Cerebellum

Get the balance right

BTR Microbiology 30-09-2025

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1. A 70-year-old diabetic woman comes to the physician complaining of progressive, severe pain and discharge from her left ear for the past 2 days. On examination, moving or touching the pinna produces extreme pain. Otoscopic examination shows granulation tissue in the left ear canal with a scant amount of discharge. Which of the following microbiological characteristics best describes the infecting organism?

A. Comma-shaped and grows well in high pH

B. Fast lactose fermenter

C. Motile and oxidase positive

D. Nonmotile and a lactose nonfermenter

Member	Motility	LF/NLF	IMViC	Urease
E. coli	M	LF	++--	-ve
Klebsiella	NM	LF	--++	+ve
Enterobacter	M	LF		-ve
Citrobacter	M	LF		-ve
Shigella	NM	NLF	-+--	-ve
Salmonella	M/NM	NLF	-+-+	-ve
Proteus	M	NLF		+ve
Yersinia	M/NM	NLF	-+--	-ve
Pseudomonas	M	NLF	---+	-ve

+ve = red color for IMV tests, blue for citrate test

Urease Positive Organisms

Proteus
- Cryptococcus
- Helicobacter
- Ureaplasma
- Nocardia
- Klebsiella
- Staph saprophyticus
- Staph epidermidis

2. Anti-larval measures are being taken for a pond in a city. Which of the following synthetic insecticides are not recommended for such measures?

A. Fenthion
B. Paris green
C. DDT
D. Abate

INTEGRATED VECTOR CONTROL

ANTI-LARVAL MEASURES

Chemical:
Paris green= Stomach poison
Temephos/Abate = Contact poison

Biological: Gambisia / Guppy
Bacillus thuringiensis

Environmental control

ANTI-ADULT MEASURES

Space spray: LOW API
Malathion
Cyphenothrin
Pyrethrum

Residual spray: HIGH API
DDT (2 rounds)
Malathion (3 rounds)
Deltamethrin (2 rounds)

PERSONAL PROTECTION

Deltamethrin

-ITBN: 6mon

-LLIN:3yrs

0.0475inch

>150 holes/ich

3. Which of the following are features of severe dengue

1. AST and ALT are more than 1000 IU

2. Hepatomegaly >1cm

3. Leucopenia plus thrombocytopenia

4. Severe bleeding

5. Vomiting

A. 1, 2 ,3

B. 1, 4

C. 1, 3, 4

D. 1, 2, 3, 4, 5

DENGUE WITHOUT WARNING SIGNS

Fever + any 2

- **Leukopenia**
- **Positive tourniquet test**
- Rash
- Nausea, Vomiting
- Aches and pains

DENGUE WITH WARNING SIGNS

- **Rapid fall in platelets**
- **Rising hematocrit**
- **Hepatomegaly >2 cm**
- **Clinical fluid accumulation**
- **Mucosal bleed**
- Abdominal pain
- Persistent vomiting
- Lethargy/restlessness

SEVERE DENGUE

- Severe plasma leakage (**shock, fluid accumulation**, respiratory distress)
- Severe **bleeding**
- Severe **organ impairment** (**AST/ALT >1000,** CNS involvement, myocarditis, etc.)

4. Under NVBDCP, the drug combination shown below can be given under which dose combination?

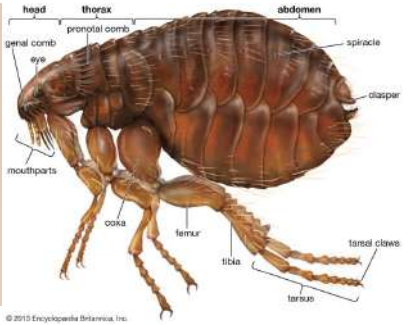
A. 80 mg, 480 mg
B. 25 mg, 12.5 mg
C. 120 mg, 200 mg
D. 400 mg, 50 mg

Organism	Drugs and Dosage
UNCOMPLICATED MALARIA	
P. vivax/ovale	•**Chloroquine (CQ)** 25 mg/kg: DAY 1-3 •**Primaquine (PQ)** 0.25 mg/kg: DAY 1-14
P. falciparum/ malariae	All Indian States (except northeastern): ACT-SP •**Artesunate** 4 mg/kg: DAY 1-3 •**Sulfadoxine + Pyrimethamine**, 25 mg/kg + 1.25 mg/kg : ONLY DAY 1 •**Primaquine** 0.75 mg/kg: ONLY DAY 2 Northeastern States: ACT-AL(due to SP resistance) •**Artemether + Lumefantrine:** DAY 1-3 •**Primaquine** 0.75 mg/kg: ONLY DAY 2
Mixed infections: Vivax + Falciparum	For All Indian States (except northeastern): ACT-SP •**Aretsunate** 4 mg/kg: DAY 1-3 •**Sulfadoxine + Pyrimethamine,** 25 mg/kg + 1.25 mg/kg : ONLY DAY 1 •**Primaquine** 0.25 mg/kg: DAY 1-14 For Northeastern States:ACT-AL •**Artemether + Lumefantrine:** DAY 1-3 •**Primaquine:** DAY 1-14
COMPLICATED MALARIA (Seizures, hypoglycemia, pulmonary edema and neurological deficits)	
P. falciparum (predominantly)	Initial Treatment: **IV Artesunate** at 2.4 mg/kg for 3 days. •Three doses at 0,12, and 24 hours on DAY 1 •Single dose on DAYS 2 and 3 After stabilisation: State based **Oral Artemisinin-based Combination Therapy (ACT)** for 3 days.

5. Identify the disease transmitted by the vector shown in the image:

A. Epidemic typhus
B. Endemic typhus
C. Q fever
D. Scrub typhus

ENTOMOLOGY



Transovarian transmission

Cheopsis index:

6. Criteria for discharging patients of dengue includes all except:

A. Absence of fever for at least 24 hours without the use of anti-fever therapy
B. Return of appetite
C. Minimum of three days after recovery from shock
D. Platelet count of more than 20,000/mm

The WHO discharge criteria for dengue patients include:

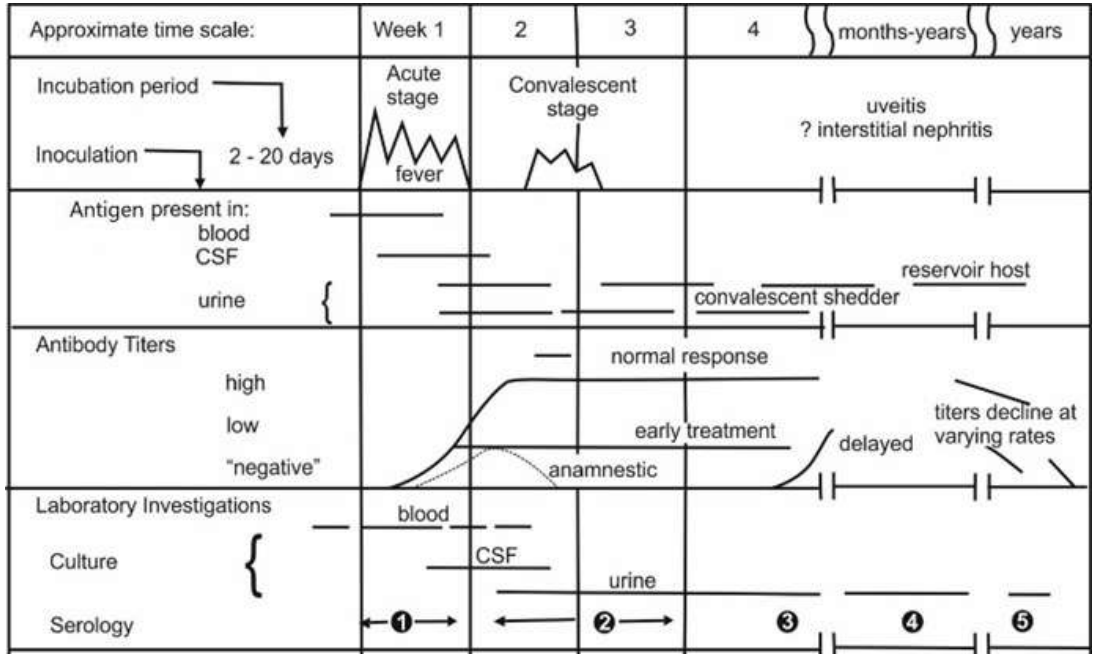
- No fever for at least 24 hours without antipyretics.
- Stable vital signs for at least 24 hours.
- Improvement in clinical status (well-being, appetite, urine output).
- Stable hematocrit without intravenous fluids.
- Platelet count >50,000/mm^3
- 2–3 days after recovery from shock

7. All of the following are true about NVBDCP except:

A. Most effective method of malarial control is personal protection
B. Long Lasting Insecticide Nets (LLIN) should be provided in areas with Annual Parasite Index ≥ 5.
C. Indoor Residual Sprays are useful in rural areas.
D. In case of DDT resistance, 3 rounds of spraying with Malathion should be done to provide protection during the entire transmission season.

8. Following is a graphic representation of a patient admitted in medicine ward with fever. What could be the possible diagnosis?

A. Cerebral malaria
B. Leptospirosis
C. Brucellosis
D. Typhoid



9. A 31-year-old pregnant lady comes with dysuria and urethral discharge for 3 days. NAAT for gonorrhea was negative. What is the true statement regarding the condition the patient is most likely to have?

A. The elementary body is the infectious form of the causative organism.
B. Applying erythromycin to the newborn's eyes prevents the disease.
C. Infection in pregnant women is treated with doxycycline.
D. Genital disease is caused by serotypes A, B, and C

- **Elementary body (EB):** small, metabolically inactive, extracellular, **infectious form**.
- **Reticulate body (RB):** intracellular, metabolically active, replicative form.

10. Which characteristic forms the basis for categorizing streptococci according to the Lancefield system?

A. C-substance
B. Glycoprotein O
C. Muramic acid
D. M-protein

11. Identify the correct agent-disease pairings from the list provided:

1. Lyme disease — Borrelia burgdorferi
2. Cat-scratch disease — Bartonella henselae
3. Glanders — Burkholderia mallei
4. Rat bite fever — Borrelia recurrentis
5. Trench fever — Bartonella bacilliformis

A. 1, 3, 4

B. 1, 2, 3

C. 2, 3, 4

D. 3, 4, 5

12. Which of the following is the most likely cause of this patient's condition?

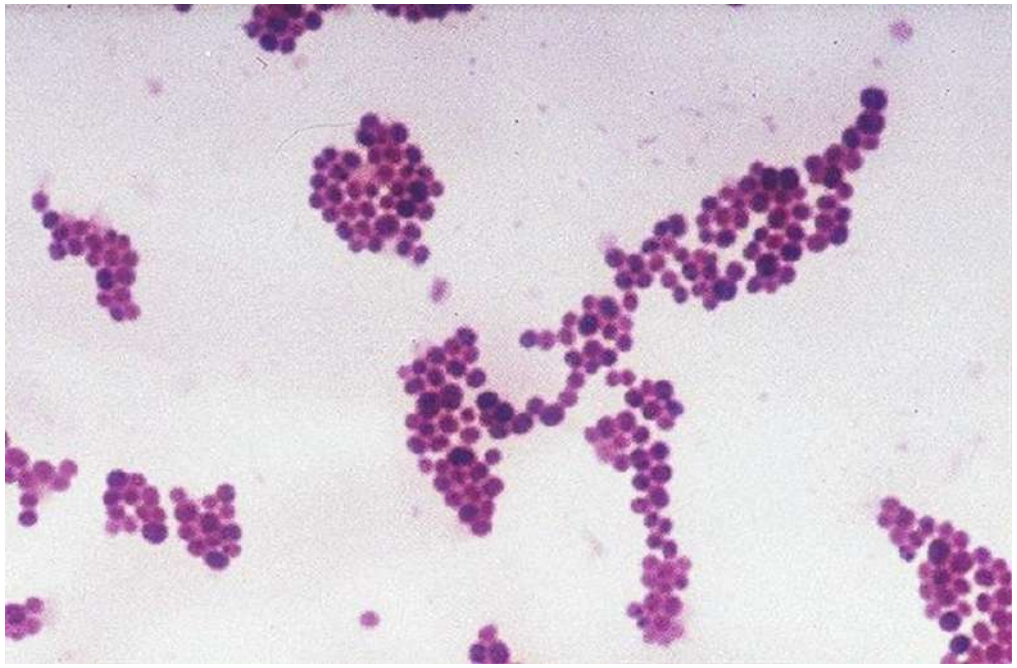
A. Brown recluse spider bite
B. Hookworm infection
C. Mycobacterium marinum infection
D. Sporothrix schenckii infection

13. A 24-year-old woman comes to the OPD due to skin lesions on her trunk and proximal upper limbs. The patient noticed the lesions after returning from a summer vacation at a Goa beach a week ago. During the vacation, she had sun exposure on several occasions without prior application of sunscreen. The lesions are mildly itchy but not painful. Medical history is notable for hypothyroidism, for which she takes levothyroxine. Which of the following is the most likely cause of this patient's current condition?

