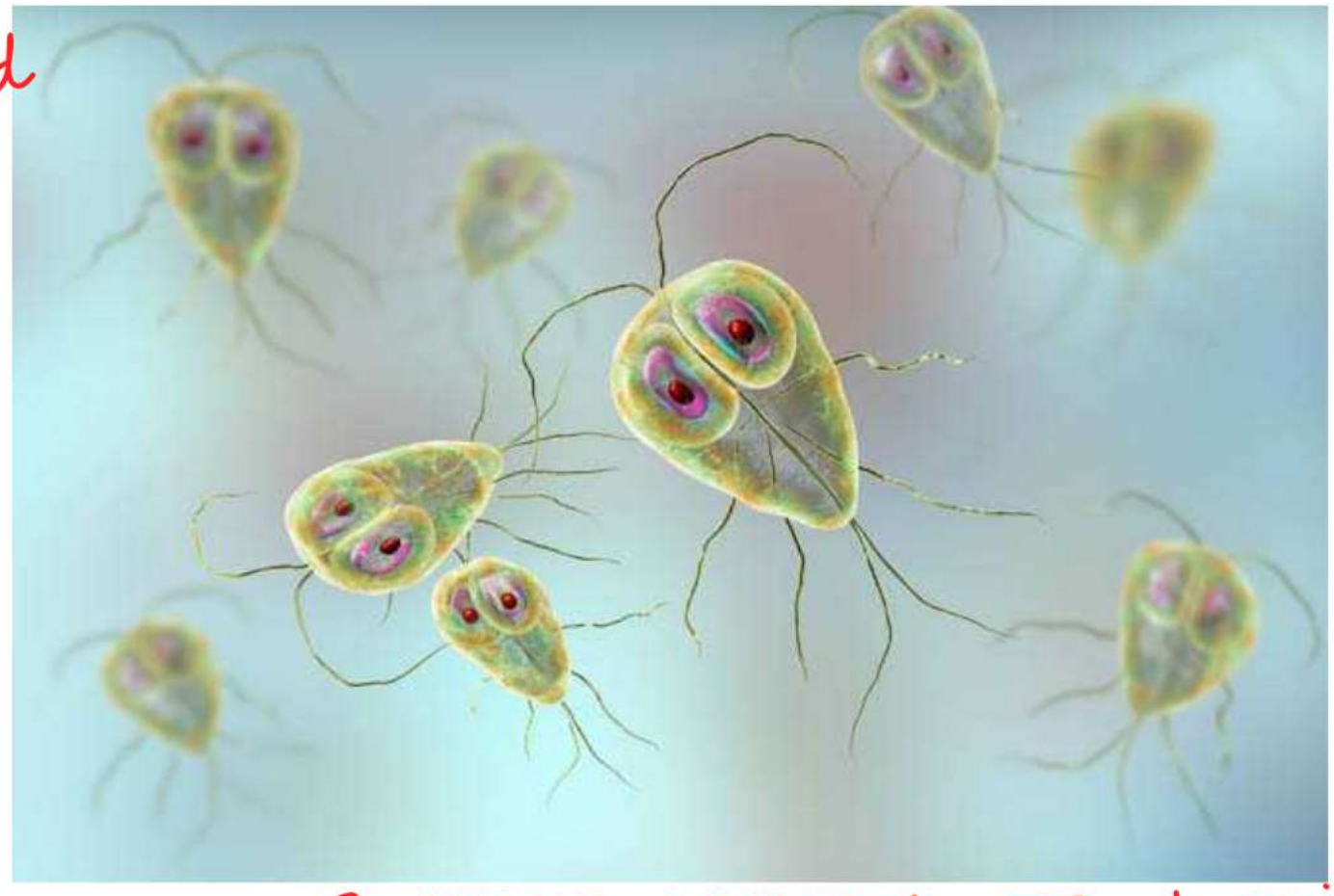

U-shaped set of teeth marks

presence of fang marks



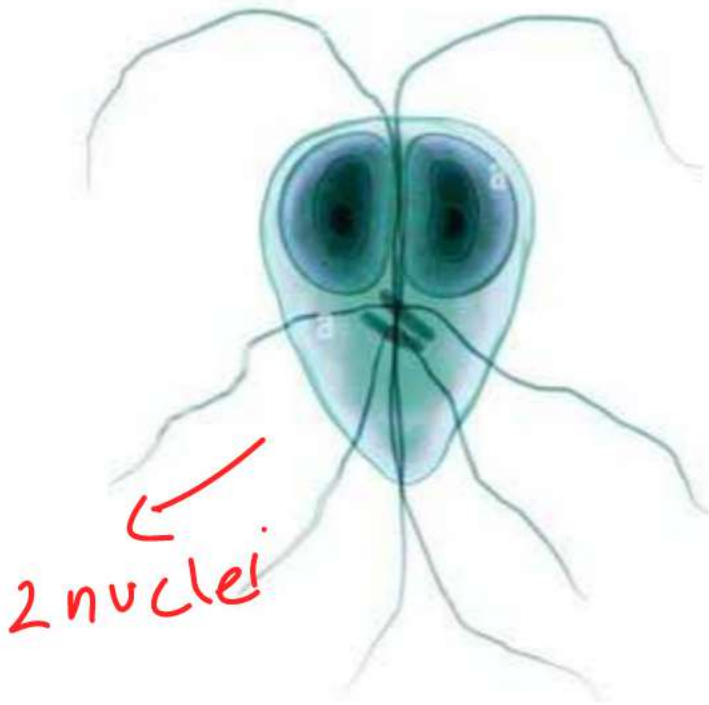
ENTAMOEBA HISTOLYTICA

- pear shaped
- Two nuclei
- 4 pairs of flagella



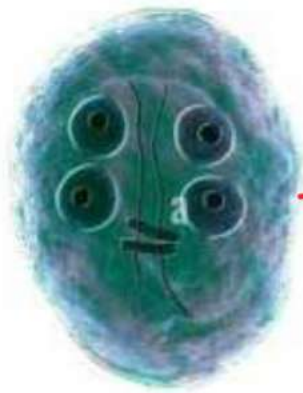
GIARDIA LAMBLIA Trophozoite

## GIARDIA INTESTINALIS



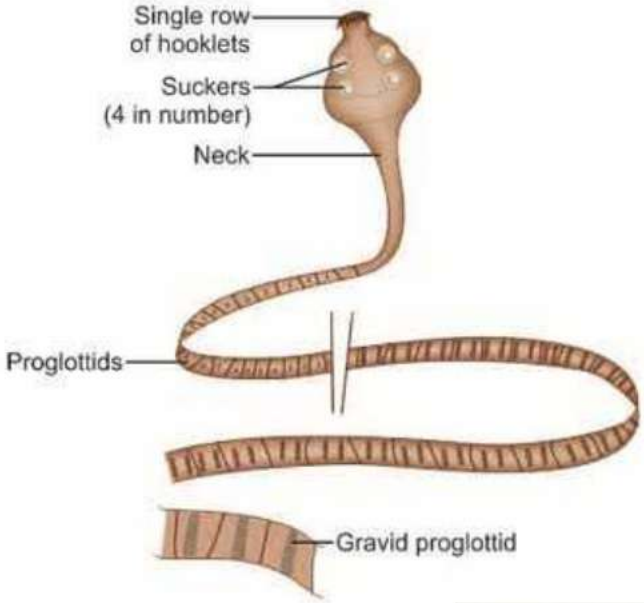
2 nuclei

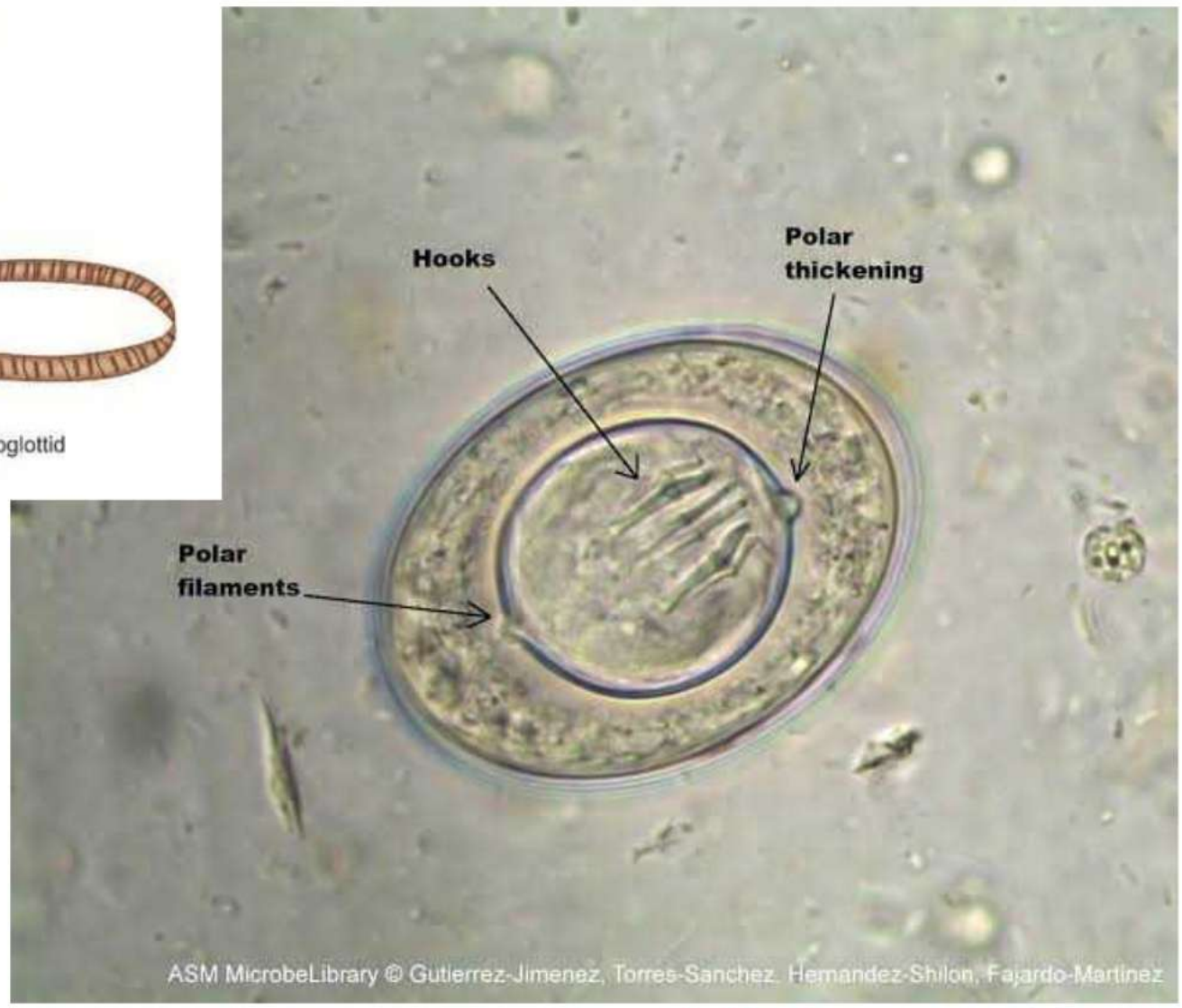
Trophozoite



→ 4 nuclei

Cyst



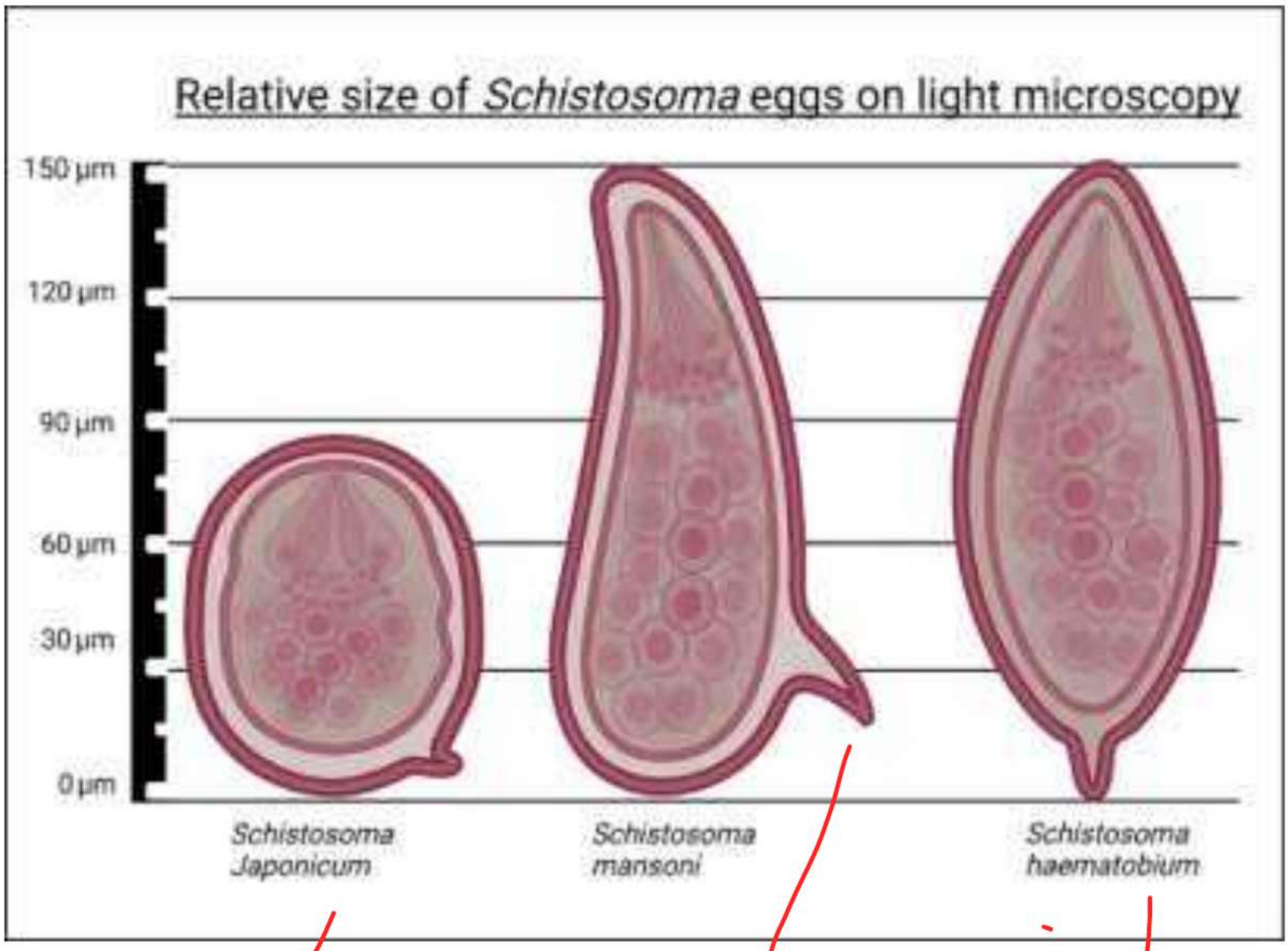




Hymenolepsis nana
(Dwarf tapeworm)

- eggs oval
- Lid like operculum (operculum)
- Longest tapeworm

# Diphyllobothrium Latum (Fish Tapeworm)

# Schistosoma (Blood Fluke)



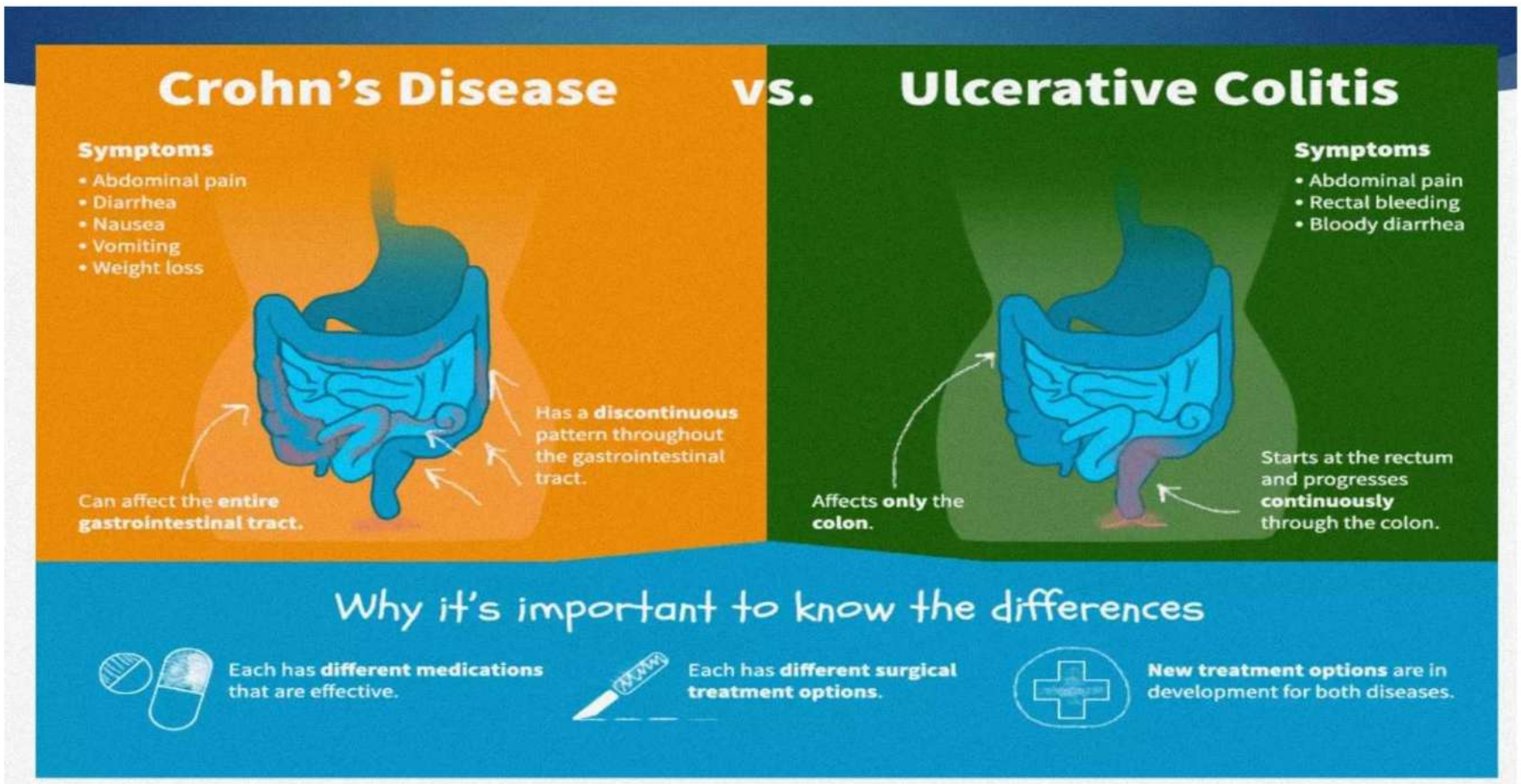

very small lateral spine (Rudimentary spine)

prominent lateral spine

terminal spine

# Ascaris Lumbricoides

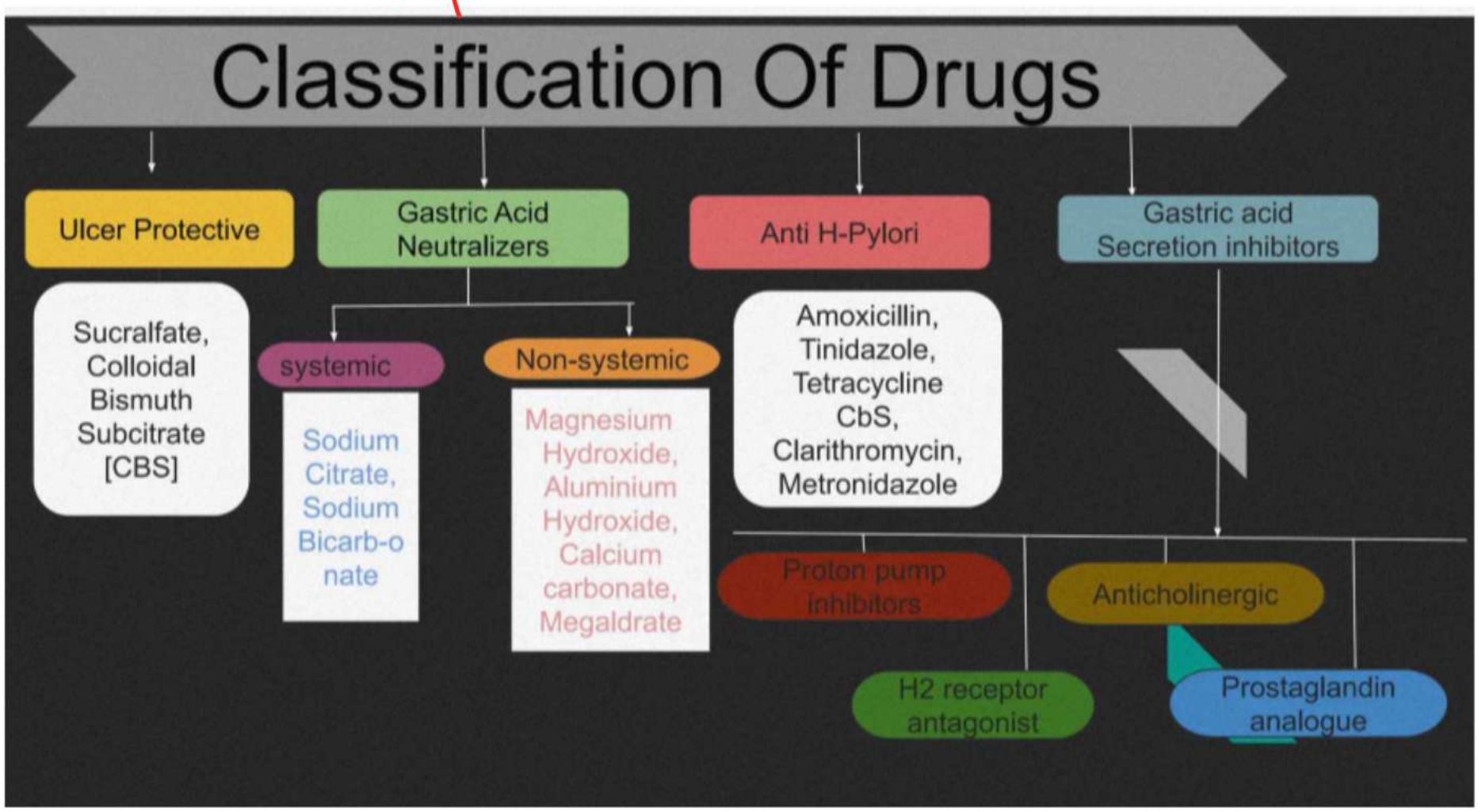
* egg is oval with an irregular surface




# Differences

| Ulcerative colitis | Crohn's disease |
|---|---|
| **Continuous** without skip areas | Segmental with **skip areas** (skip the corn) (C not for C…Continuous and colon) |
| Commonly **rectum**, **sigmoid colon** | Commonly terminal ileum and/or ascending colon |
| superficial, confined to mucosal layers : **Superficial inflammation** | involves the entire thickness of the aff ected segment of bowel wall : **Transmural inflammation** |
| Fibrosis rare | **Fibrosis common** |
| **Malignant change may occur** if > 10 yrs | Malignancy **rare** |

Peptic ulcer



# PAIN location

* Pancreatitis → Epigastric pain
* Biliary Colic → Waxing and waning Right upper Quadrant pain
* Acute cholecystitis → Right upper quadrant pain, often radiating to right scapula
* Chronic Cholecystitis → Vague Right upper quadrant pain, especially after eating

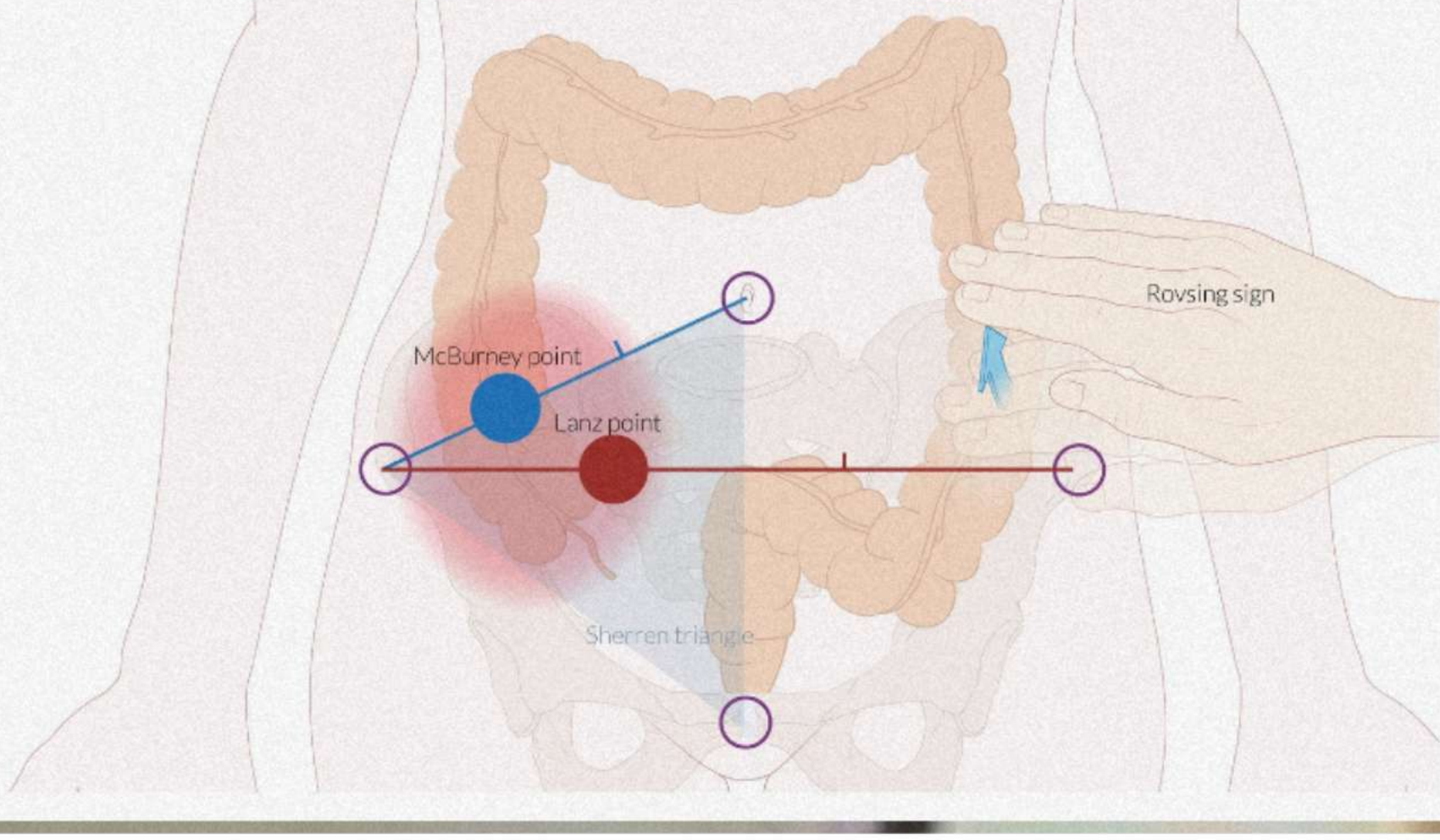
Surgery
Obstructive jaundice history
Investigations
Liver enzymes
Pruritus: (It is thought that bile salts that deposit into the skin are responsible for the pruritus (itching) )
Urine clr
Stool clr
ERCP
Potassium-competitive acid blockers (P-CABs) pharma
Vegetable poisons
Hcn external postmortem
Oxalic acid
Lead