A. Autoimmune melanocyte injury
B. Dermatophyte skin infection
C. Malassezia globosa infection
D. Ultraviolet skin damage

14. Gram staining from pus of a 30-year-old with chronic osteomyelitis is shown. Identify the incorrect statement about the causative organism.

A. The organism is catalase negative.
B. The organism is tube coagulase positive
C. On culture, golden yellow pigments are produced on nutrient agar
D. Beta-hemolysis is seen on blood agar



15. Which of the following tests is a type of ring precipitation test?

A. VDRL test
B. Rose Bengal test
C. Ascoli's thermoprecipitation test
D. Elek test

PRECIPITATION/FLOCCULATION:
Ring test: Ascoli Lancefield
Slide: VDRL
Tube: Kahn
Immunodiffusion/ Gel: Elek test
Rocket electrophoresis

AGGLUTINATION
Slide: Blood grouping Rose Bengal
Tube: Widal Weil Felix Paul-Bunnel CAT SAT MAT

Coombs test

Indirect/Passive agglutination:
Latex-ASO, CRP, RF, HCG
Heme-Rose Waaler test

Complement fixation:
Wassermann, TPI
Sabin Feldman

16. A 30-year-old man presents with severe pain in his gums, foul breath, and bleeding during brushing for the past week. On examination, his gingivae are red, edematous, and covered with ulcers and a necrotic membrane. The patient reports poor oral hygiene and stress due to a recent workload increase. Which of the following organisms is most commonly associated with this condition?

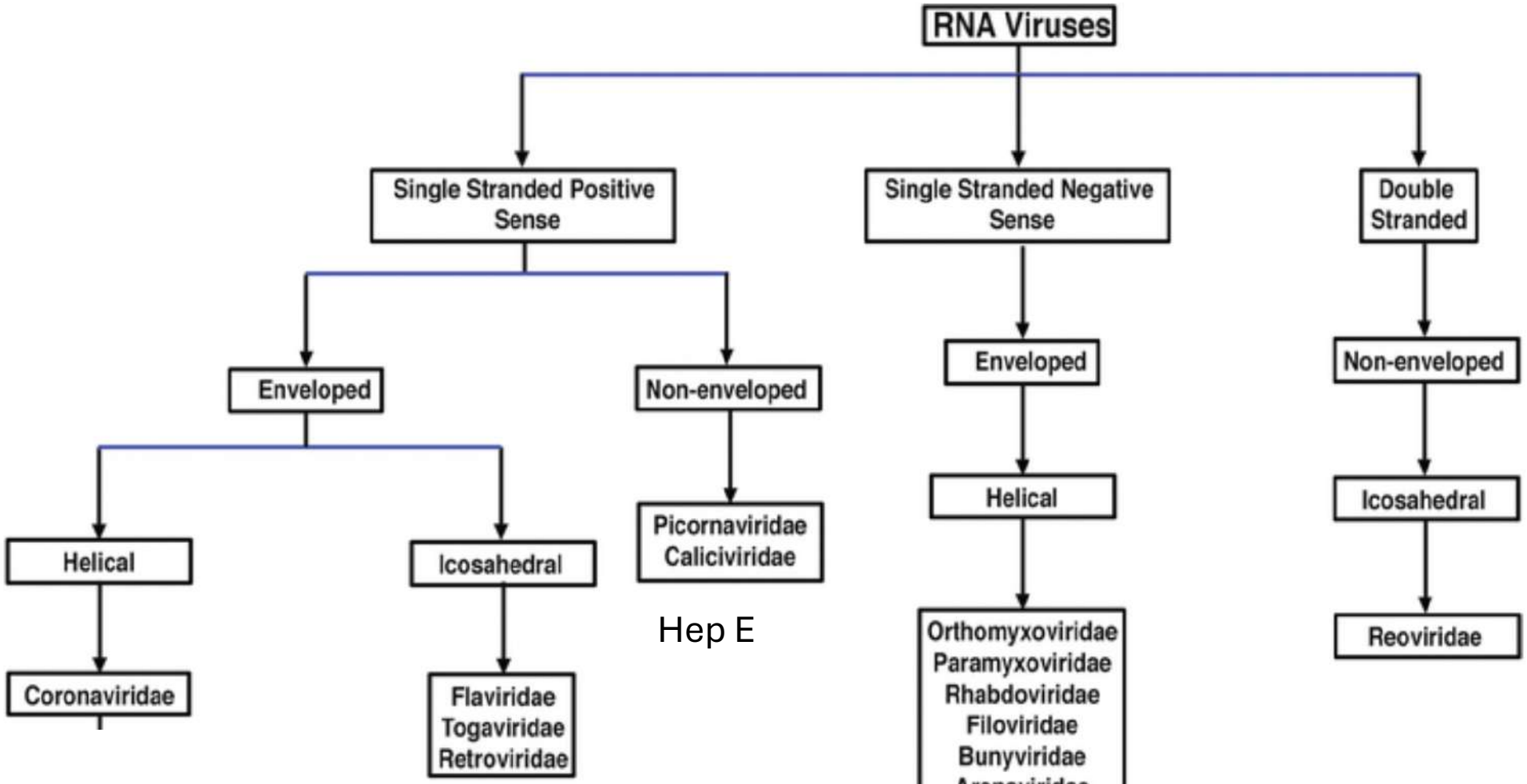
A. Streptococcus mutans
B. Fusiform bacilli
C. Actinomyces israelii
D. Treponema pallidum

17. A 70-year-old man with a history of chronic smoking presented with fever, confusion, diarrhea and cough. Chest X-ray revealed bilateral infiltrates. Gram stain, immunofluorescence testing was done on sputum sample and came negative for organisms. Serology findings are given below. Which of the following organisms is responsible for this presentation?
Serum Na+ – 120 meq/L
AST – 62 IU/L
ALT – 56 IU/L
HIV – Positive

A. Streptococcus
B. Legionella
C. Klebsiella
D. Pneumocystis carinii pneumonia

18. A 22-year-old man with 2 days of fever, cough, sore throat, and runny nose comes to the OPD. Lung sounds are clear to auscultation. A nasopharyngeal swab is obtained. Naked viral particles are seen, and purified RNA molecules are extracted from these particles. Once introduced into human cells, the purified RNA molecules induce viral protein synthesis and viral genome replication. Which of the following is the most likely cause of this patient's symptoms?

A. HIV
B. Influenza virus type A
C. Respiratory syncytial virus
D. Rhinovirus



Hep E

Matona

Delta: Hep D

HCV
Yellow fever[a]
Dengue[a]
West Nile virus[a]—meningoencephalitis, acute asymmetric flaccid paralysis
Zika virus[a]

JE, KFD

Toga CREW—**C**hikungunya virus[a] (co-infection with dengue virus can occur), **R**ubella (formerly a togavirus), **E**astern and **W**estern equine encephalitis[a]

Poliovirus—polio-Salk/Sabin vaccines—IPV/OPV
Echovirus—aseptic meningitis
Rhinovirus—"common cold"
Coxsackievirus—aseptic meningitis; herpangina (mouth blisters, fever); hand, foot, and mouth disease; myocarditis; pericarditis
HAV—acute viral hepatitis

PERCH

LCMV—lymphocytic choriomeningitis virus
Lassa fever encephalitis—spread by rodents

California encephalitis[a]
Sandfly/Rift Valley fevers[a]
Crimean-Congo hemorrhagic fever[a]
Hantavirus—hemorrhagic fever, pneumonia

19. 43-year-old man comes to the emergency department due to 2 days of fever and a lesion on his right foot. The initial lesion was erythematous and oedematous, but it quickly developed into a bulla surrounded by erythema. Eventually, the bulla ruptured, leaving a painless ulcer with a black centre. The patient has a history of non-Hodgkin lymphoma and recently underwent chemotherapy. Which of the following is the best treatment for this patient's foot lesion?

A. Salvage chemotherapy
B. Corticosteroids
C. Antistaphylococcal penicillin
D. Antipseudomonal penicillin

20. Identify the incorrect pair

A. Calabar swellings: Chrysops
B. River blindness: Deerfly
C. Sleeping sickness: Tse tse fly
D. Chagas disease: Reduvid bug

A. Wuchereria bancrofti

B. Brugia malayi

C. Loa loa (calabar swelling-deerfly-Chrysops)

D. Onchocerca volvulus (river blindness-Blackfly/Simulium)

E. Mansonella perstans

21. Which of the following method of disinfection and sterilization can also kill spores?

1. Glutaraldehyde
2. Ethylene oxide
3. Pasteurization
4. Orthophthalaldehyde

A. 1, 3 and 4
B. 1, 2 and 4
C. 2, 3 and 4
D. 1, 2, 3 and 4

22. Which of the following is a xenodiagnostic method?

A. Rabbit ileal loop for enterotoxigenic Escherichia coli
B. Injecting Aedes thorax with blood of a suspected dengue patient
C. Injecting a hamster with splenic biopsy for diagnosis of leishmaniasis
D. Intradermal test on guinea pigs for toxigenicity of Corynebacterium diphtheria

23. A 31-year-old man comes to the office due to a week of low-grade fever, dry cough, and right-sided chest pain. The pain is intermittent, sharp, and worse with deep inhalation or cough. The patient also notes mild "achiness" in his knees and ankles that started around the same time. He does not use tobacco, alcohol, or illicit drugs. The patient is an Army officer, and he returned after completing desert training exercises in Rajasthan. He does not know if other participants developed similar symptoms. Temperature is 37.8°C (100°F). Blood pressure is 120/80 mm Hg, pulse is 78/min, and respirations are 16/min. Lung auscultation shows right-sided crackles. No joint swelling or tenderness is present, but there are erythematous, tender nodules on the bilateral shins. Chest x-ray reveals a right lower lobe infiltrate with a prominent right hilum. Which of the following is most likely causing this patient's condition?

A. Blastomyces dermatitidis

B. Coccidioides immitis

C. Histoplasma capsulatum

D. Legionella pneumophila

24. Match the following:

PARASITE	ORGAN OF LOCOMOTION
A. BALAMUTHIA MANDRILLARIS	1. FLAGELLA
B. BALANTIDIUM COLI	2. CILIA
C. TRICHOMONAS VAGINALIS	3. PSUEDOPOD
D. TOXOPLASMA GONDII	4. NO PARTICULAR ORGAN

A. A-2, B-1, C-3, D-4
B. A-3, B-2, C-1, D-4
C. A-4, B-1, C-2, D-3
D. A-1, B-2, C-4, D-3

25. A 22-year-old primigravid woman at 8 weeks gestation comes to the office for her initial prenatal visit. She has no symptoms except mild nausea. She smoked a pack of cigarettes a day and drank 7-8 beers each week but quit after learning she was pregnant. The patient has a history of an allergic reaction to penicillin; she developed a generalized rash with intense itching that responded to antihistamines and corticosteroid cream. Vital signs are within normal limits. Physical examination shows no abnormalities. The screening VDRL test is positive, fluorescent treponemal antibody absorption test is positive. Her HIV test is negative. Which of the following is the best next step in management of this patient?