H pylori triple regimen prescription
Enteric fever prescription
Amoebicides classification

| QUESTIONS (REMEMBER "PQRST") | THINK ABOUT... |
|---|---|
| **Provoke** | |
| *Does eating worsen the pain?* | Pancreatitis, gastric ulcer, mesenteric ischemia |
| *Does eating alleviate the pain?* | Duodenal ulcer, gastroesophageal reflux disease |
| **Quality or associated symptoms** | |
| *Is the pain associated with nausea and vomiting?* | Pancreatitis, bowel obstruction, biliary colic |
| *Is the pain "tearing"?* | Aortic dissection |
| *Is the pain "crampy"?* | Distention of a hollow tube (ie, bowel, bile duct, or ureter) |
| *Is the pain associated with emesis of undigested food?* | Esophageal obstruction |
| *Is the pain associated with emesis of undigested food with acidic, digestive juices from the stomach but no bile?* | Gastroparesis or gastric outlet obstruction |
| *Is the emesis bloody?* | Gastroesophageal reflux disease, esophageal or gastric varices, PUD, gastric cancer, aortoenteric fistula |
| **Radiation** | |
| *Does the pain radiate to the back?* | Pancreatitis, duodenal ulcer, gastric ulcer, aortic dissection |
| *Does the pain radiate to the right shoulder?* | Biliary colic, cholecystitis |
| *Does the pain radiate to the left shoulder?* | Splenomegaly or splenic infarction |
| *Does the pain radiate to the left arm or neck?* | Myocardial ischemia |
| **Severity** | |
| *Did the pain in your right lower abdomen suddenly improve from an 8 or 9 to a 2 or 3? (on a scale of 0 to 10)* | Perforated appendix |
| *Did the pain hurt the most at its onset?* | Aortic dissection |
| **Timing/treatment** | |
| *Is the pain continuous with intermittent waves of worsening pain?* | Biliary colic, renal colic, small bowel obstruction |
| *Are there multiple waves of pain that increase in intensity, then stop abruptly for short periods of time?* | Small bowel obstruction |
| *Did you recently take antibiotics?* | Colitis due to *Clostridium difficile* |
| *Does the pain occur once monthly around 2 weeks after the beginning of your menses, occasionally associated with vaginal spotting?* | Mittelschmerz |

- **Clinical signs of appendicitis**
  - McBurney point tenderness (RLQ tenderness)
    - Tenderness at the junction of the lateral third and medial two-thirds of a line drawn from the right anterior superior iliac spine to the umbilicus
    - This point corresponds to the location of the base of the appendix.
  - RLQ guarding and/or rigidity
  - Rebound tenderness (Blumberg sign), especially in the RLQ
  - Rovsing sign: RLQ pain elicited on deep palpation of the LLQ [8]
  - Psoas sign: can be performed in two different ways
    - Can be elicited on flexing the right hip with stretched leg against resistance
    - RLQ pain may be elicited on passive extension of the right hip when the patient is positioned on their left side.
  - Obturator sign: RLQ pain on passive internal rotation of the right hip with the hip and knee flexed

The location of the pain may be variable as the appendix's location varies, especially in pregnant women. [9]

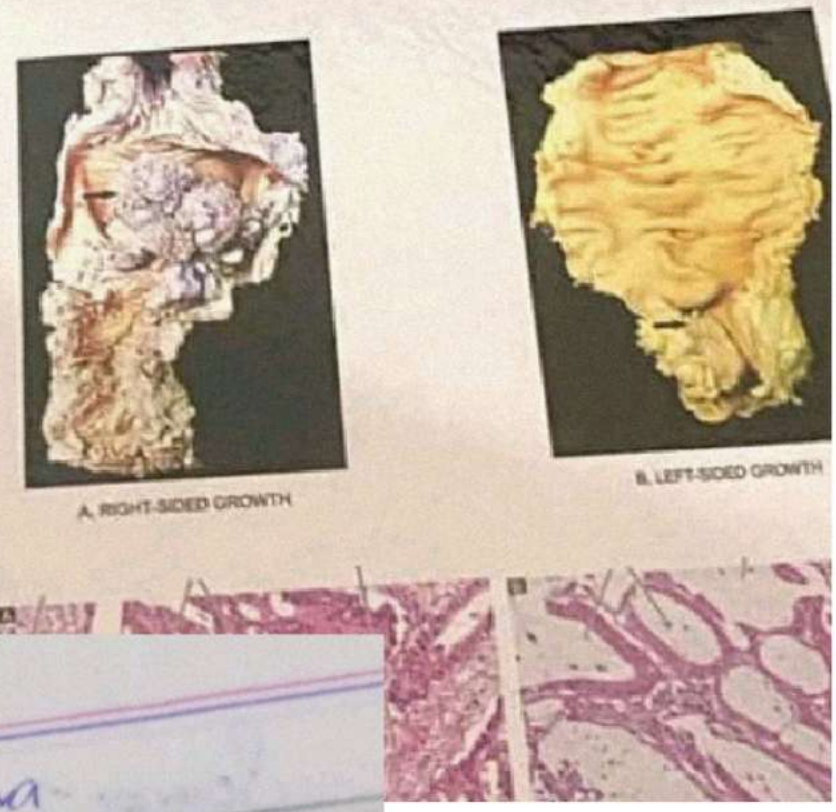


65

A 50 years old male presented with melena, abdominal pain and altered bowel habits for the last two months. His Hb is 8gms/dl. A Colonoscopy was done which showed an infiltrative lesion in the rectum. Biopsy report shows irregular small glands lined by atypical cells.

Examine the photomicrograph and answer the questions.

1) What is the most probable diagnosis? (1)
2) Give two microscopic points of identification of this lesion? (2)
3) Enlist three risk factors for this lesion? (3)




Diagnosis:- Colorectal Adenocarcinoma

2 microscopic points of Identifications:-

→ Hyperchromatic Nuclei (Pleomorphism)
→ Mucin pool
→ Invasion of Muscularis propria

3 Risk Factors:-

→ low fiber diet
→ high intake of carbohydrates & fats.
→ obesity
→ IBD
→ alcohol intake & Smoking.

**Diagnosis:-**

Gallbladder adenocarcinoma

**Most common Risk Factor:-**

Gall stones.

**Two Growth patterns:-**

1. Exophytic growth pattern
2. Infiltrating growth pattern

**Condition considered in DDs:-**

Xanthogranulomatous Cholecystitis
Gall bladder Tuberculosis

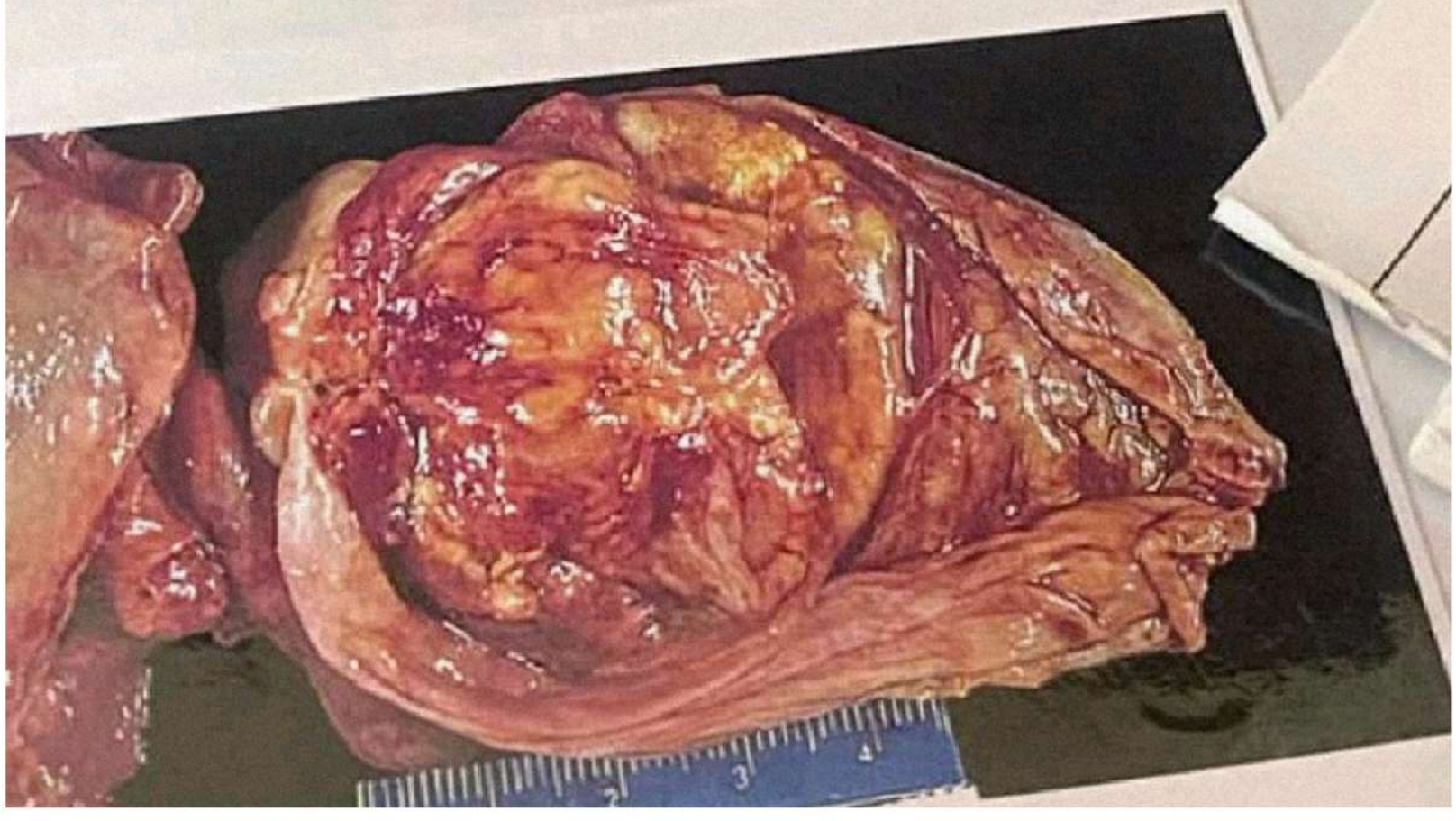
**Prognosis:** Poor prognosis

- Mean 5 year survival rate is 5%

This photograph is from a 54-year-old female presented to the emergency department with severe, constant and sharp pain in right upper quadrant of abdomen for 2 days. Initially, the pain was not constant but has become so with several episodes of vomiting. Pain is radiating to the back to the tip of right shoulder. She has experienced similar, but much less severe abdominal pain for the last 3 years. She does not report any other remarkable feature. Her past medical history is significant for obesity, hypertension, and diabetes.

By looking at scenario and photograph, answer following questions.

1. What is your diagnosis? 1
2. What is the most common risk factor for this condition? 1
3. Name two growth patterns of this condition on gross and microscopic examination 2
4. What condition can be considered in differential diagnosis of this lesion? 1
5. What is prognosis of this condition? 1



A

B

(2)

1. Identify the above shown conditions.

A.

B.

2. Enlist two characteristics of each of the above conditions. (2)
3. Enlist two differentiating features of the above two conditions. (2)

A- Kwashiorkor

B- Marasmus

**Characteristics of Kwashiorkor:-**

→ It occurs due to deffiency of protein
→ Occurs in children b/w 6 months and 3 years.

**Characteristics of Marasmus:-**

→ It develops in children due to deffiency of all micronutrients (calories)
→ It is common in infants below 1 year of age.

**Differences**

| Kwashiorkor | Marasmus |
|---|---|
| → Oedema is present | → Oedema is not present |
| → Ribs are not prominent | → Ribs are very prominent |
| → Enlarged fatty liver | → No fatty liver |
| → Lethargic | → Alert and irritable. |
| → Muscle wasting mild/absent poor appetite | → Severe Muscle wasting<br>→ Voracious feeder. |

**OSPE # 1**

A mother brought her four years child to pediatric OPD of HMC with one-week history of perianal itching. She noted that the itching occurs mostly at night. On examination the perianal area was red, irritated and excoriated. Diagnosis with Pin worm infestation was made. Treatment given and mother was warned about possible re infection.

1. Write the confirmatory test for diagnosis of pinworms infestation? [1]
2. Describe four preventive measures for pin worm infestation? [2]
3. Describe differences between reinfection and autoinfection? [2]
4. What is the treatment of choice for pinworms infestation? [1]

**Diagnosis of Pinworm infestation:-**

→ Scotch Tape Test
→ Stool sample examination under microscope.

**Preventive Measures:-** Make children to:

→ Wash hands with Soap & water
→ Keep Nails short & clean
→ Do not defecate in open, always use toilet
→ Discourage Nail biting

**Reinfection:-** It means a person was infected once, Recovered, and then again become infected due to reactivation of the same organism.

**Autoinfection:-** infection by a pathogenic agent already present in the body or infection transferred from one part of the body to another.

**Treatment:-**

→ Albendazole, Mebendazole
→ pyrantel pamoate.

Topic: Health Policy

You are working as a Public Health specialist in a non-governmental organization. Your administration has noticed a lot of workers smoking in their workplace. You have been asked to devise a POLICY for tobacco/smoking control for your organization.

**Your task is:**

Devise a policy based on following contents of policy making. (Total marks 06)
Each section carries 01 mark.

| | Content of policy | Write down your suggested Tobacco control policy |
|---|---|---|
| 1 | A *purpose statement*, | Ensure a smoke free healthy workplace |
| 2 | An *applicability and scope* statement, | Applies to all employees, visitors, and premises |
| 3 | An *effective date*, | Effective Date: 18.02.2025 |
| 4 | A *responsibilities* section, | • Management → Enforcement of policy<br>• Employees → Compliances |
| 5 | *Policy statements* | • Smoking is strictly prohibited inside all buildings and within 20 feet of entrances and exits<br>• Violation may lead to disciplinary actions including warnings and penalties |
| 6 | *Background*, | Tobacco use is a leading cause of preventable diseases and premature death. Reducing secondhand smoke is essential to safeguard the health of all employees |
| 7 | *Definitions, if any* | • Smoking → The act of inhaling, exhaling or carrying any lighted tobacco product, including cigarettes, cigars, or pipes |

4rth profes

1. Identify the disease. (1 mark)
2. Which arthropod is responsible for causing this disease? (1 mark)
3. Name species of arthropod that cause this disease. (1 mark)
4. Enlist three preventive,measures to reduce the risk of this disease at the primary level. (3 marks)

Diseases:-
Leshmeniasis ( Cutenous)

Arthropod:- Sandfly

Speies:- phlebotomus papatasi

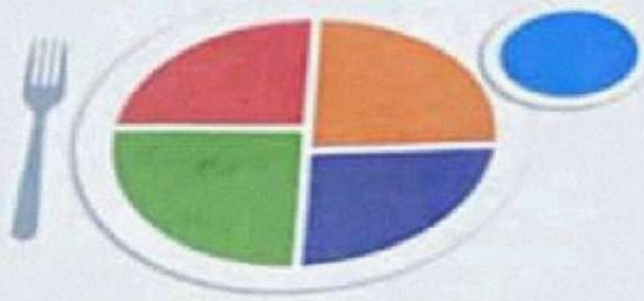
→ Avoid outdeor activities after dusk

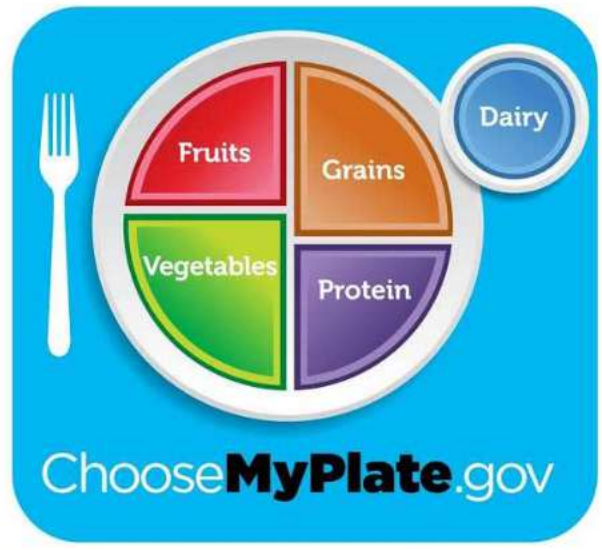
→ Use insect repellent

→ Sleeping under Bednets

→ Secure Window and deor screens

→ Use clothes which fully cover the body.



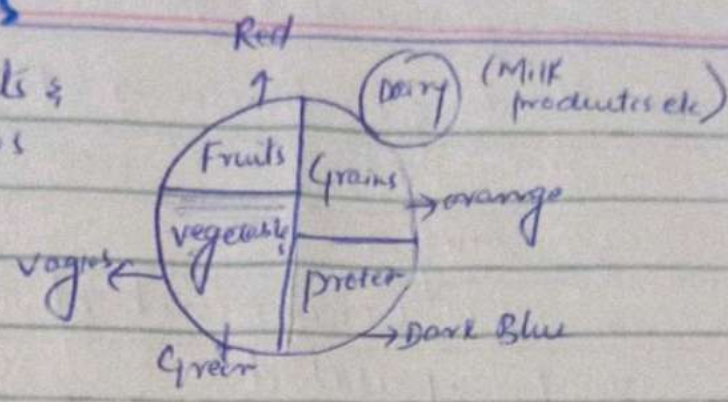



Observe the above image and answer the fo

1. Label the Red, Orange, Purple, Green and Blue portions of the diagram. [02]
2. Describe food plate? [02]
3. Enlist 5 food groups in my plate? [02]

**Labelling.**

50 % = Fruits & vagies




**Description of Food plate:-**

It is the recommended proportion of foods from each food group and focuses on the importance of making smart food choices in every food group Everyday.

**5 food Groups:** Above 5

1 → Vegetables
2 → Fruits
3 → proteins
4 → Grains
5 → Dairy products

**STATION #12**

a) Describe the mechanism of action of Arsenic. (2)

b) Describe the mechanism of action of Zinc Phosphide & Aluminium Phosphide. (1)

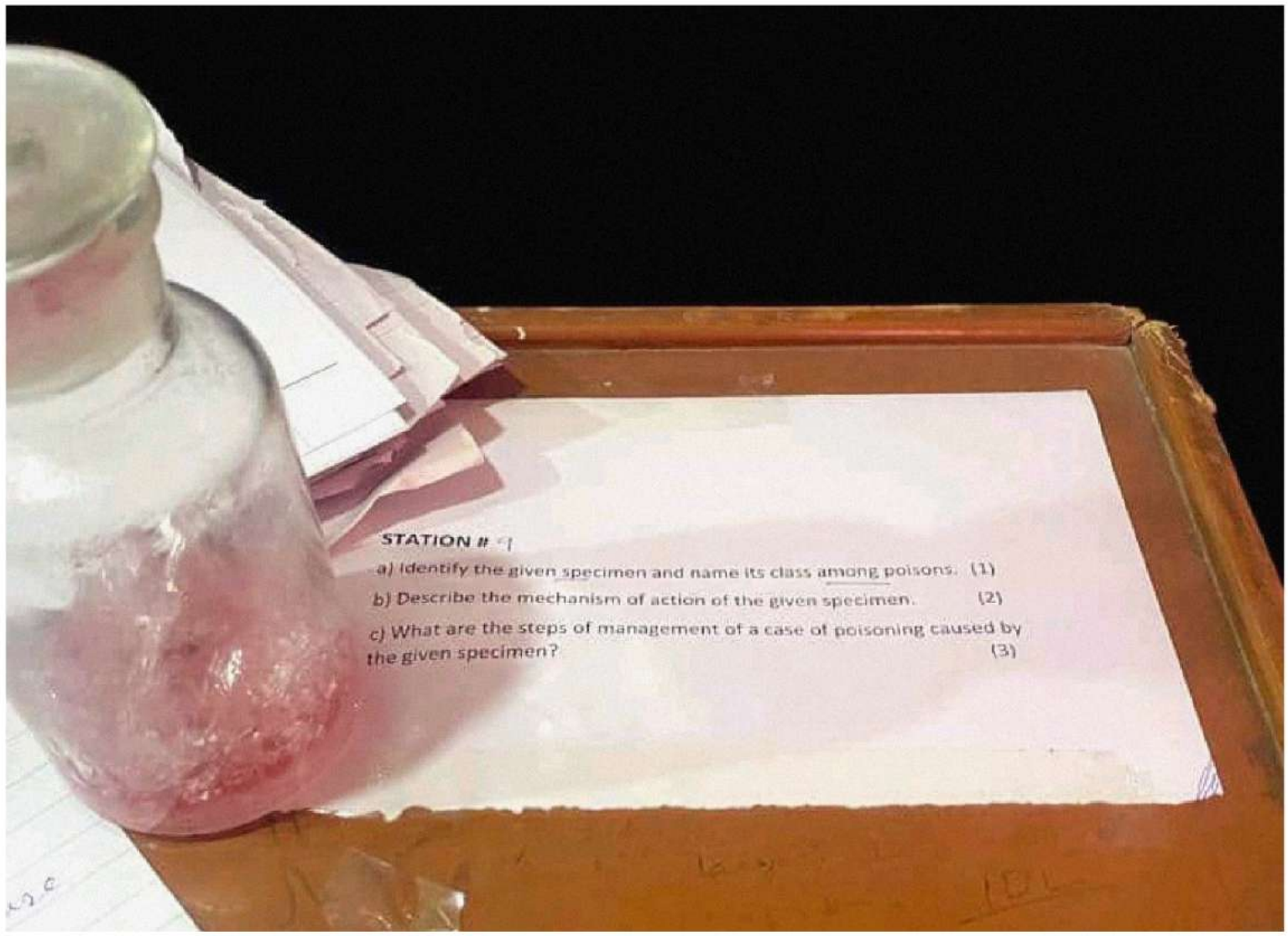
c) Write the steps of management of Phosphorus Poisoning. (3)

Arsenic MOA
* inhibit sulphydryl enzymes interfering with cellular metabolism
* Locally, it cause irritation of mucus membranes and remotely depression of nervous system

Mechanism of Action of zinc phosphide and aluminium phosphide
1. *Release of phosphine gas*: When zinc phosphide comes into contact with moisture or acid, it releases phosphine gas (PH3).
2. *Inhibition of cytochrome c oxidase*: Phosphine gas inhibits the enzyme cytochrome c oxidase, which is essential for cellular respiration.
3. *Disruption of mitochondrial function*: Inhibition of cytochrome c oxidase disrupts mitochondrial function, leading to a decrease in ATP production.
4. *Cellular damage and death*: The decrease in ATP production causes cellular damage and death, particularly in tissues with high energy demands, such as the brain, heart, and liver.

# Management of phosphorus poisoning

- Gastric lavage with $KMnO_4$
- Bowel is evacuated by brisk purgative
- Antidote → Dilute solution of $CuSO_4$



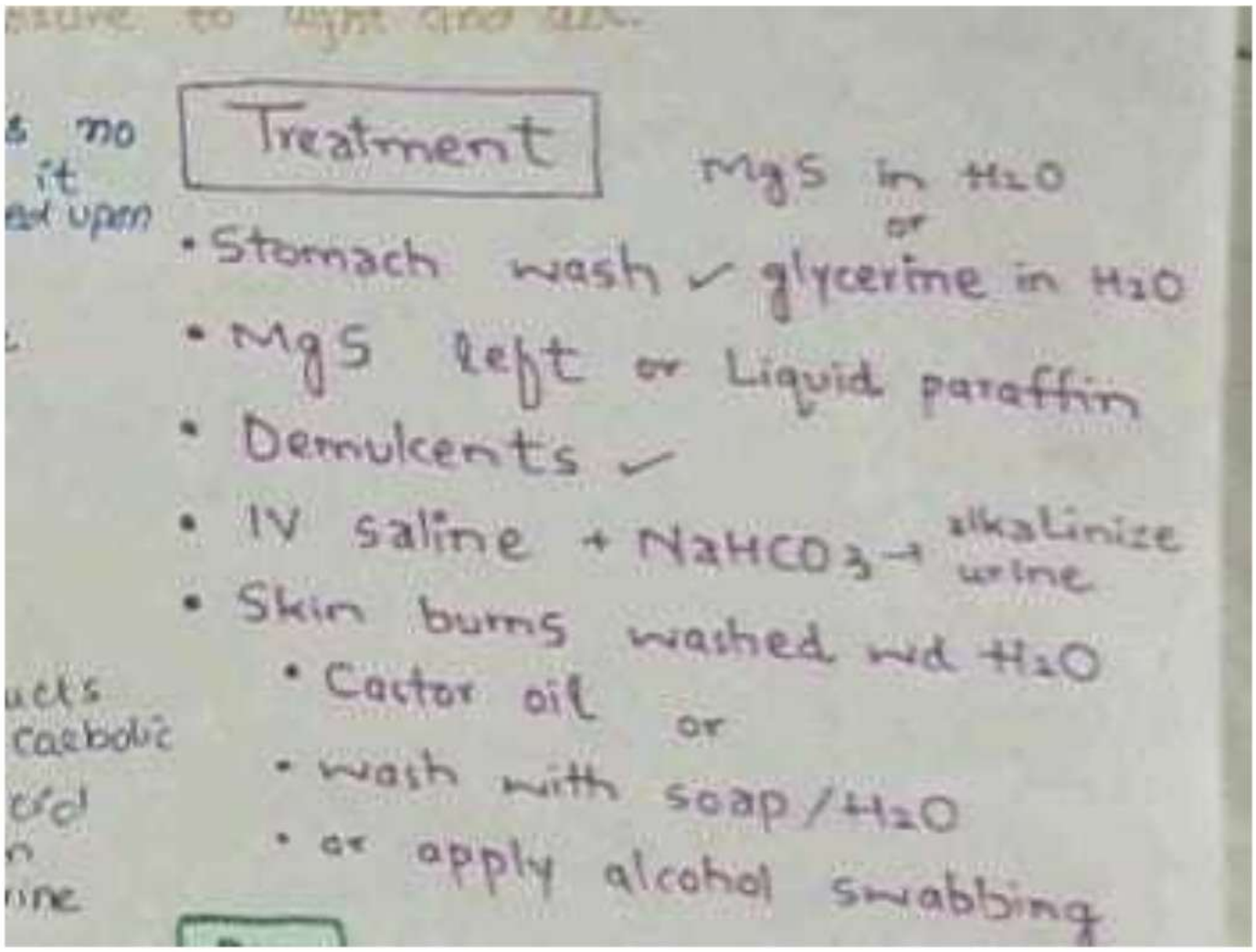

(a) Carbolic Acid / Phenol

Poison Class → Corrosive poison

(b)
- Erodes the surface with which it comes in contact due to its corrosive effect
- Extract water from tissues
- Coagulate cellular proteins