A. Azithromycin

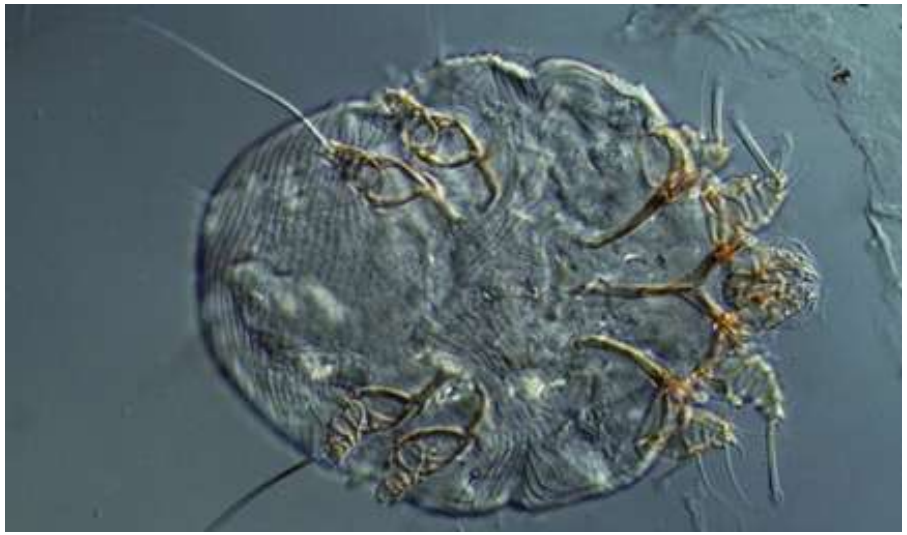
B. Doxycycline

C. No treatment until delivery

D. Skin testing and penicillin desensitization

26. A 30-year-old female developed pruritic papules with excoriated plaques in the interdigital web spaces. Later the lesion spread to the groin and under-surface of the breasts. The lady gives a history of intense pruritus which is more severe at night. Given below is the organism responsible for this condition. Identify the wrong statement about the same?

A. Life history has 4 stages
B. Larvae have 3 pairs of legs
C. The entire life cycle takes about 15 days
D. Male parasite burrows into the epidermis



egg → larva → nymph → adult

27. 6-hour-old boy is being evaluated in the nursery. He was born at 39 weeks' gestation via spontaneous vagina delivery to a 33-year-old primigravida. The pregnancy was complicated by intravenous drug use. First trimester serologies, including RPR, HIV antibodies, and hepatitis B surface antigen (HBsAg), were negative. Due to the mother's risk profile, follow up testing was obtained during the third trimester and revealed the following lab values:
HBSAg-Positive
Anti-HBsAg Negative
IgM Anti-HBcAg Negative
Anti-HBcAg Positive
Anti HCV negative
Liver function testing was normal. The remainder of the pregnancy was uncomplicated. The infant weighs 3.7 kg (8 lb 3 oz). Physical examination of the infant is normal. There is no jaundice or hepatomegaly. Which of the following is the most appropriate next step in management this infant?

A. Administer hepatitis B immune globulin

B. Administer hepatitis B immune globulin and vaccine

C. Administer hepatitis B vaccine

D. Obtain hepatitis B antibody panel

28. A 13-month-old boy is brought to the physician for evaluation of a painless, non-itchy rash that began this morning. The boy had a fever over the past 3 days, but it resolved on its own today. He takes no medications and his vaccinations are up to date. Examination shows a well-appearing infant with blanching, pink macules on his neck, back, abdomen, and chest. No vesicles are present. The rest of his examination is normal. Which of the following organisms is the most likely cause of this patient's condition?

A. Coxsackie virus A

B. Human herpesvirus 6

C. Measles-virus

D. Parvovirus B19-infection

29. A 26-year-old woman comes to the office due to a flulike illness with low-grade fever, malaise, nausea, and anorexia. The patient has no significant medical history and takes no medications. She occasionally smokes marijuana and has used injection drugs in the past. She has had several sexual partners. Temperature is 37.9°C (100.2°F), blood pressure is 121/78 mm Hg, and pulse is 86/min. The patient has scleral icterus. Cardiopulmonary examination is unremarkable. Laboratory results are as follows:
Total bilirubin-44.8 mg/dL
Aspartate aminotransferase-11,222 U/L
Alanine aminotransferase-21,184 U/L
Hepatitis B surface antibody-positive
Hepatitis B core antibody-positive
Hepatitis B surface antigen-negative
Hepatitis A IgM antibody-positive
Hepatitis A IgG antibody-negative
Hepatitis C antibody negative
After discussing the findings, the patient says she is worried that she may transmit the disease to her boyfriend. Which of the following interventions for the boyfriend is most likely to decrease his risk of disease acquisition?

A. Barrier contraceptive use

B. Hepatitis A vaccination

C. Hepatitis B immune globulin

D. Hepatitis B vaccination

30. Identify the false statements:
1. Rickettsial morula in a monocyte is diagnostic of Ehrlichia chaffeensis
2. E6, E7 are targets of vaccine against HPV
3. SARS CO-2 specimen handling for molecular testing needs BSL-2
4. Peptostreptococcus causes scromboid fish poisoning

A. 2, 4
B. 1,2,4
C. 3,4
D. 2,3

TOXIN	SOURCE	ACTION	SYMPTOMS	TREATMENT
Histamine (scombroid poisoning)	Spoiled dark-meat fish such as tuna, mahi-mahi, mackerel, and bonito	Bacterial histidine decarboxylase converts histidine to histamine Frequently misdiagnosed as fish allergy	Mimics anaphylaxis: oral burning sensation, facial flushing, erythema, urticaria, itching; may progress to bronchospasm, angioedema, hypotension	Antihistamines Albuterol +/– epinephrine
Tetrodotoxin	Pufferfish	Binds fast voltage-gated Na^+ channels in nerve tissue, preventing depolarization	Nausea, diarrhea, paresthesias, weakness, dizziness, loss of reflexes	Supportive
Ciguatoxin	Reef fish such as barracuda, snapper, and moray eel	Opens Na^+ channels, causing depolarization	Nausea, vomiting, diarrhea; perioral numbness; reversal of hot and cold sensations; bradycardia, heart block, hypotension	Supportive

31. A 54-year-old man comes to the clinic with fever, exertional dyspnoea, and non productive cough for one week. He was diagnosed with HIV infection 3 years ago but has been asymptomatic since. He has not been taking his medications consistently. His temperature is 38.9°C (102°F), blood pressure is 120/80 mm Hg, pulse is 100/min, and respirations are 28/min. The patient's pulse oximetry shows 80% on room air. With use of a 100% nonrebreather mask, his oxygen saturation increases to 92%.
Laboratory results are as follows:
Hemoglobin-9.6 g/dL
Platelets-120,000/mm^3
Leukocytes-8,000/mm^3 (no bands)
Arterial blood gases on room air
pH-7.45
PaO_2-54 mm Hg
$PaCO_2$-44 mm Hg
Chest x-ray shows diffuse bilateral interstitial infiltrates. His CD4 count is 190/mm^3 and lactate dehydrogenase level is 400 U/L. What is the most appropriate next step in management of this patient?

A. Initiation of antiretroviral treatment
B. Intravenous pentamidine and corticosteroids
C. Trimethoprim-sulfamethoxazole and corticosteroids
D. Trimethoprim-sulfamethoxazole

- **PaO_2 <70 mm Hg on room air or**
- **Alveolar-arterial (A-a) gradient ≥35 mm Hg.**

32. A 3-year-old girl is brought to the emergency department with abrupt-onset vomiting followed by frequent, large-volume, watery diarrhea for the last day. She has no prior medical conditions but has not received recommended vaccinations. Physical examination shows mild dehydration. The abdomen is soft and mildly tender to palpation throughout. Bowel sounds are increased. Polymerase chain reaction testing of the stool sample yields a virus with a segmented, double-stranded RNA genome. Which of the following pathologic findings is most likely to be present in this patient?

A. Blunting of the villi in the duodenum and proximal jejunum

B. Extensive colonic injury with yellow-white adherent layer

C. Flask-shaped ulcerations in the cecum and ascending colon

D. Foamy macrophages in the small intestinal lamina propria

33. A technician wants to sterilize the material of the laboratory. Which of the following is a correct combination for him to use?

A. Liquid paraffin- Hot air oven
B. Heat sensitive vaccine: Pasteurisation
C. LSS medium- Autoclave
D. Catgut sutures- Autoclave

34. A 26-year-old man develops dysuria and purulent urethral discharge following unprotected sex with a new partner. Nucleic acid amplification testing is positive for Neisseria gonorrhea infection. The patient develops antibody against the bacterial pili that enhance attachment to host cells. His symptoms resolve with adequate treatment. His partner does not receive treatment. Several weeks later, the patient develops N gonorrhoeae reinfection after repeat exposure to the same partner. Which of the following is the most likely reason for the lack of long-lasting immunity against the bacteria despite antibody formation in this patient?

A. Antigenic mimicry

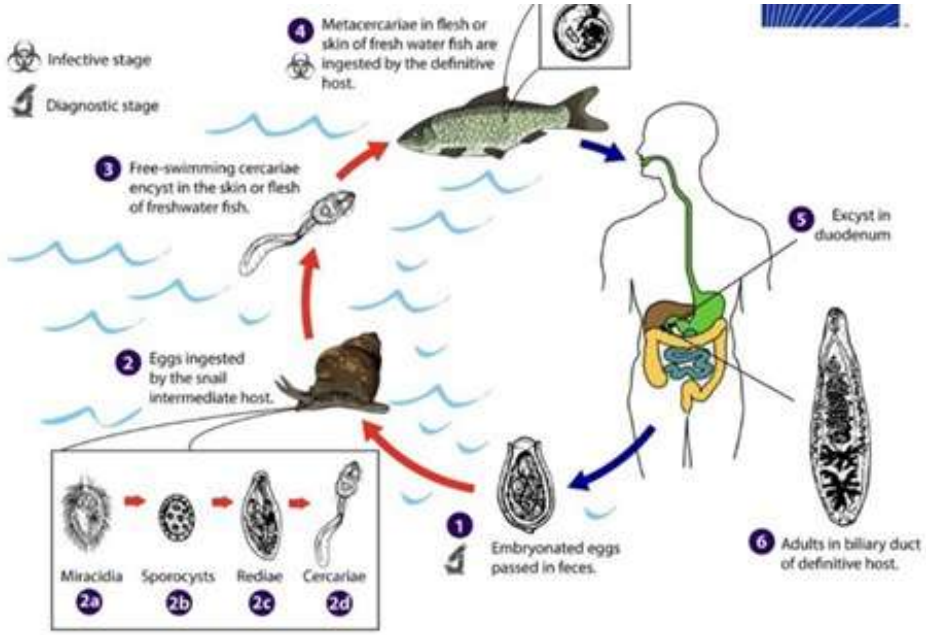
B. Antigenic variation

C. Conjugative plasmid

D. Low molecular weight antigen

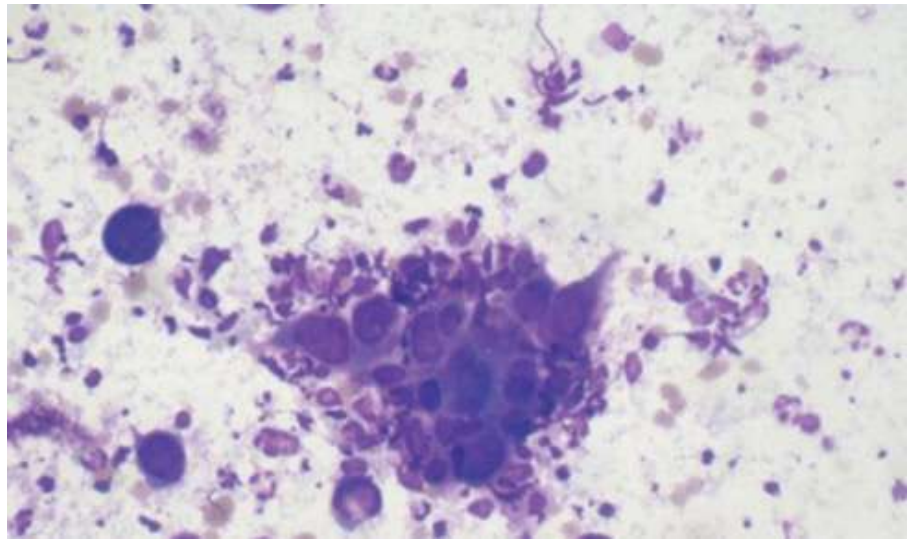
35. The organism whose life cycle is shown below is associated with which of the following malignancies?