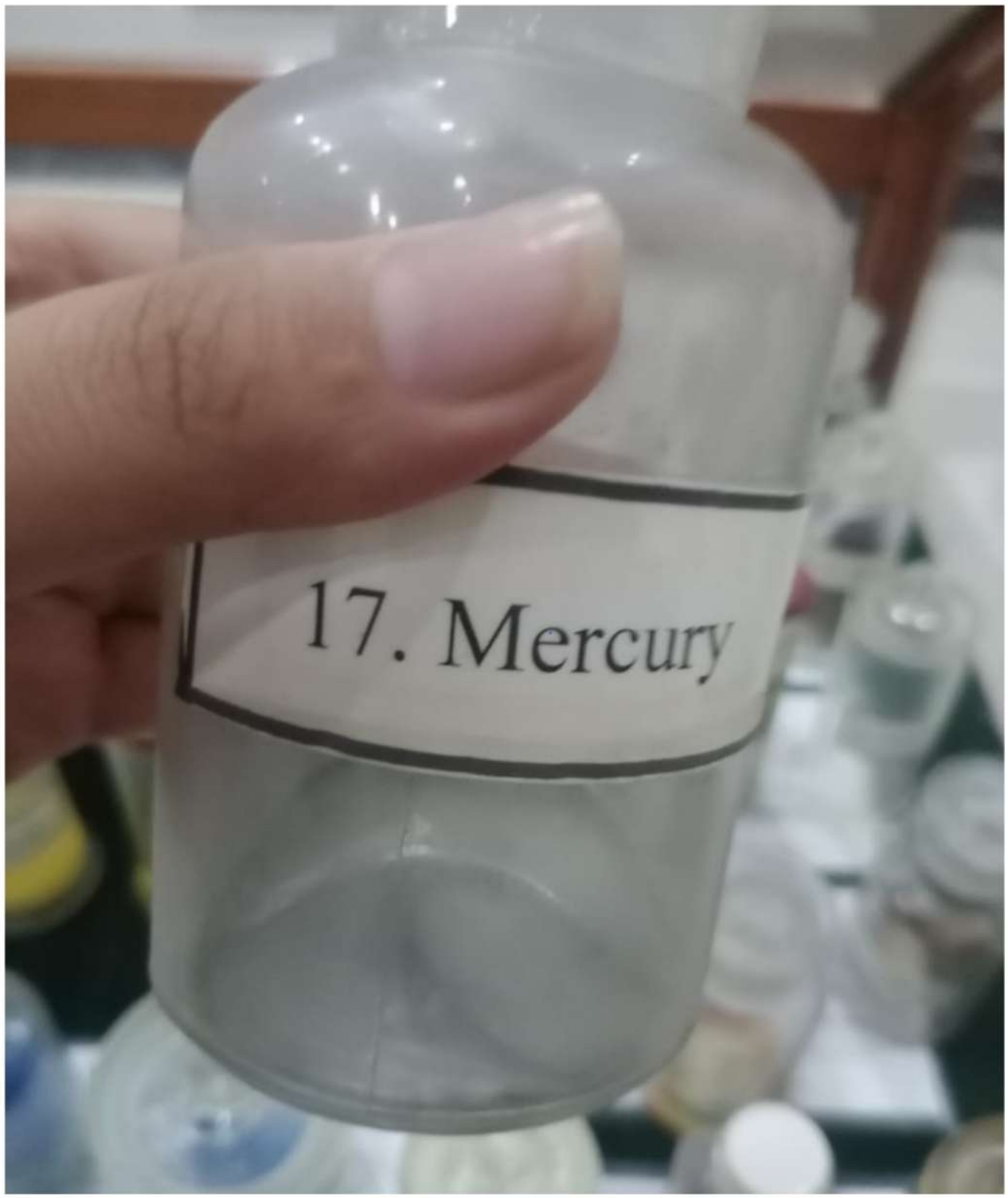
(c) Gastric Lavage using plain water to which some $MgSO_4$ is added
- Demulcents such as egg white or milk may be helpful
- IV saline with sodium bicarbonate can be administered

# Management of phenol poisoning



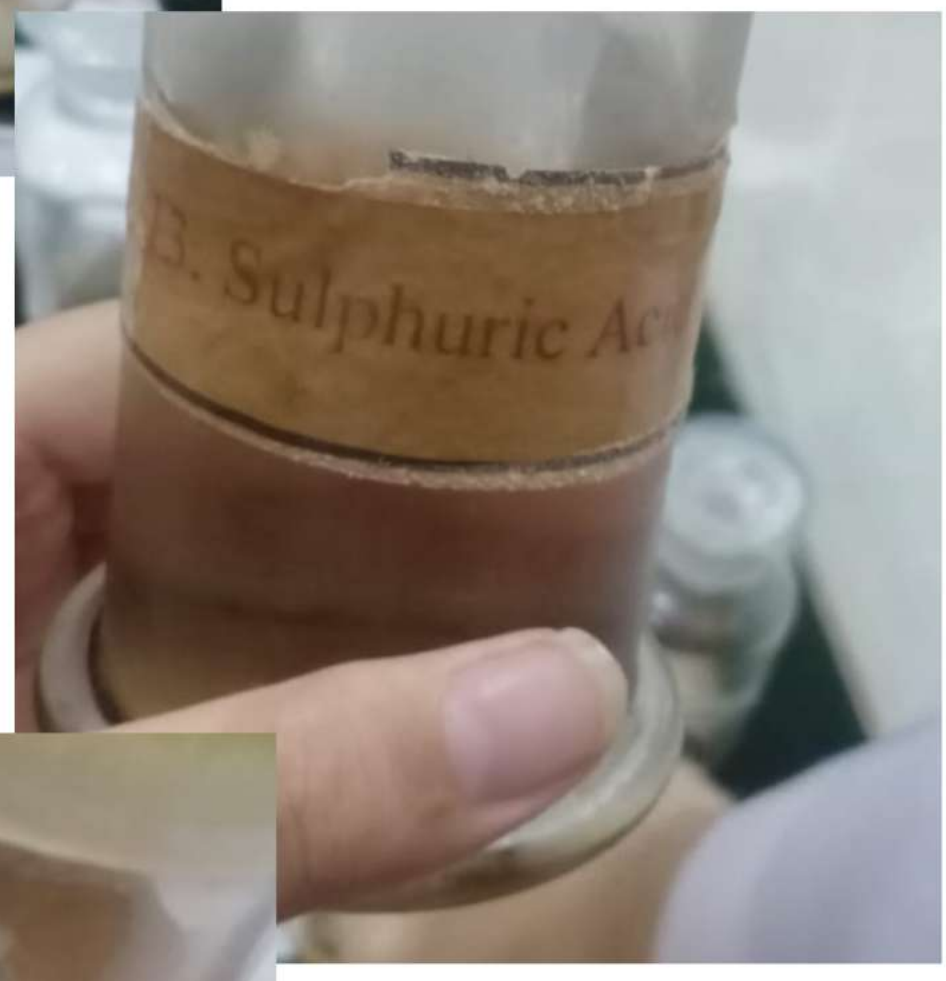

Arbus precartorius or jequirity bean
* resembles viperine snake bite
* Active principle – Abrin
* fatal dose – 1–2 seeds
* suis are made to kill cattle