A. HCC
B. Cholangiocarcinoma
C. Gastric carcinoma
D. Bladder carcinoma



36. A 23-year-old man comes to the OPD due to penile ulcers that appeared after unprotected sexual intercourse. Physical examination shows 3 subcentimeter ulcers on the penile shaft. Microscopic examination of a scraping from an ulcer base reveals the following. Which of the following medications is most appropriate for this patient?

A. Acyclovir
B. Azithromycin
C. Fluconazole
D. Penicillin



37. A 36-year-old man comes to the OPD due to 2 months of fatigue, intermittent arthralgias, and poor appetite. Liver aminotransferases are elevated. Hepatitis
serology shows the following:
Hepatitis A virus antibody: negative
Hepatitis B surface antibody (HBsAb): negative
Hepatitis B core antibody (HBcAb), total: positive
Hepatitis B surface antigen (HBsAg): positive
Hepatitis B E antigen (HBeAg): positive
Hepatitis C virus antibody: negative
Which of the following genome replicative processes is most likely used by the virus infecting this patient?

A. Double-stranded DNA -› double-stranded DNA template - › double-stranded DNA progeny
B. Double-stranded DNA -› RNA template -› partially double-stranded DNA progeny
C. Single-stranded DNA -› double-stranded DNA template -› single-stranded DNA progeny
D. Single-stranded RNA -> double-stranded DNA template -> single-stranded RNA progeny

38. Match the following:

A. BCYE agar	1. Legionella
B. EMJH agar	2. Campylobacter
C. PEMBA agar	3. Leptospira
D. Butzler's agar.	4. B.cereus

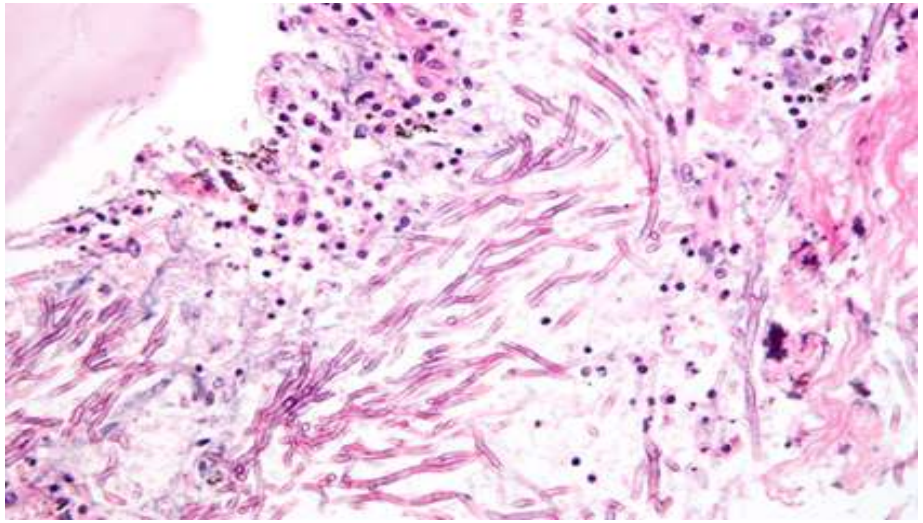
A. A-1, B-2, C-3, D-4
B. A-1, B-3, C-2, D-4
C. A-1, B-3, C-4, D-2
D. A-3, B-2, C-1, D-4

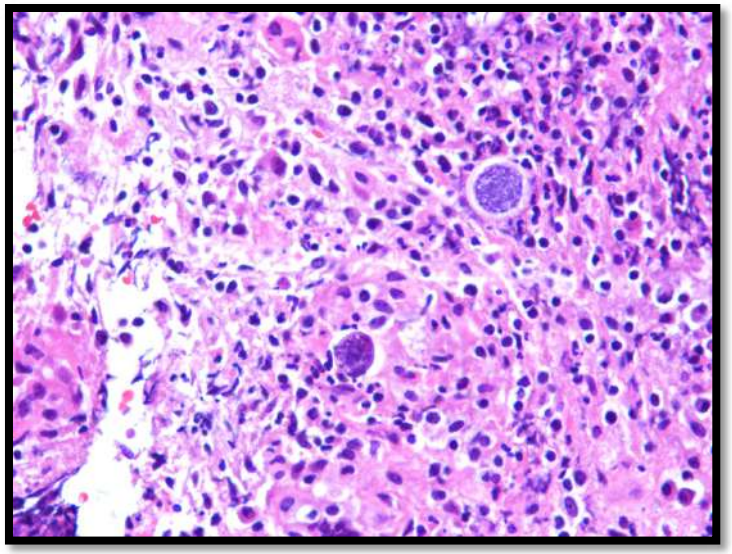
39. A 65-year-old man comes to the emergency department with a sore on his right hand. The lesion began as a small, painless papule 3 days ago and rapidly enlarged and ulcerated. He is in the wool business and recently returned from a tour of wool-processing plants in several Asian countries. Physical examination is shown below. The toxin causing edema around this patient's ulcer has a mechanism of action most similar to a different toxin produced by which of the following bacteria?

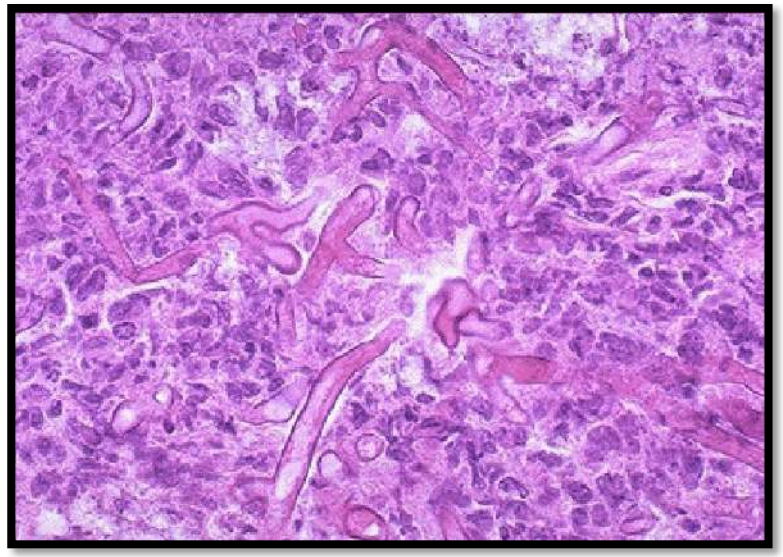
A. Bordetella pertussis
B. Clostridium botulinum
C. Clostridium difficile
D. Shigella dysenteriae

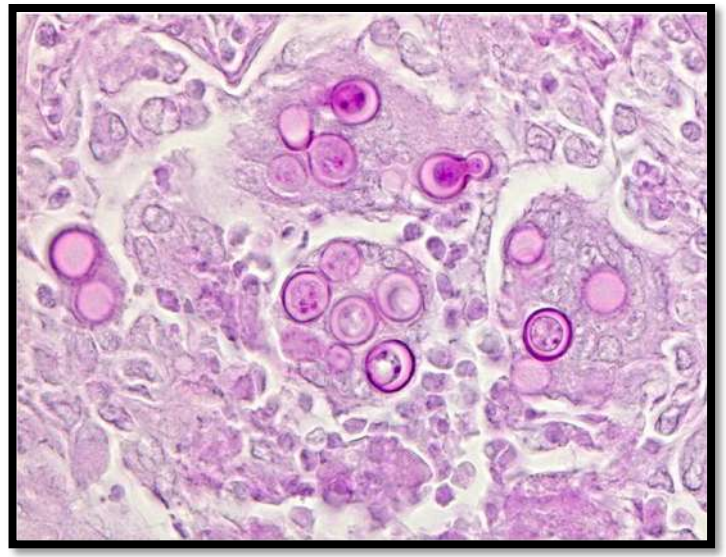
40. A 47-year-old man initially comes to his primary care physician with persistent fever, night sweats, and fatigue. Thorough evaluation yields a diagnosis of chronic myeloid leukemia. While undergoing treatment for his malignancy, the patient comes to the oncologist complaining of headaches, scant nasal discharge, and a problem with his left eye. Physical examination reveals tenderness over the paranasal sinuses in addition to left-sided orbital swelling and cellulitis. Mild proptosis and ptosis of the left eye are also present. Biopsy of his sinus mucosa is shown below. What is the likely cause?

A. Aspergillus fumigatus
B. Blastomyces dermatitidis
C. Mucor
D. Coccidioides immitis









41. Identify the correct statements:
1. Phase contrast microscopy is the technique used to study motility in live bacteria.
2. Interferon-beta (IFN-β) is a type I interferon, which is predominantly secreted in response to viral infections.
3. Alveolar echinococcosis can mimic HCC on imaging.
4. Protein A binds the Fc portion of IgG

A. 1, 2, 3, 4
B. 3, 4
C. 1, 2, 3
D. 1, 2

- **Type I Interferons**
- **Includes:** IFN-α (alpha), IFN-β (beta), IFN-ε (epsilon), IFN-κ (kappa), IFN-ω (omega).
- **Produced by:** Almost all nucleated cells (esp. plasmacytoid dendritic cells).
- **Induced by:** Viral infections and double-stranded RNA.

- **Type II Interferon**
- **Includes:** IFN-γ (gamma).
- **Produced by:** Activated T-lymphocytes (Th1, CD8+) and NK cells.
- **Induced by:** Antigenic stimulation and IL-12.

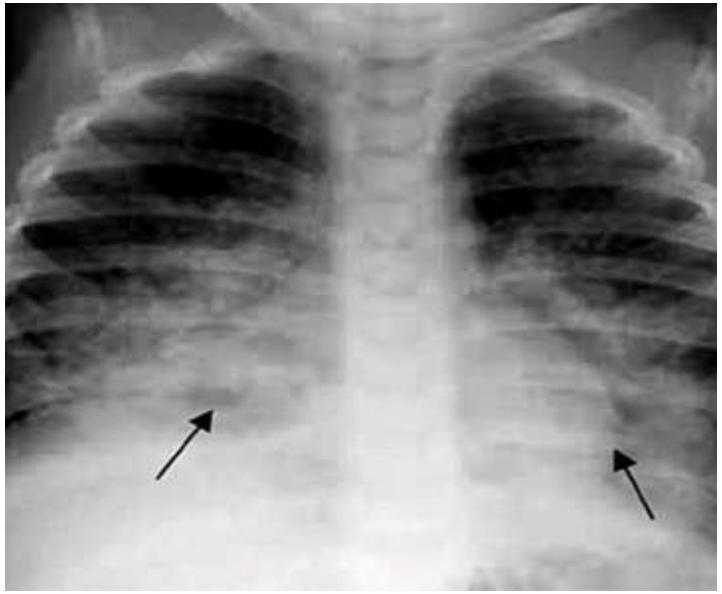
- **Type III Interferons**
- **Includes:** IFN-λ (lambda, also called IL-28A, IL-28B, IL-29).
- **Produced by:** Epithelial cells, dendritic cells.
- **Act mainly on:** Epithelial barriers.

42. A 19-year-old man comes to the physician due to diarrhea for the last 4 months. He visited a student health clinic at his university a month ago and was prescribed a course of antibiotics, but his diarrhea failed to improve. He also has persistent nausea, a bloating sensation, and a 6.8-kg weight loss. Microscopic examination of his stool is shown in the image. Impairment of which of the following immune functions would most likely predispose to this patient's infection?

A. Bacterial killing by neutrophils
B. CD8+ T lymphocyte-mediated cytotoxicity
C. Eosinophil-mediated cytotoxicity
D. Secretory IgA production

43. A 56-year-old woman comes to the emergency department due to a week of fever, dyspnea, and cough with productive, foul-smelling sputum. She underwent an upper gastrointestinal endoscopy 10 days ago for a long history of heartburn. Temperature is 38.7°C (101.7°F), blood pressure is 130/80 mm Hg, pulse is 108/min, and respirations are 22/min. Dentition is poor. Crackles are heard over the right upper lung field. Complete blood count shows leukocytes of 14,500/mm'. Chest x-ray is shown below. Which of the following additional therapies would be most helpful for this patient's condition?

A. Ampicillin and gentamicin
B. Ciprofloxacin
C. Clindamycin
D. Doxycyclin



44. Which of the following terms best describes the MacConkey medium?

1. Differential
2. Enrichment
3. Transport
4. Selective

A. 1,2,3,4
B. 1,3
C. 1,4
D. 2,3,4

Type	Examples
Differential Media	- Blood agar (hemolysis) - MacConkey agar (lactose fermentation) - Mannitol salt agar - CLED
Enrichment Media	- Selenite F broth (*Salmonella*) - Tetrathionate broth (*Salmonella*, *Shigella*) - Alkaline peptone water (*Vibrio*)
Transport Media	- Stuart's medium - Amies medium (± charcoal) - Cary-Blair medium
Selective Media	- MacConkey agar (lactose fermentation) - Mannitol salt agar - Lowenstein–Jensen (for *Mycobacterium*) - Deoxycholate citrate agar (DCA): Selective for enteric bacilli - TCBS agar (for *Vibrio*) - Sabouraud's agar with antibiotics (for fungi)

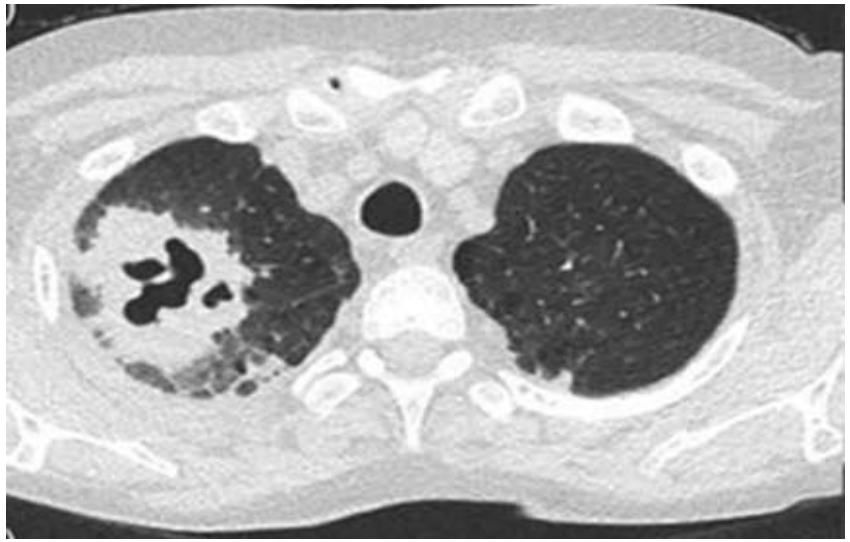
45. A 46-year-old man comes to the emergency department due to a week of fever, chills, productive cough with yellow-white sputum, and shortness of breath. The patient received an allogenic renal transplantation 6 months ago and currently takes maintenance immunosuppressive therapy. Chest imaging is shown below. Sputum Gram stain and culture are negative. Bronchoalveolar lavage cultures yield light growth of branching, filamentous rods that are partially acid-fast. Which of the following is the most likely causative organism of this patient's condition?

A. TB

B. Nocardiosis

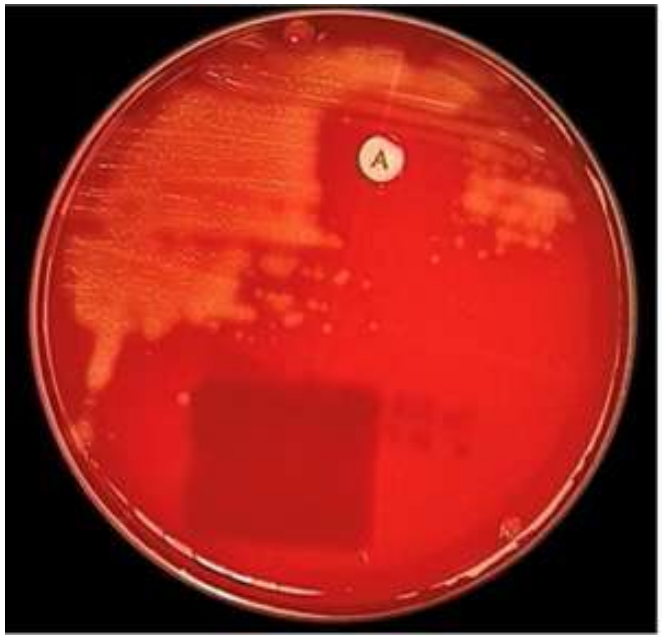
C. Histoplama

D. Mucormycosis



46. The test shown below, which uses a bacitracin disk, is useful in identifying?

A. Staphylococcus aureus
B. Streptococcus pyogenes
C. Clostridium botulinum
D. Bacillus



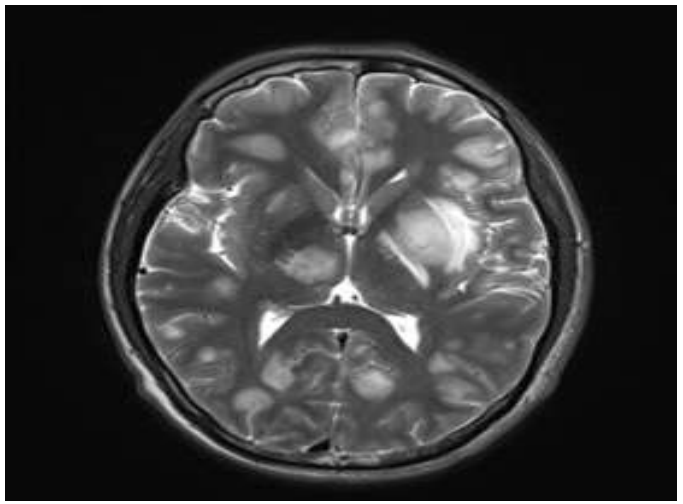
47. A 28-year-old man comes to the office due to abnormal movements of his arm and face over the last week. The patient has had 1- to 2-minute episodes of jerking and twitching of the left arm and left side of the face The patient was recently diagnosed with HIV and started antiretroviral therapy 2 months ago. At that time, his CD4 count was 46./mm3. Temperature is 37.8°C (100°F), blood pressure is 124/82 mm Hg, and pulse is 76/min. Left arm motor strength is 4/5, and deep tendon reflexes are 3+. An MRI of the brain is shown below. Which of the following is the most appropriate treatment for this patient?

A. Spiramycin

B. Amphotericin B and flucytosine

C. Ganciclovir

D. Sulfadiazine and pyrimethamine



48. Identify the correct statements:

1. Incubation period of LGV is 10-30days
2. Mycobacterium indicus pranii (MIP) was indigenously developed in India for use in malaria.
3. C.parvum is the most common coccidian parasite to be causing diarhhea in HIV/AIDS.
4. Ganciclovir resistance is due to mutation in U797 phosphotransferase

A. 1,2,3,4
B. 1,3,4
C. 1,4
D. 2,3

49. A 22-year-old student comes to the physician complaining of 4 days of fever, double vision, and painful swelling around his eyes. He also has significant muscle pain in his neck and jaw muscles. Two weeks ago the patient returned from a trip to Goa. One week after his return, he developed abdominal pain, nausea, vomiting, and diarrhea . These symptoms resolved spontaneously. He has a history of intravenous drug abuse but recently completed a drug rehabilitation program. His temperature is 38.3°C (101°F), blood pressure is 110/70 mm Hg, pulse is 92/min,
and respirations are 14/min. Physical examination shows subungual splinter hemorrhages, periorbital edema, and chemosis. Lungs are clear to auscultation. Cardiac examination shows no murmurs. The abdomen is soft and nontender without organomegaly. Laboratory results are as follows:
Mean corpuscular volume: 13.0 g/dL
Platelets: 228,000/mm³
Leukocytes: 10,500/mm³
Neutrophils: 56%
Eosinophils: 22%
Lymphocytes: 23%
Creatine kinase: 220 U/L
Which of the following is the most likely diagnosis?

A. Ascariasis

B. Dengue fever

C. Trichinellosis

D. Infective endocarditis

50. A 20-year-old farmer presents with firmly adherent, black, gritty, hard nodules on the hairs of the scalp. What is the most likely causative organism?

A. Piedraia hortae
B. Trichosporon
C. Hortaea werneckii
D. Aspergillus niger

White piedra

Trichosporon asahii

Black piedra

Piedraia hortae

51. What is the intermediate host for the organism shown in the image below?

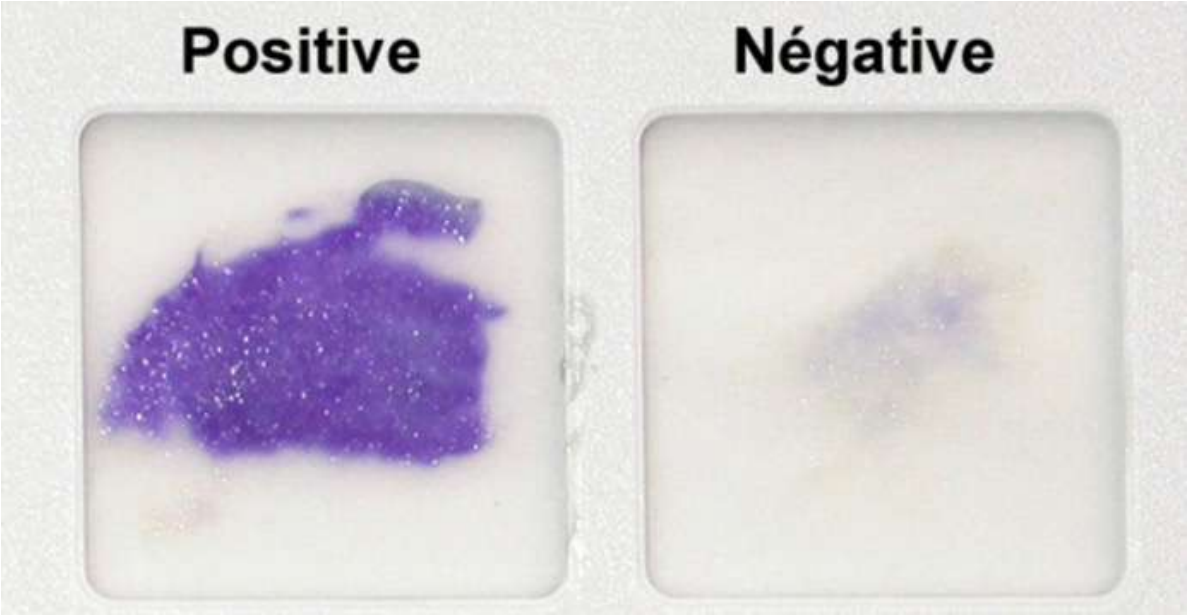
A. Vegetables
B. Pig
C. Cattle
D. No intermediate host

52. A young man presents with skin lesions as shown in the image below. All of the following organisms can spread through dermal and subcutaneous lymphatics, except?