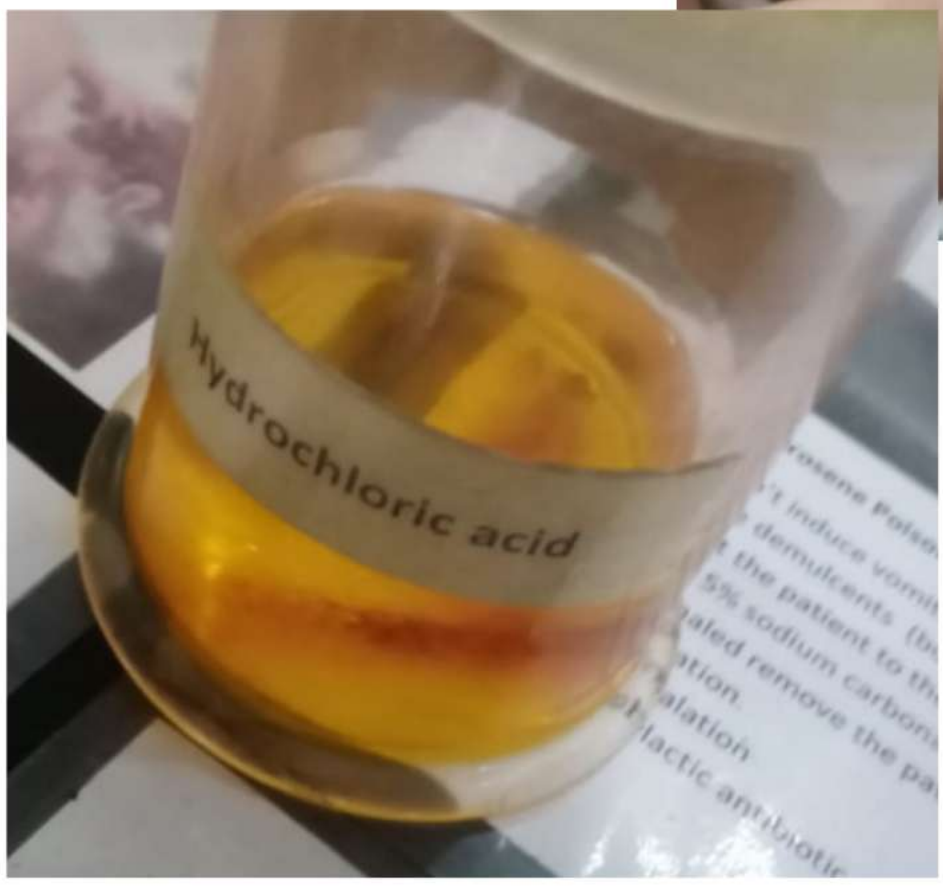

6. castor oil

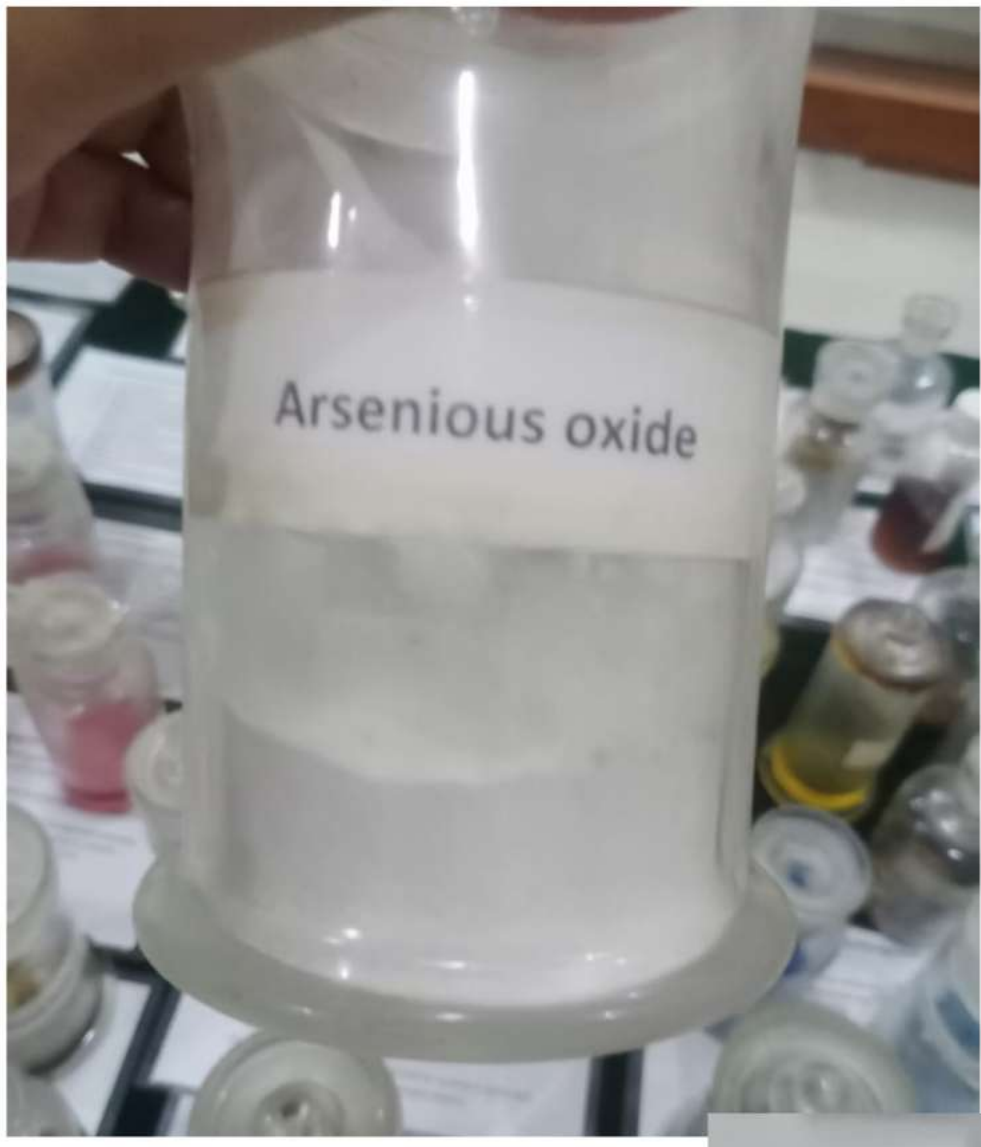

17. Mercury

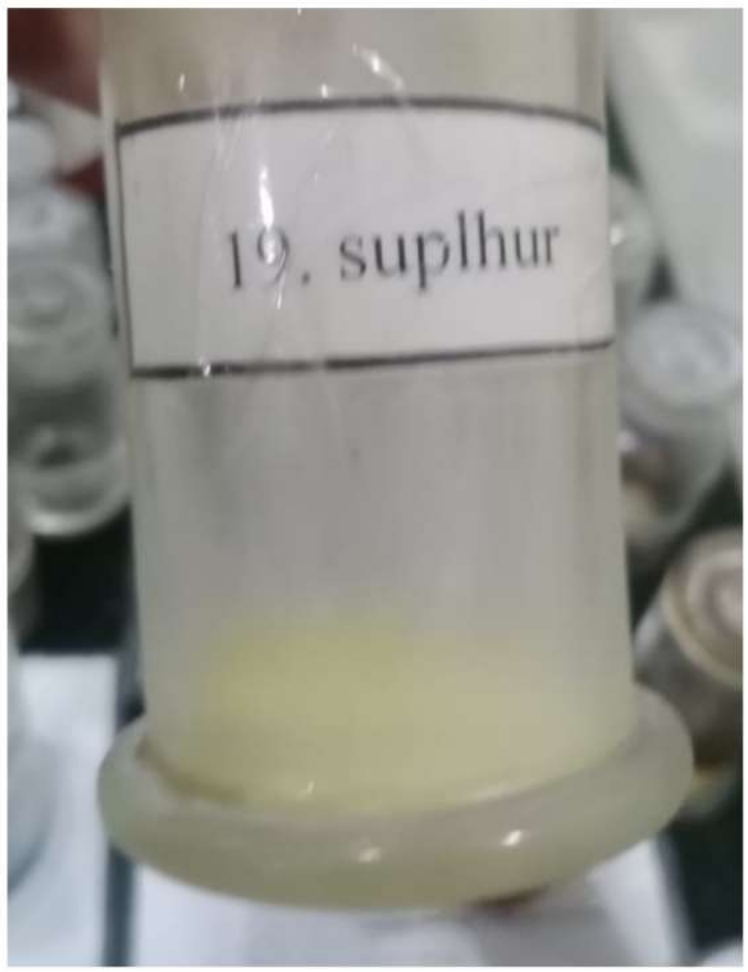

Croton Tiglium Oil
100ml

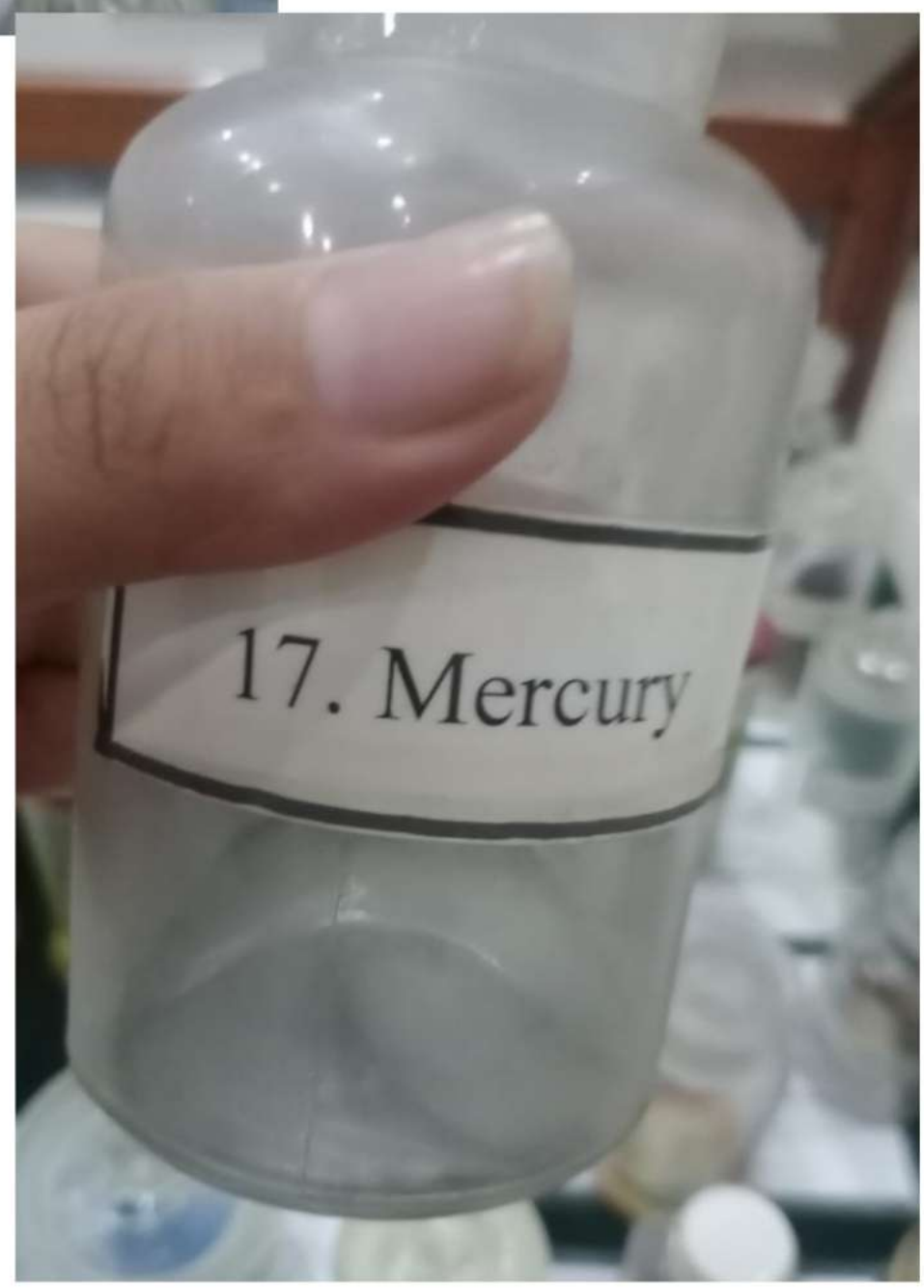

6. castor oil


B. Sulphuric Ac

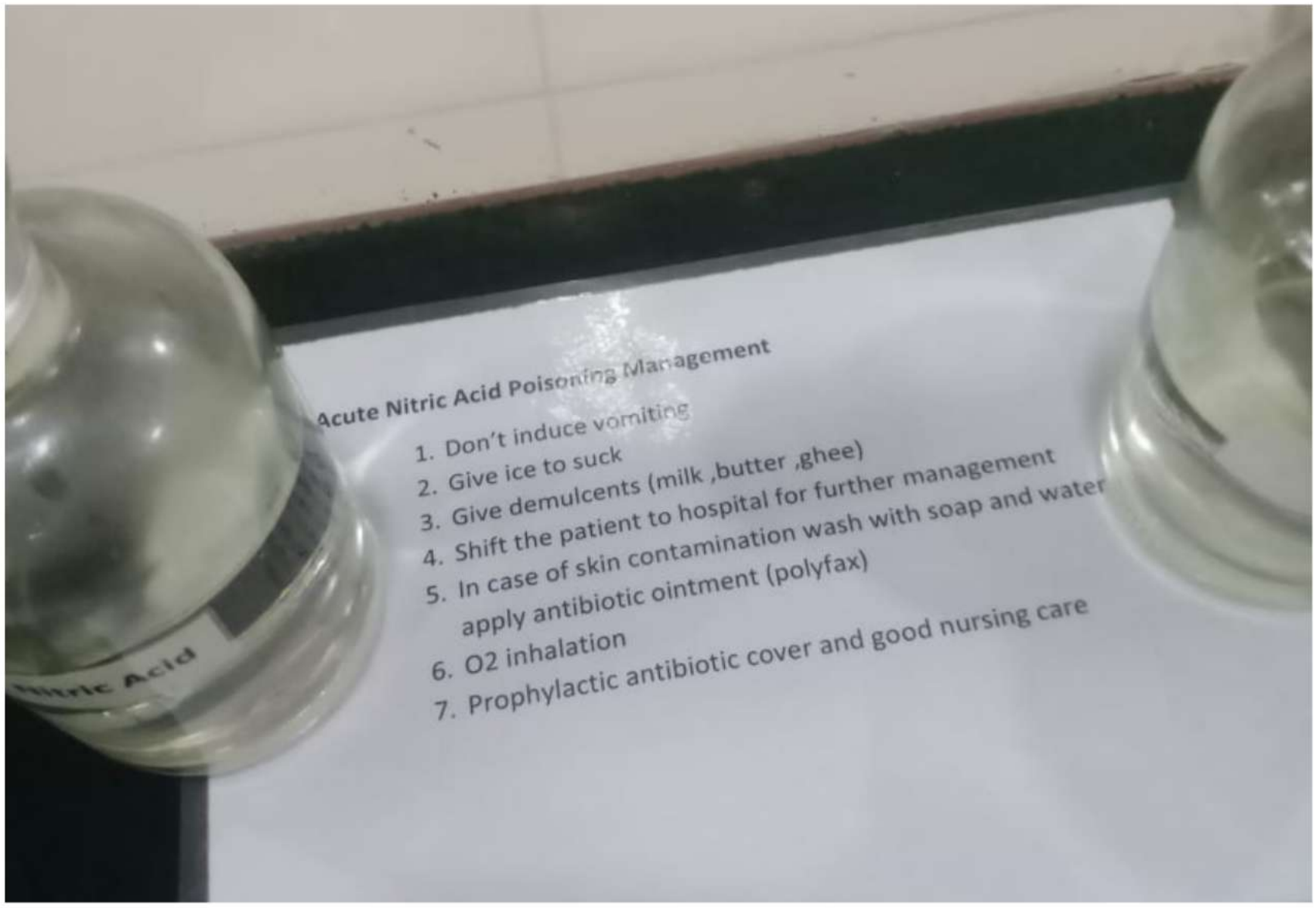

Hydrochloric acid


Arsenious oxide

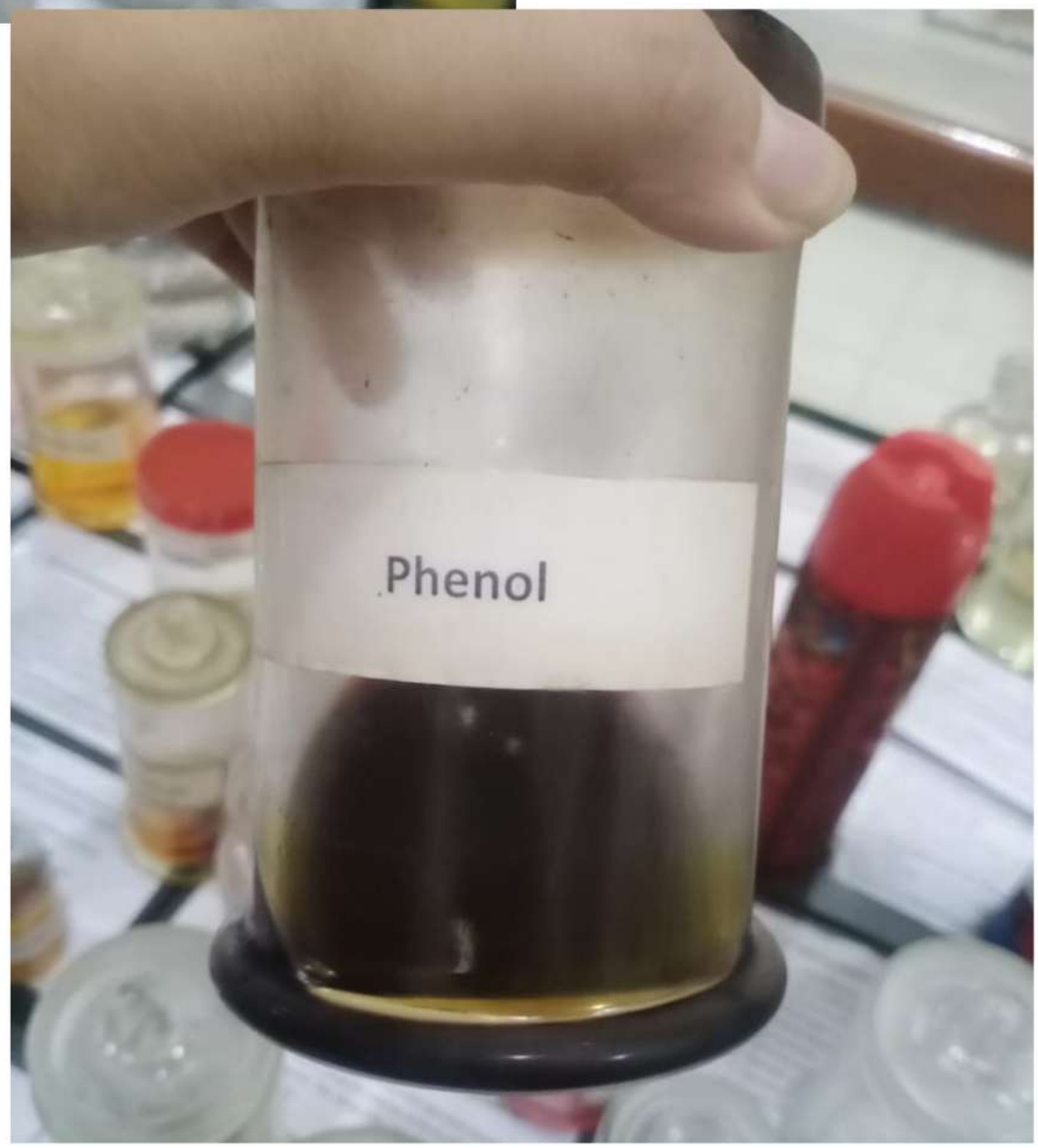

19. suplhur


17. Mercury


Marking Nut

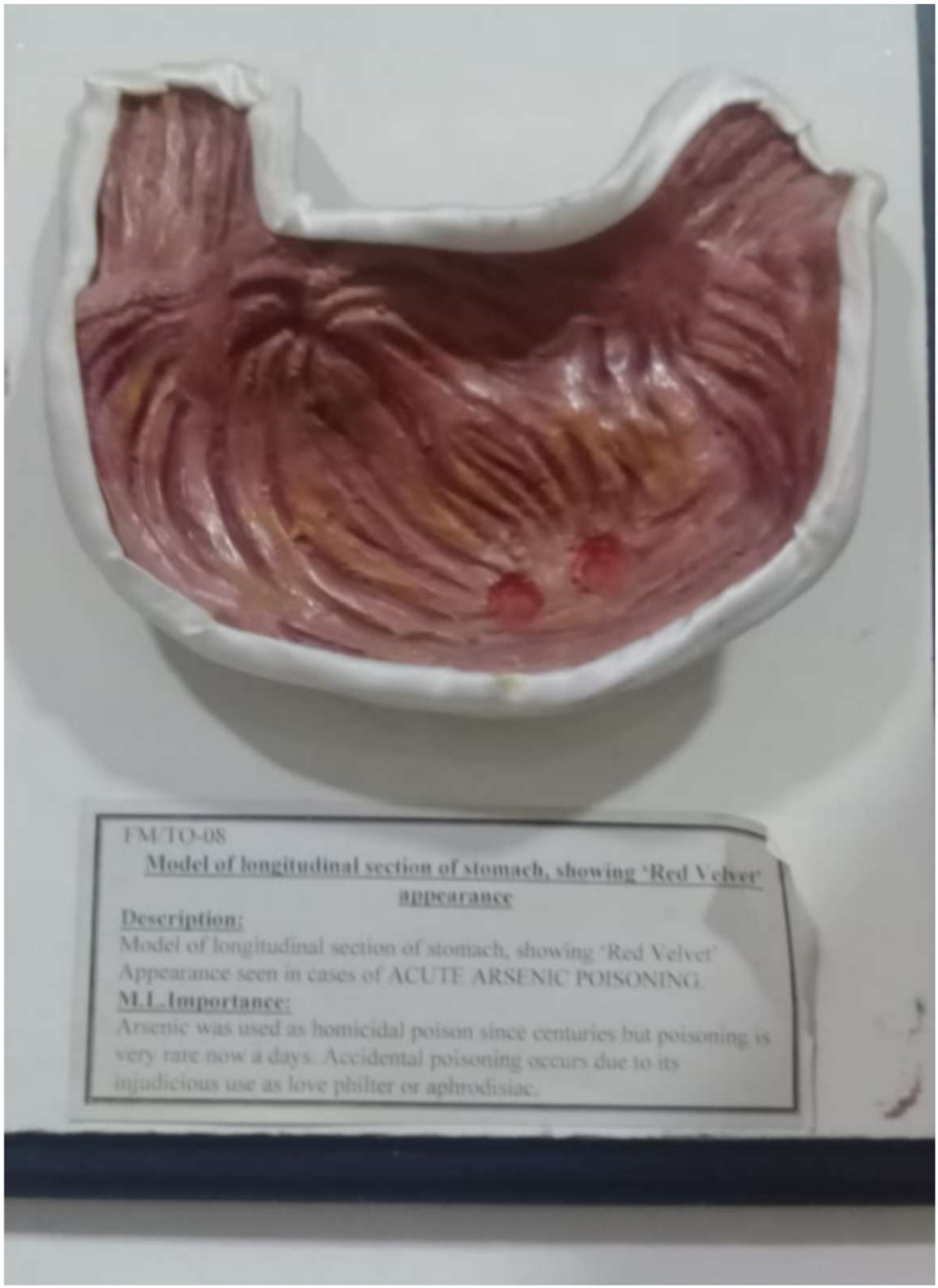

Acute Nitric Acid Poisoning Management
1. Don't induce vomiting
2. Give ice to suck
3. Give demulcents (milk ,butter ,ghee)
4. Shift the patient to hospital for further management
5. In case of skin contamination wash with soap and water
apply antibiotic ointment (polyfax)
6. O2 inhalation
7. Prophylactic antibiotic cover and good nursing care
Nitric Acid


Phenol Crystals


Phenol


curic sulphate


Copper Sulphate


FM/TO-08
Model of longitudinal section of stomach, showing 'Red Velvet' appearance
Description:
Model of longitudinal section of stomach, showing 'Red Velvet' Appearance seen in cases of ACUTE ARSENIC POISONING.
M.L.Importance:
Arsenic was used as homicidal poison since centuries but poisoning is very rare now a days. Accidental poisoning occurs due to its injudicious use as love philter or aphrodisiac.


Ricinus communis(castor oil plant)
CASTOR BEAN (Ricinus communis)

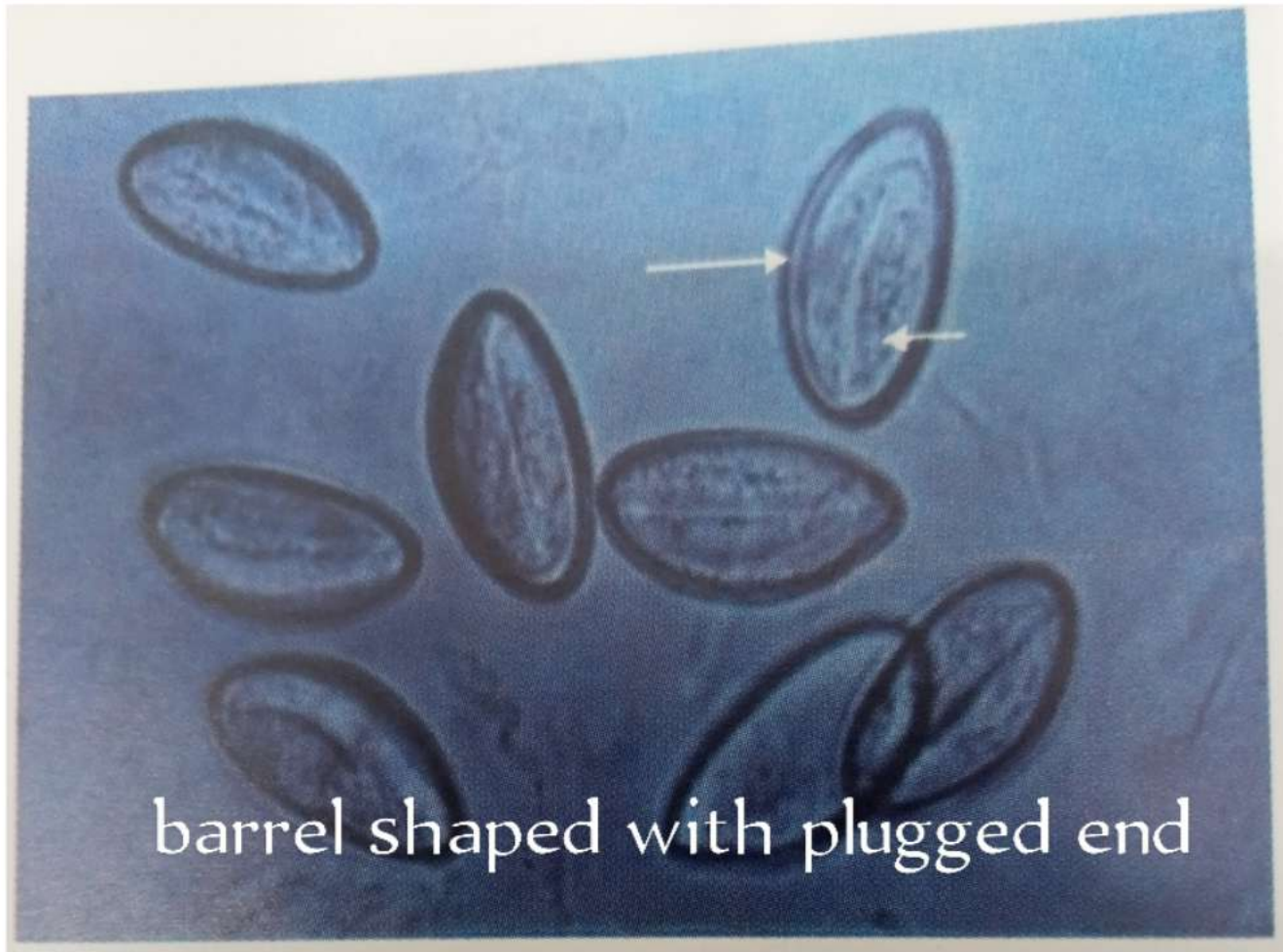