A. Sporothrix schenckii
B. Staphylococcus aureus
C. Nocardia asteroides
D. Mycobacterium marinum

53. A patient admitted with 50% burns develops an infection at the burn site. The swab was cultured, the isolate is a strict aerobe and the test that is shown in the image is positive. What is the likely etiology of the burn infection? (NEET PG 2021)

A. Klebsiella
B. Escherichia coli
C. Pseudomonas aeruginosa
D. Salmonella



- Neisseria, Moraxella
- Pseudomonas, Burkholderia
- Vibrio, Campylobacter, H.pylori
- Legionella

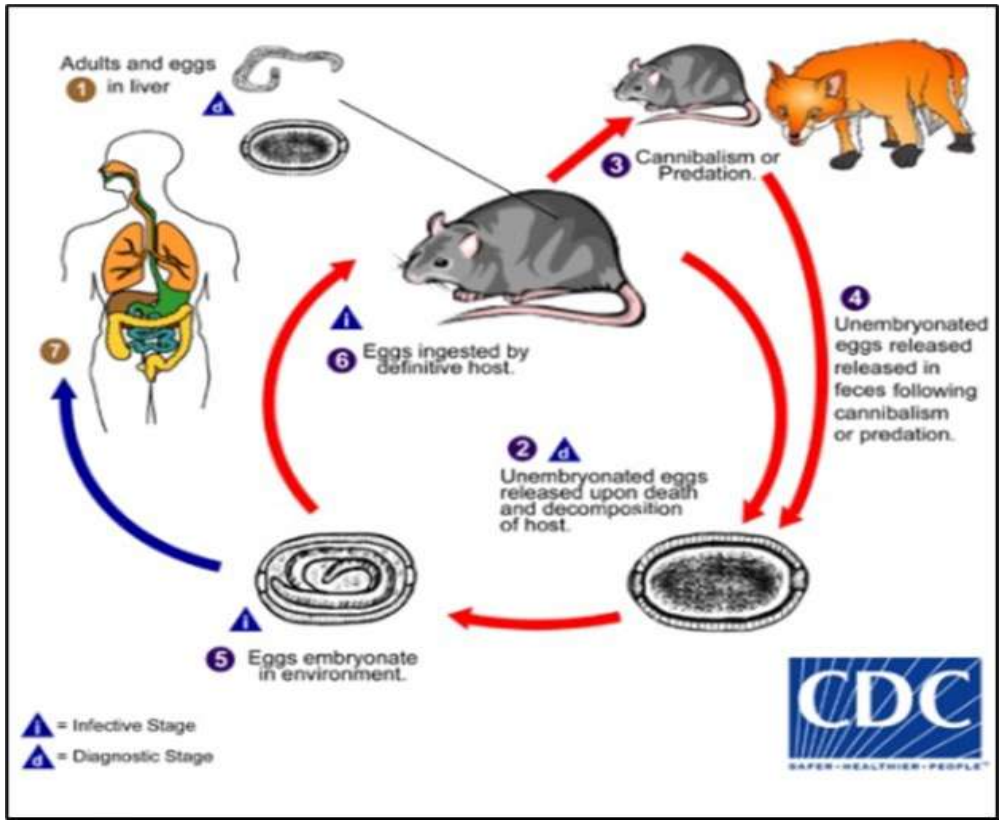
54. Which of the following statement is false about biofilms?

A. Responsible for prosthetic infections
B. Bacteria that form biofilms are usually metabolically more active
C. Glycocalyx enclosed bacteria
D. Associated with quorum sensing

Bacteria	**Associated Infections**
Staphylococcus epidermidis	Catheter and prosthetic device infections
Viridans streptococci (*S. mutans, S. sanguinis*)	Dental plaques, infective endocarditis
Pseudomonas aeruginosa	Respiratory tree colonization in cystic fibrosis, ventilator-associated pneumonia, contact lens–associated keratitis
Nontypeable (unencapsulated) *Haemophilus influenzae*	Otitis media

55. What is the drug of choice for the treatment the disease, caused by the organism whose life cycle is shown below?

A. IV Penicillin G
B. Oral Amoxicillin
C. Oral Azithromycin
D. Oral Ampicillin



56. The following test is positive for identification of:

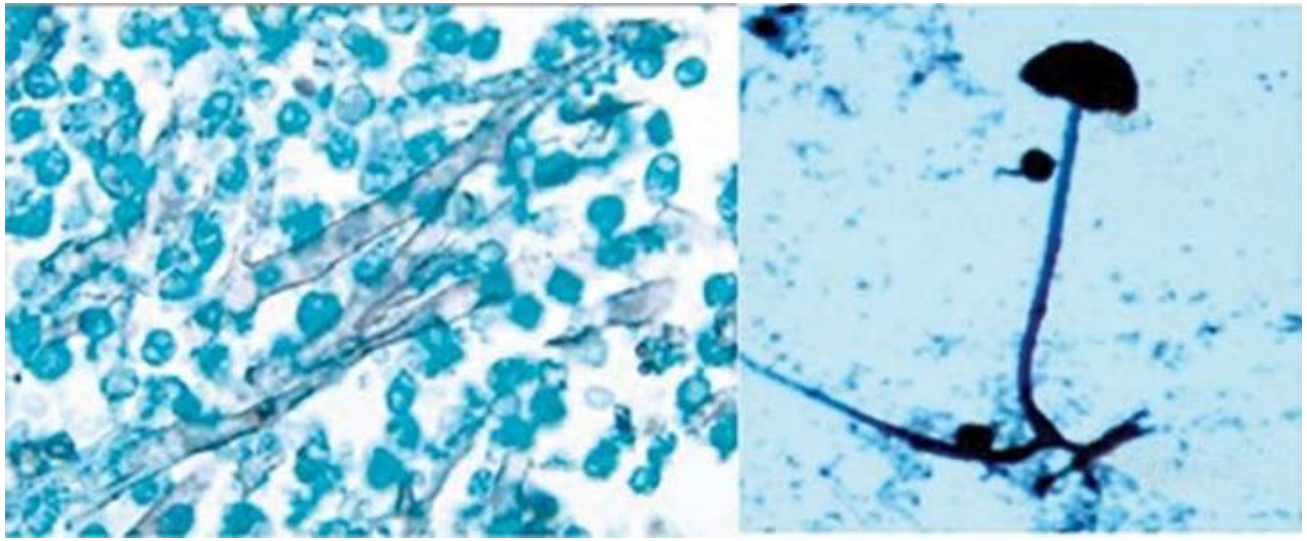
A. Candida dubliniensis
B. Candida glabrata
C. Candida parapsilosis
D. Candida tropicalis

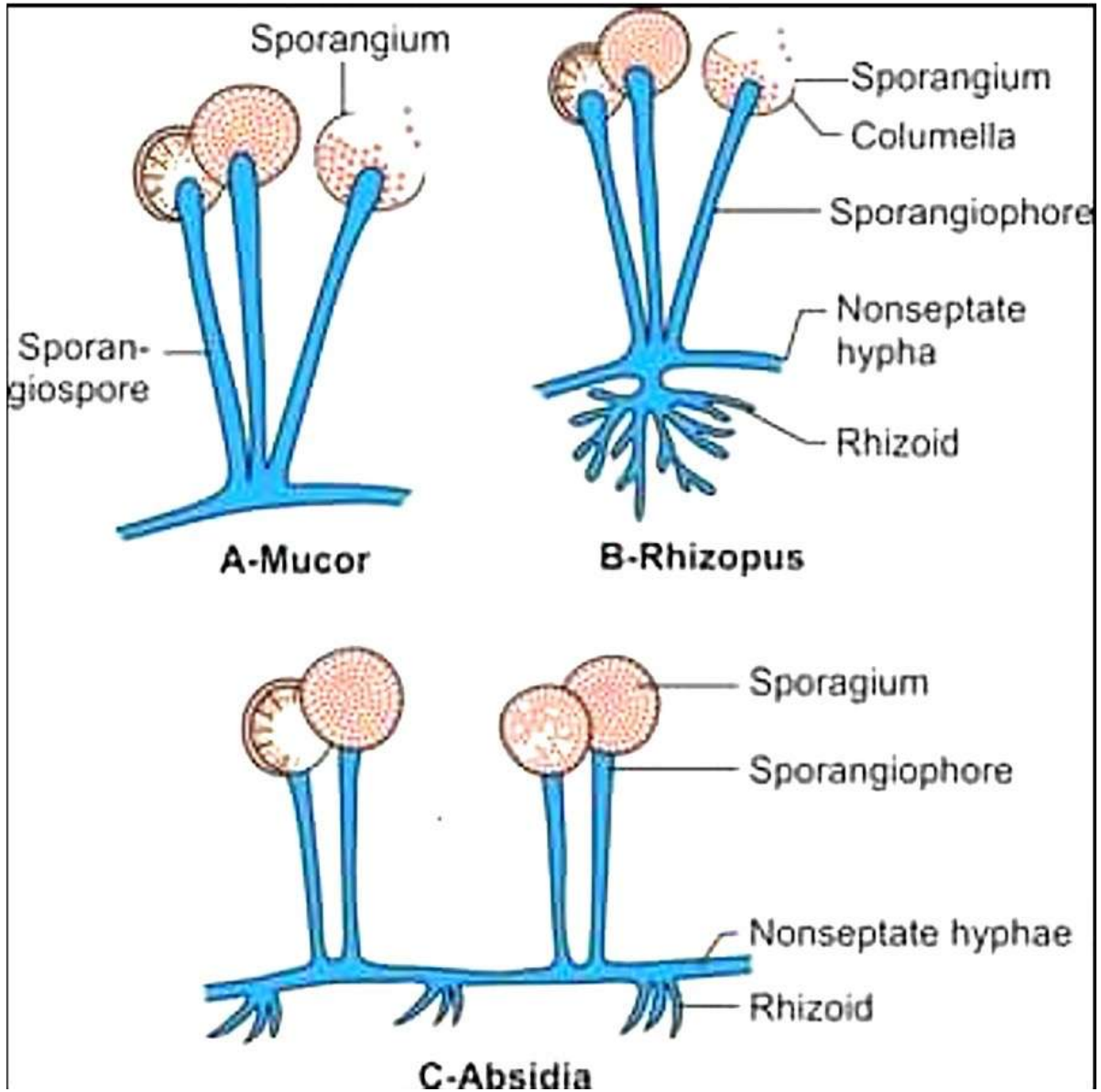
57. A 30-year-old man who frequently travels barefoot is suspected to have acquired a parasitic infection via skin penetration. Any of the following parasites may be implicated in this case except?

A. Enterobius vermicularis
B. Necator americanus
C. Strongyloides stercoralis
D. Schistosoma haematobium

58. Identify the organism in the given image showing KOH and LPCB culture morphology

A. Aspergillus
B. Mucor
C. Rhizopus
D. Blastomyces




Sporangium
Sporan-
giospore
A-Mucor
Sporangium
Columella
Sporangiophore
Nonseptate
hypha
Rhizoid
B-Rhizopus
Sporagium
Sporangiophore
Nonseptate hyphae
Rhizoid
C-Absidia

59. Which of the following sites is used for the influenza virus vaccine production?

A. Chorioallantoic membrane
B. Suckling mice
C. Primary cell line
D. Allantoic cavity

Embryonated Egg (4 cavities)

- Chorioallantoic membrane:
- Pox, HSV 1 & 2
- Yolk sac → Chlamydia, Arbovirus, Rickettsia
- Amniotic membrane → Influenza isolation
- Allantoic cavity → Yellow fever, vaccine (Influenza, Rabies)

Cell Lines

- **Primary** (5–10 divisions): Rhesus kidney, Human amniotic, Chick embryo fibroblast
- **Secondary** (10–50 divisions): Human fibroblast (CMV, MRC5, W138)
- **Continuous** (infinite): HeLa, HEP-2, KB, McCoy, Vero, BHK

60. All of the following are obligate anaerobes except

A. Burkholderia cepaci
B. Bacteroides
C. Peptostroptococcus
D. Prevotella

Actinomyces
Bacteroides
Clostridium
Fusobacterium

Peptostreptococcus
(aero-tolerant)

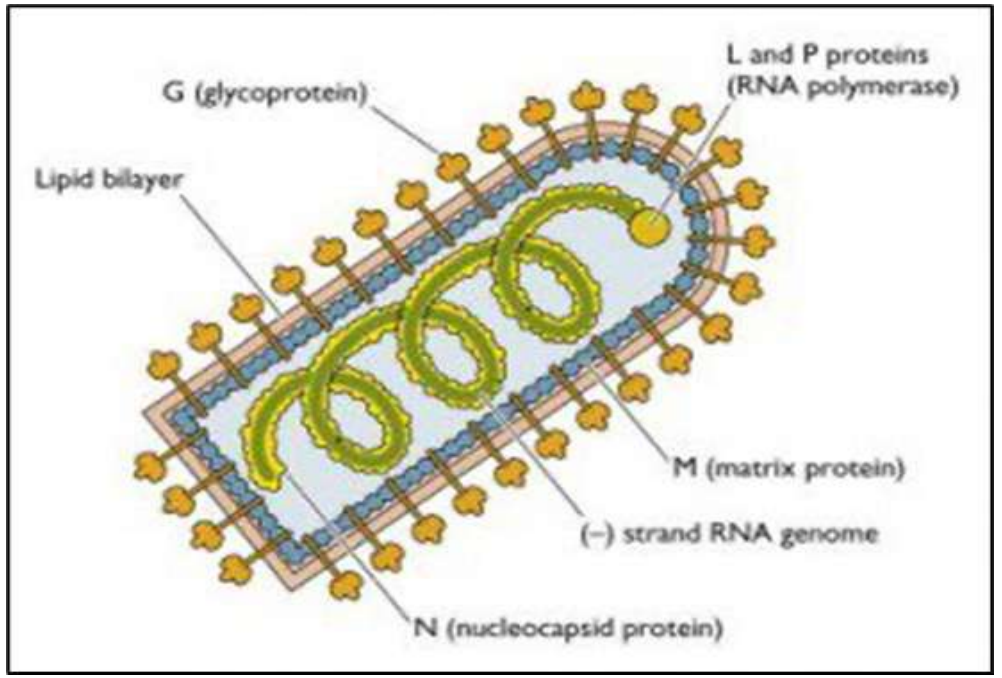
Lack catalase
Ineffective:

Staphylococcus
Streptococcus
Enterobacteracae
Hemophilus
Vibrio

Helicobacter
Campylobacter
M.bovis

61. Which of the following components of the following virus can be used to prepare vaccines?

A. Glycoprotein-G
B. Matrix protein
C. Nucleocapsid protein
D. L protein



62. Identify the organism from the head end as shown below:

A. H.nana
B. T.solium
C. E.granulosus
D. D.latum

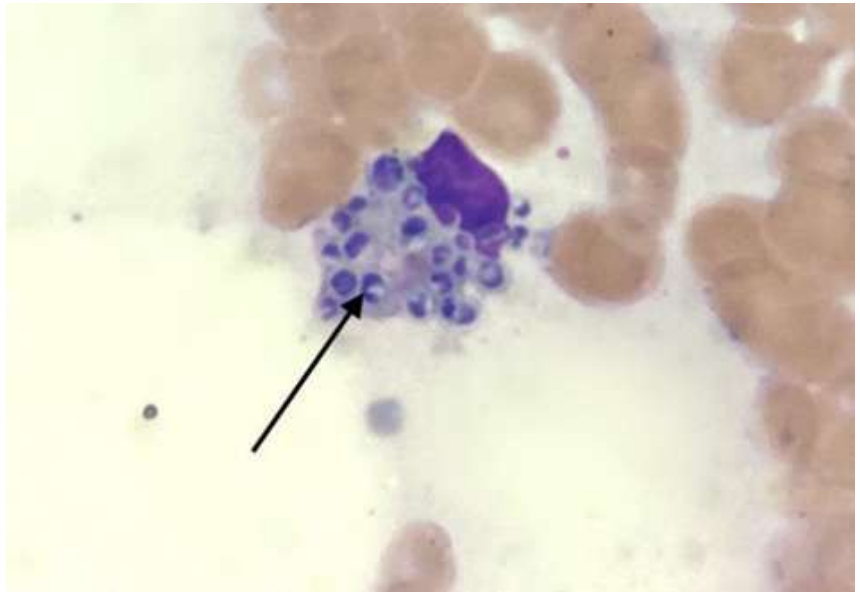
Heads						
	4 suckers 2 rows of hooks	4 suckers No hooks	4 suckers single row of 20–30 hooks	4 suckers No hooks	2 Suctorial grooves or bothria, no suckers, No hooks	4 suckers 2 rows of hooks

63. A 21-year-old female complains of fever, headache and vomiting from the past 3 days. She has been living in the army recruitment camp for the last three weeks. On examination, she has neck stiffness and petechial rash was noted over the trunk and extremities. Which of the following is false about the disease she's likely suffering from?

A. Carriers of this disease can be treated with Rifampicin
B. It can lead to adrenal hemorrhage
C. Terminal complement deficiency increases the risk of this disease
D. Azithromycin is the drug of choice

64. A 34-year-old male patient present with chronic fever. Bone marrow examination of this patient is shown in the given image below. Which of the following statement is false about the organism shown below?

A. It cannot be grown in sabouraud dextrose agar
B. Spores are infective form
C. Can be transmitted through soil in bat caves
D. It doesn't cause person to person transmission.



65. Match the following:

1. Rapid crenation and degeneration of entire cell sheath	a. Enterovirus
2. Large granular lumps resembling bunch of grapes	b. Adenovirus
3. Diffuse roundening and ballooning of cell line	c. HSV
4. Cytoplasmic vacuolations	d. SV-40

A. 1-a, 2-b, 3-c, 4-d
B. 1-b, 2-a, 3-c, 4-d
C. 1-c, 2-b, 3-a, 4-d
D. 1-d, 2-a, 3-c, 4-b

66. Food poisoning due to which of the following organisms is typically associated with 8-16 hours of incubation period?

1. C. jejuni
2. Bacillus cereus - Emetic type
3. Bacillus cereus - Diarrheal type
4. Vibrio cholerae
5. Clostridium perfringens

A. 2 & 5

B. 3 & 5

C. 1, 4, & 5

D. 1, 2 & 4

67. Identify the incorrect statements
1. Kanagawa phenomenon is seen with V.vulnificans and V.parahemolyticus
2. TLR3 and AXL receptors are associated with Nipah virus.
3. Dusting powder can be sterilised by autoclave.
4. Schistosomes are monoecious

A. 1, 2, 3, 4
B. 2, 3
C. 1, 4
D. 1, 3

68. Identify the correct statements
1. Miyagawa corpuscles are found in K.granulomatosis
2. S. sonnei shows late lactose fermentation
3. B. Cepacia complex strains are intrinsically resistant to Aminoglycosides and cephalosporins
4. Cytomegalovirus is the leading cause of infection in renal transplant recipients during the first four months post-transplantation.

A. 2, 3
B. 1, 3
C. 1, 4
D. 2, 3, 4

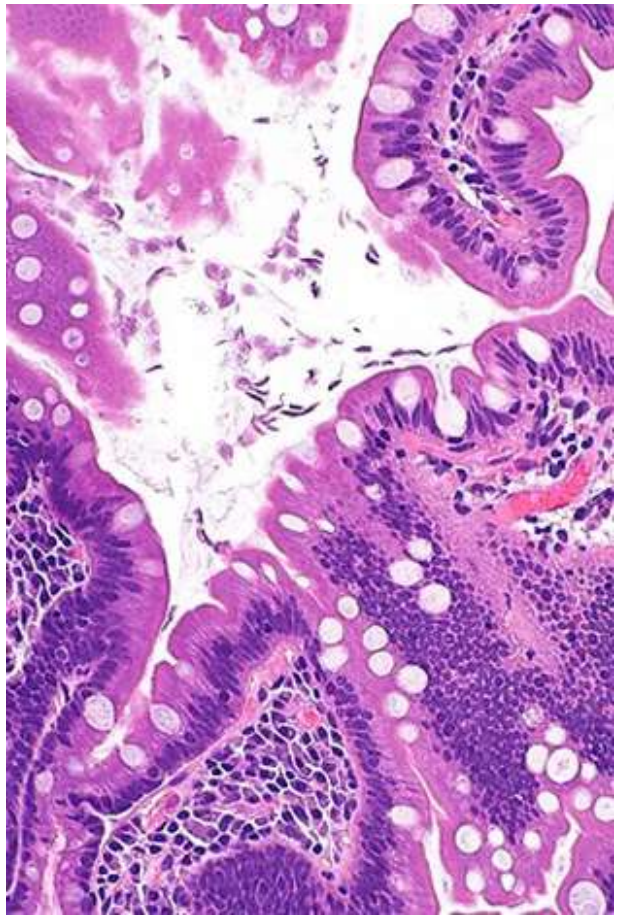
Antibiotic	**Pseudomonas aeruginosa**	**Burkholderia cepacia**	**Stenotrophomonas maltophilia**	**Acinetobacter baumanni**
Ticarcillin-clavulanic acid	**S**ensitive	**S**ensitive	**S**ensitive	**R**esistant
Cephalosporins	**S**ensitive to 3rd & 4th generation	**Resistant**	**R**esistant (Intrinsic)	**R**esistant
Carbenepemes	**S**ensitive (Resistance is developing)	**S**ensitive	**Resistant**	**Sensitive** (Resistance is developing)
Aminoglycosides	**S**ensitive	**R**esistant (Intrinsic)	**Resistant**	**R**esistant
Cotrimoxazole (TMP-SMX)	**R**esistant	**S**ensitive (Drug of Choice)	**S**ensitive (Drug of choice)	**R**esistant
Polymixin	**S**ensitive	**R**esistant (Intrinsic)	**R**esistant	**S**ensitive

69. A 47-year-old pig farmer presented with fever, headaches, myalgia, and a sore throat. He later develops dizziness, altered consciousness, and seizures. Identify the false statement regarding the condition.

A. Causative organism is a paramyxovirus.
B. Pigs are the intermediate hosts
C. No human to human transmission
D. Fruit bats are the natural host

70. A 30-year-old HIV-positive patient presented with a chronic history of watery diarrhea. Histopathology of the duodenum is shown in the image below. Which of the following is the causative organism?

A. Giardia lamblia
B. Entamoeba histolytica
C. Microsporidia
D. Cryptosopridia



71. For which of the following parasites is NNN medium used for isolation?

1. Leishmania donovani
2. Giardia
3. E. histolytica
4. Trichomonas vaginalis
5. Trypanosoma cruzi

A. 1, 2 and 4
B. 1 and 5
C. 2 and 3
D. 3 and 4

- TYI-S-33 medium
- CLUPS medium
- PEHPS medium
- Locke-egg medium (LEM) and Liver Infusion Agar Medium (LIAM)
- Robinson's medium and Jones' medium

72. Which method is typically not used to determine the minimum inhibitory concentration (MIC) of an antibiotic?

A. Gradient diffusion method
B. Broth microdilution method
C. Disk diffusion method
D. Agar dilution method

73. What is the primary function of the CRISPR system in bacteria?

A. To facilitate horizontal gene transfer between bacterial cells
B. To enable bacteria to resist viral infections through sequence-specific DNA cleavage
C. To allow the incorporation of viral DNA into the bacterial genome
D. To protect bacteria from the eukaryotic immune system

74. A 7-year-old girl is brought to the outpatient department with a 10-day history of abdominal pain, intermittent diarrhea, and mild weight loss. Her family reports no significant travel history or exposure to pets. Stool microscopy reveals eggs characteristic of a specific helminth infection shown below. Given this diagnosis, what is the most appropriate treatment for her condition?