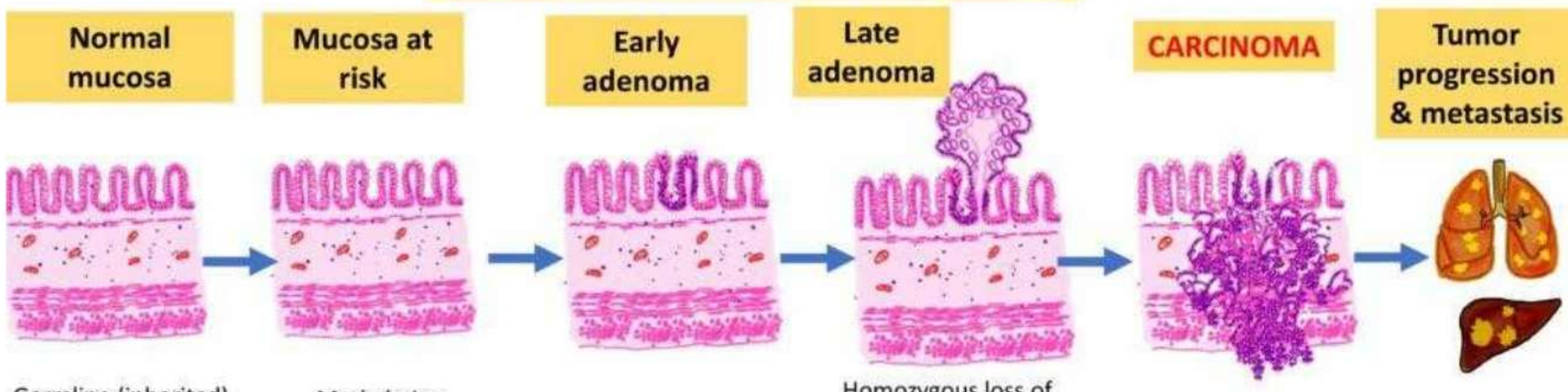



**FIGURE 56–4** *Enterobius vermicularis*—eggs. Long arrow points to an egg of the pinworm, *E. vermicularis* recovered on "Scotch tape." Short arrow points to the embryo inside the egg. (Reproduced with permis-

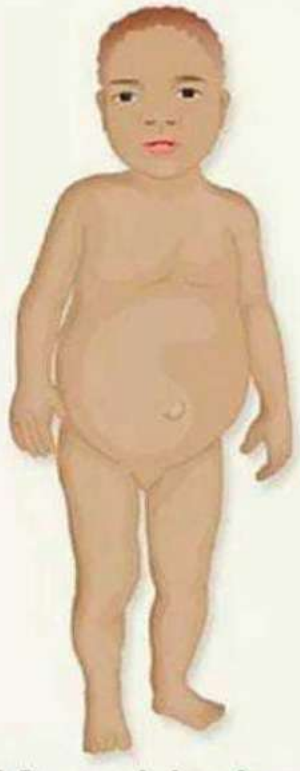

**FIGURE 56–7** *Ascaris lumbricoides*—egg. Arrow points to an egg of *Ascaris*. Note the typical "scalloped" edge of the *Ascaris* egg. (Reproduced with permission from Public Health Image Library, Centers for Diseas Control and Prevention.)

# ADENOMA-CARCINOMA SEQUENCE



# KWASHIORKOR VS MARASMUS

- In preschool children (1-5 years of age)
- Due to low protein intake
- Mild growth retardation
- Mild reduction in body weight
- Protruding abdomen and subcutaneous fat reserved
- Ribs not very prominent
- Poor appetite
- Enlarged fatty liver
- Oedema present
- Moonfacies
- Sparse hair
- Flaky paint-like skin
- Lethargic
- Requires adequate amount of protein



Kwashiorkor

- In weakened infants(<1 year old)
- Due to low calorie intake
- Severe growth retardation
- Severe reduction in body weight
- Shrunken abdomen and subcutaneous fat not preserved
- Prominent ribs
- Voracious feeder
- No fatty liver
- Oedema not present
- An old man like face
- No hair changes noted
- Dry and wrinkled skin
- Alert but irritable
- Requires adequate amount of protein, fat and carbohydrate

Marasmus

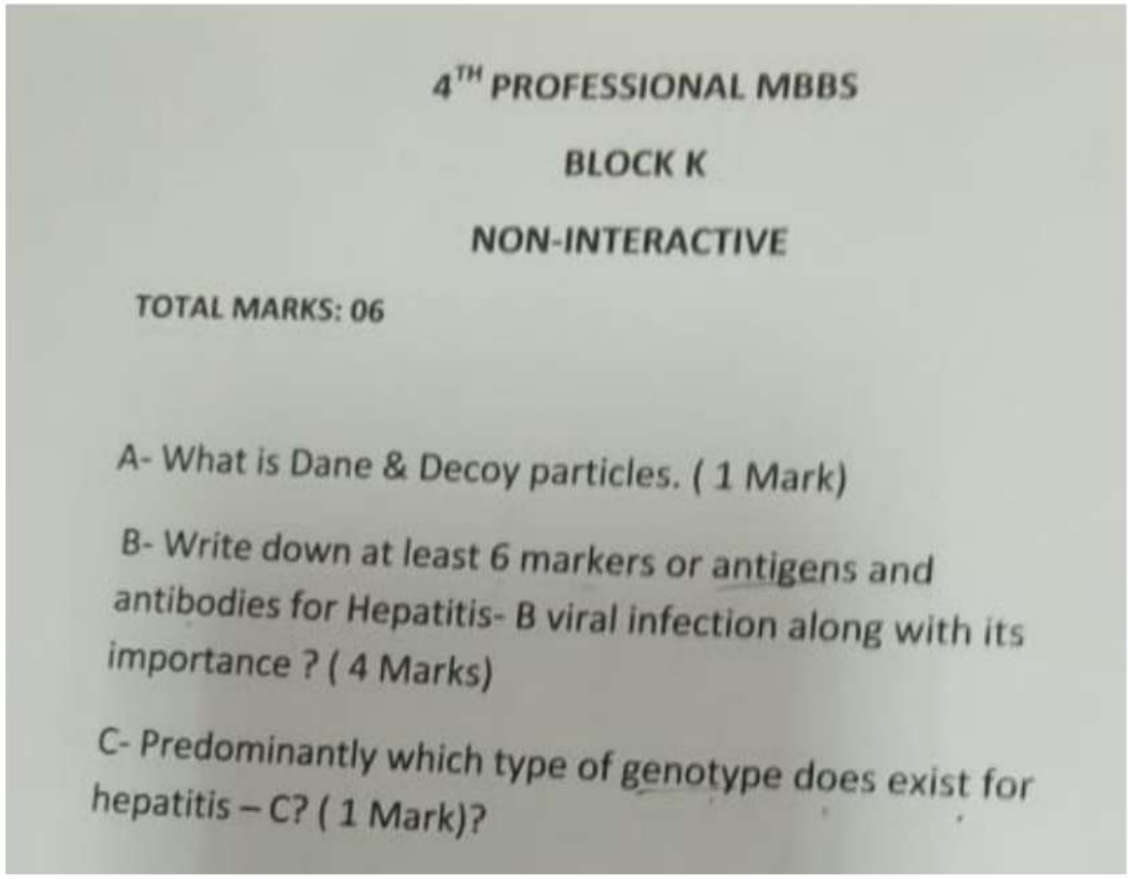
# Liver Function Tests (LFTs)

💡 Mnemonic: "BAPA" (Bilirubin, Aminotransferases, Proteins, ALP/GGT)

| Test | Normal Range | Increased In | Decreased In |
|---|---|---|---|
| **Total Bilirubin** | 0.2 - 1.2 mg/dL | Hemolysis, Liver disease | Liver failure |
| **ALT (Alanine Aminotransferase)** | 7 - 56 U/L | Hepatitis, Liver injury | Severe liver failure |
| **AST (Aspartate Aminotransferase)** | 10 - 40 U/L | Hepatitis, Alcoholic liver disease | Severe liver failure |
| **ALP (Alkaline Phosphatase)** | 44 - 147 U/L | Biliary obstruction, Bone disease | Malnutrition |
| **GGT (Gamma-Glutamyl Transferase)** | 9 - 48 U/L | Alcoholic liver disease | Not commonly decreased |
| **Albumin** | 3.5 - 5 g/dL | Dehydration | Liver disease, Nephrotic syndrome |



| Test | Normal Range | Increased In | Decreased In |
|---|---|---|---|
| **Prothrombin Time (PT/INR)** | 11 - 13 sec | Liver failure, Vitamin K deficiency | Not commonly decreased |



4TH PROFESSIONAL MBBS

BLOCK K

NON-INTERACTIVE

TOTAL MARKS: 06

A- What is Dane & Decoy particles. ( 1 Mark)

B- Write down at least 6 markers or antigens and antibodies for Hepatitis- B viral infection along with its importance ? ( 4 Marks)

C- Predominantly which type of genotype does exist for hepatitis – C? ( 1 Mark)?

A. Dane particles are the complete, infectious form of the Hepatitis B virus (HBV), containing viral DNA, core, and surface antigens.

Decoy particles are non-infectious, smaller spheres and filaments composed of HBV surface antigen (HBsAg) without viral DNA.

B. Six markers for Hepatitis B and their importance:

HBsAg – Indicates active HBV infection.

Anti-HBs – Signifies immunity (past infection or vaccination).

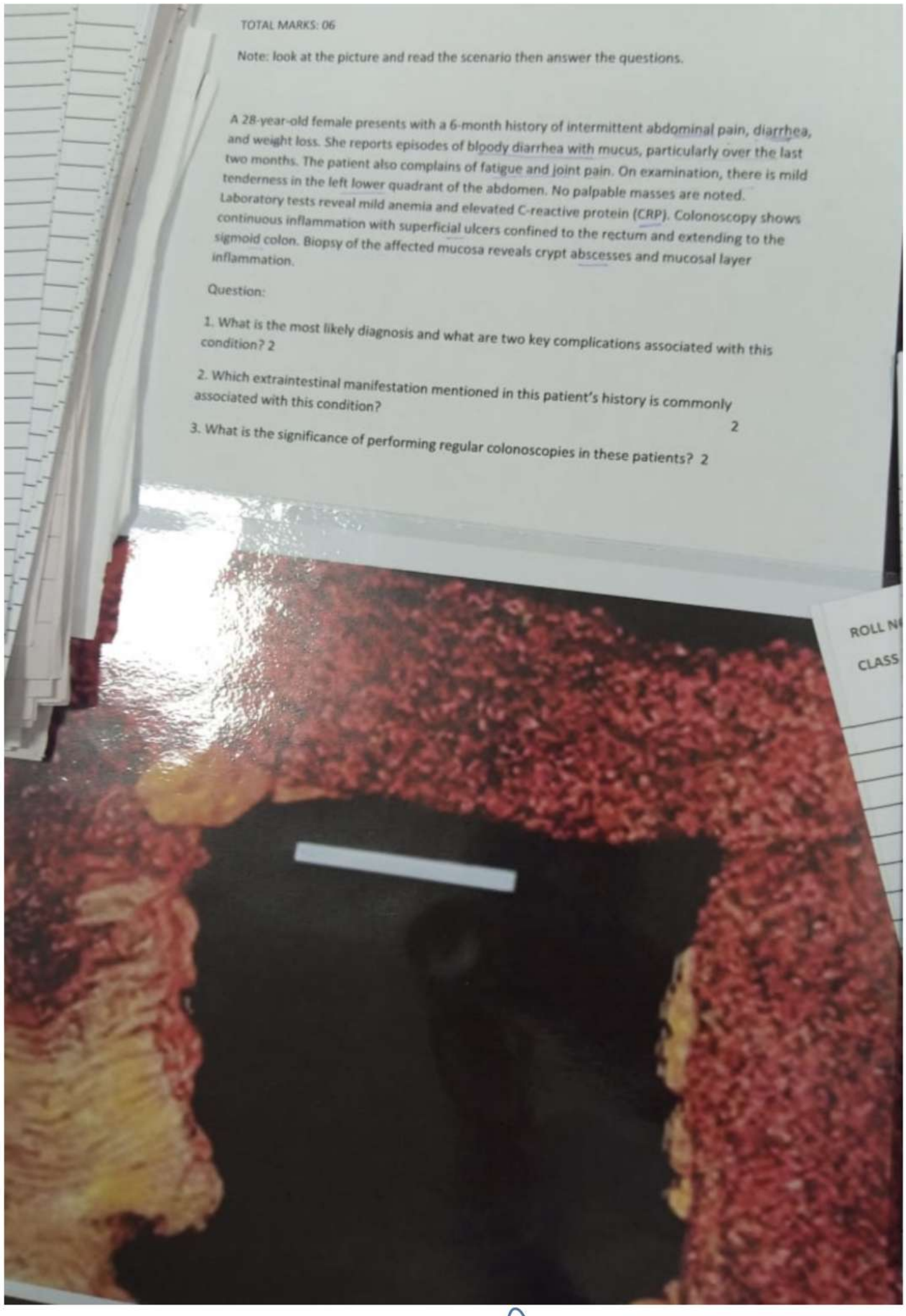
HBeAg – Suggests high viral replication and infectivity.

Anti-HBe – Indicates low infectivity and reduced replication.

HBcAg – found in liver cells, not in serum; indicates active replication.

Anti-HBc (IgM/IgG) – IgM indicates recent infection; IgG shows past infection.

C. The predominant genotype of Hepatitis C worldwide is Genotype 1, though other genotypes (2–6) also exist with regional variations.




Ulcerative Colitis

(a) • Dx → Ulcerative Colitis

. Complications

- Toxic Megacolon
- Colorectal Cancer

(2) Rash
Uveitis
Arthritis
Primary Sclerosing Cholangitis

(3) . Dysplasia and Cancer Detection

- Assessing mucosal healy
- Early detection of complications
- Monitoring disease activity

## CHRONIC HBV INFECTION TREATMENT

### Hepatitis B Drugs

1. **First-Line Antiviral Therapy**
    - **Tenofovir**: Inhibits reverse transcriptase, preventing the replication of hepatitis B virus (HBV) DNA.
    - **Entecavir**: Inhibits reverse transcriptase, blocking DNA replication, transcription, and synthesis.
2. **Alternative Antiviral**
    - **Lamivudine**: Inhibits reverse transcriptase, preventing the conversion of RNA to DNA.
    - **Adefovir**: Inhibits HBV DNA polymerase, blocking viral replication.
3. **Interferon Therapy**
    - **Pegylated Interferon-alpha**: Stimulates the immune system, enhancing antiviral activity and inhibiting HBV replication.
4. **For Acute Hepatitis B**
    - Supportive care, no antivirals unless severe.

Mechanism of action of all poisons almost

1. Sulphuric Acid

- **MOA:** Dehydrates tissues, causing **coagulative necrosis**.
- **Fatal Dose:** 5–10 ml concentrated acid.
- **Special Points:** Causes **black eschar** formation. Death is usually due to shock, perforation, or peritonitis.
- **Antidote:** No specific antidote; give **milk, egg white, or demulcents** to coat the mucosa

2. Nitric Acid

- **MOA:** Causes severe tissue corrosion via **oxidation**.
- **Fatal Dose:** 10 ml.
- **Special Points:** Turns tissues **yellow** due to the xanthoproteic reaction.
- **Antidote: Milk of magnesia or aluminum hydroxide** to neutralize acid

3. Hydrochloric Acid

- **MOA:** Protein denaturation and **liquefactive necrosis**.
- **Fatal Dose:** 10–15 ml.
- **Special Points:** Causes **white eschar** formation and severe gastric perforation.
- **Antidote: Magnesium oxide suspension** or milk

4. Carbolic Acid (Phenol)

- **MOA:** Coagulates proteins and depresses the CNS.
- **Fatal Dose:** 5–15 g.
- **Special Points:** Urine may turn **smoky or greenish-brown**.
- **Antidote: Glycerin or castor oil**, gastric lavage with **olive oil** .

5. Oxalic Acid

- **MOA:** Binds calcium to form **insoluble calcium oxalate**, leading to **hypocalcemia**.
- **Fatal Dose:** 15–30 g.
- **Special Points: Crystalline deposits in kidneys**, convulsions, and tetany occur.
- **Antidote: Calcium gluconate IV**, lime water

6. Cyanides

- **MOA: Blocks cytochrome oxidase**, preventing cellular respiration.
- **Fatal Dose:** 200–300 mg of potassium cyanide.
- **Special Points: Bitter almond odor**, bright red blood due to oxygen retention.
- **Antidote: Amyl nitrite, sodium nitrite, sodium thiosulfate**.

7. Copper

- **MOA: Inhibits cellular enzymes**, causing gastrointestinal and hepatic toxicity.
- **Fatal Dose:** 10 g copper sulfate.
- **Special Points: Greenish-blue vomiting**, jaundice, and hemolysis.

Difference between action of mineral acids and vegetable acids!

| Aspect | Mineral Acids | Vegetable Acids |
|---|---|---|
| **Examples** | Sulphuric, Nitric, Hydrochloric Acid | Oxalic Acid, Acetic Acid |
| **Action** | Strong corrosive, coagulation necrosis | Mild corrosive, combines with calcium |
| **Local Effects** | Severe tissue destruction, discoloration | White mucous membrane, less tissue damage |
| **Systemic Effects** | Rare unless large quantity absorbed | Hypocalcemia, kidney damage (oxaluria) |
| **Postmortem Findings** | Perforation common, extensive corrosion | Perforation rare, dark brown gelatinous stomach content |
| **Toxicity** | Local destruction and shock | Remote toxic effects on calcium and kidneys |

6.Forensic viva
Uses of phosphorus
Phosphorus mechanism of action
Types of burns caused by phosphorus

**1. Uses of Phosphorus:**

- **Match Industry:** Used in making match heads and matchbox striking surfaces.
- **Pesticides and Rodenticides:** Yellow phosphorus is used in rat poison.
- **Fireworks and Pyrotechnics:** Provides illumination and creates colorful sparks.

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- **Alloy and Metallurgical Industry:** Component of special alloys and phosphor bronze.
- **Fertilizers:** Phosphorus compounds are essential in agriculture for fertilizers.

**2. Mechanism of Action of Phosphorus:**

Phosphorus is a **protoplasmic poison** that affects cellular oxidation. Its action is comparable to ischemia, causing reduced cellular metabolism under anoxic conditions. This leads to:

- Inhibition of glycogen deposition in the liver.
- Increased fat deposition (fatty degeneration).
- Necrobiosis in organs, especially the liver.

**3. Types of Burns Caused by Phosphorus:**

- **Slow Healing Burns:** Contact with phosphorus causes deep, slow-healing burns.
- **Vesication (Blister Formation):** When phosphorus is dissolved in carbon disulfide, it gets oxidized by air and ignites when the solvent evaporates, leading to vesication.
- **Keloid Scarring and Disfigurement:** Burns may be followed by keloid scar formation and disfigurement.