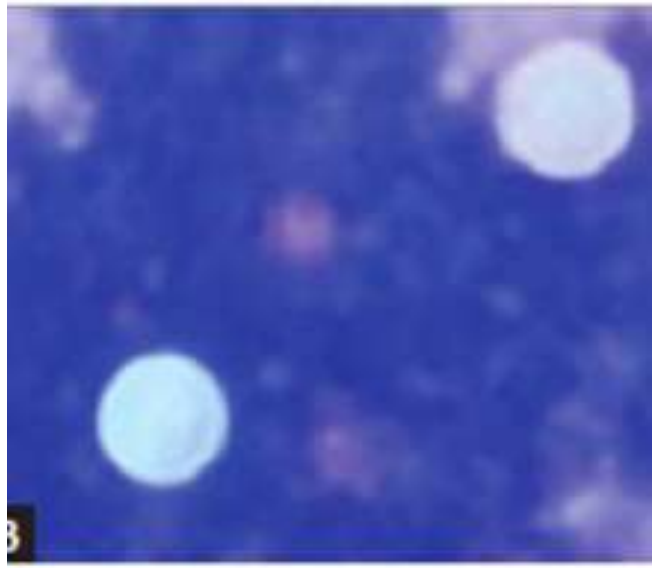
A. Albendazole
B. Mebendazole
C. Praziquantel
D. Pyrantel pamoate

DOC: Cestodes, Trematodes-

- **LIVER FLUKE-**
- **HYDATID, Nematodes**
- **FILARIA-**
- **ONCHOCERCA, STRONGYLOIDES-**

75. A 45-year-old postrenal transplant patient presents with diarrhea three months after the transplant. Stool microscopy reveals spherical organisms that are Kinyoun stain positive. Epifluorescence microscopy is shown. What is the most likely causative agent?

A. Balantidium coli
B. Cyclospora
C. Cystoisospora belli
D. Cryptosporidium hominis



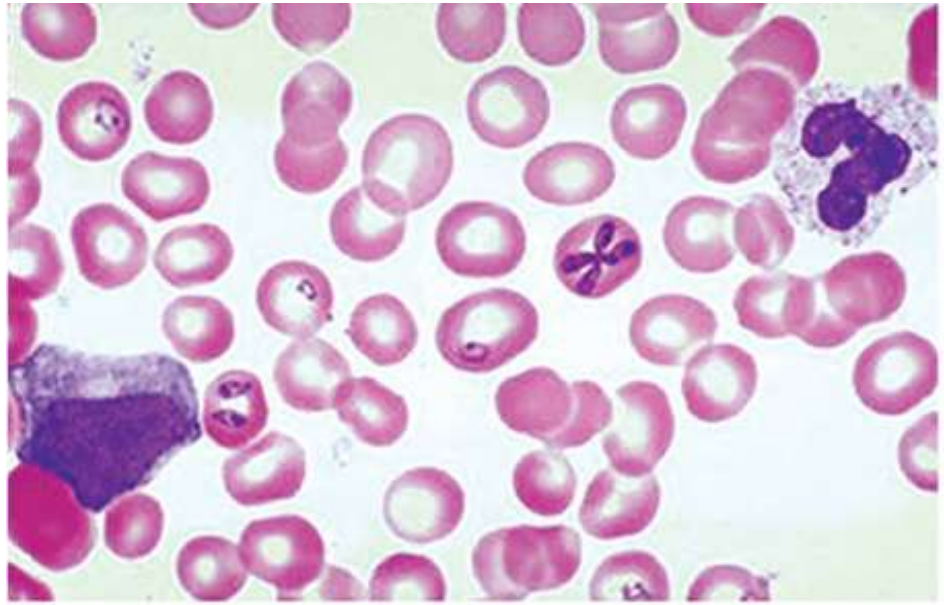
76. A 54-year-old man from the Northeastern States presents to the clinic with a 1-week history of fever, fatigue, and myalgia. Physical examination reveals mild jaundice, and laboratory tests show hemolytic anemia. A peripheral blood smear is performed, revealing the following: Based on the patient's history, clinical presentation, and the peripheral blood smear findings, which vector is most likely involved in the spread of the disease?

A. Ixodid tick

B. Anopheles

C. Louse

D. Sandfly



77. A 15-year-old girl presented with fever, hypotension, and skin rash. She had a tampon in situ for 24 hours. A bacterial cause is suspected. Which of the following toxin is not involved in this condition?

A. Enterotoxin B
B. Toxic shock syndrome toxin-1
C. Exfoliative toxin
D. Pyrogenic exotoxin

78. Which of the following features are characteristic of the Anopheles mosquito?

1. Stripes on wings
2. Larva rests at an angle to water surface
3. Adult rests at an angle to the surface of the skin
4. Eggs laid in clusters
5. No siphon tube in larvae

A. 1, 2

B. 3, 5

C. 2, 4

D. 1, 4

NVBDCP

Clean water
5km
Single eggs –with floats
Larva parallel
Adult angle
Spotted wings

Artificial water collections
100m
Single eggs-No floats
Stripes on body and legs
Adult parallel

Dirty water
10km
Hunchback at rest
Larva with siphon tube
Raft eggs-No floats

With PISTIA plant

Malaria

Dengue
Chikungunya
YF
Zika
Rift valley

W. Bancrofti
JE
West Nile

Brugia malayi

Breteau index:

79. A laboratory researcher is studying the pathogenesis of Staphylococcus aureus and focuses on the toxins that contribute to its virulence. One group of toxins has been noted to have synergistic hemolytic activity on sheep blood agar when combined with other staphylococcal hemolysins. Which toxin is known for this synergistic activity?

A. Alpha toxin
B. Beta toxin
C. Delta toxin
D. Panton-Valentine leukocidin

80. Which of the following viruses will not need RT-PCR for its detection?

A. Ebola
B. Simian 40
C. Rabies
D. Vesicular stomatitis virus

81. A 45-year-old male presents to the clinic complaining of fever, headache, and a persistent dry cough. He mentions that his symptoms started a few days after he was cleaning an old, abandoned aviary. His physical examination is unremarkable except for mild respiratory distress. A chest X-ray is performed, revealing interstitial infiltrates. Laboratory investigations, including serology, indicate atypical pneumonia with inclusion bodies suggestive of a zoonotic infection. Based on these findings, the physician is considering the diagnosis of a specific zoonotic atypical pneumonia. Which inclusion body is most likely associated with this patient's diagnosis?

A. Henderson-Patterson bodies

B. Miyagawa corpuscles

C. Leventhal Cole Lillie bodies

D. Negri bodies

82. During a surgical rotation, a medical student observes that a patient with a deep skin infection has rapid spreading of the infection through the fascial planes. The attending physician explains that certain bacterial exoenzymes facilitate the spread of infection by degrading connective tissue components. Which Streptococcus exoenzyme is primarily responsible for the breakdown of connective tissue, contributing to the spread of the infection?

A. Hyaluronidase
B. Streptolysin O
C. Streptolysin S
D. Streptococcus pyogenic exotoxin

83. A 45-year-old man with diabetes presents with a tender swelling on his forehead. Incision and drainage yield foul-smelling pus that fluoresces red under ultraviolet light. What is the most likely causative organism?

A. Bacteroides spp.
B. Peptostreptococcus spp.
C. Pseudomonas aeruginosa
D. Acanthamoeba spp.

84. All are Koch's postulates except:

A. A microorganism should be constantly associated with the lesions of the disease
B. It should be possible to isolate the bacterium in pure culture from the lesions
C. Inoculation of such pure culture into laboratory animals should reproduce the lesions
D. Administration of broad-spectrum antimicrobial agent dependably eradicates the organisms and cures the diseases

85. A farmer presenting with fever off and on for the past 4 years was diagnosed to be suffering from chronic brucellosis. All of the following serological tests would be helpful in the diagnosis at this state except:

A. Standard Agglutination test
B. 2 Mercaptoethanol test
C. Complement fixation test
D. Coomb's test

86. A 2-week-old boy is brought to the OPD due to runny nose, low-grade fever, and skin rash for 2 days. The patient was born at 38 weeks gestation to a 19-year-old woman who had poor access to prenatal care. Temperature is 38°C (100.4°F). Vital signs are otherwise normal for age. On examination, the patient has nasal drainage and peeling skin on his face, hands, and feet. Hepatosplenomegaly and generalized lymphadenopathy are present. Which of the following is the most likely diagnosis?

A. Erythema multiforme
B. Kawasaki disease
C. Measles
D. Syphilis

87. An isolate from a cancer patient in the critical care unit is found to be resistant to meropenem and aminoglycosides and sensitive to cotrimoxazole, ticarcillin-clavulanic acid. What is the likely microorganism involved?

A. Burkholderia cepacia
B. Acinetobacter baumannii
C. Pseudomonas aeruginosa
D. Stenotrophomonas maltophila

88. Select the one which doesn’t cause Urethritis in males:

A. Haemophilus ducreyi
B. Trichomoniasis
C. Chlamydia
D. Gonococcus

89. A young male patient with urethral discharge showed up. Pus cells were discovered after a urine analysis, but no organisms. Which approach is ideal for cultures?

A. McCoy Cell Line
B. Thayer Matin Medium
C. L.J medium
D. Levinthal Medium

90. True about cholera:

1.There's no role of mass prophylaxis in cholera outbreak

2.Dukoral vaccine can be given for age less than 2 years

3.Dukoral vaccine is Monovalent

4.Shanchol Vaccine is Bivalent

5.Gastric buffer is added in shanchol vaccine

6. 5% Cresol is used for disinfecting Feces, vomitus during outbreaks

A. 1, 2, 3, 4, 5, 6

B. 1, 2, 3, 4

C. 1, 3, 4, 6

D. 1, 3, 4, 5

Cholera-Dukoral >2yrs (Cholera O1+ B subunit+ bicarbonate buffer)
Shanchol, mORCVAX >1yr (Cholera O1,139)

91. Farmer presents with the features of high fever, painful inguinal lymphadenopathy, vomiting and diarrhea and hypotension. Which stain will help in the diagnosis?

A. Neisser stain
B. Wayson's stain
C. Albert's stain
D. McFadyean's stain

92. Which of the following species of hemophilus requires only factor X for growth

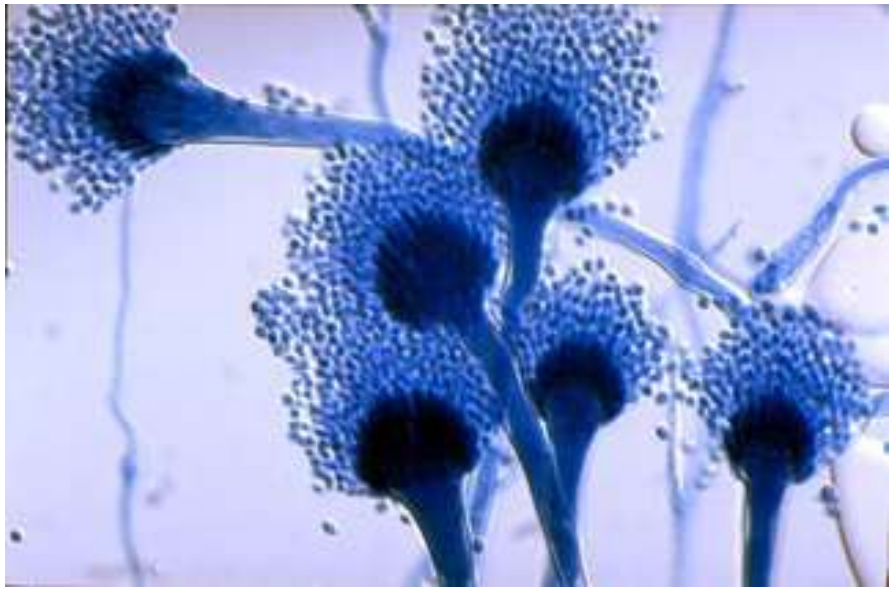
A. Hemophilus ducreyi
B. Hemophilus parainfluenza
C. Hemophilus parahemolyticus
D. Hemophilus paraphrophilus

93. Advantages of Saline wet mount over iodine wet mount is /are?

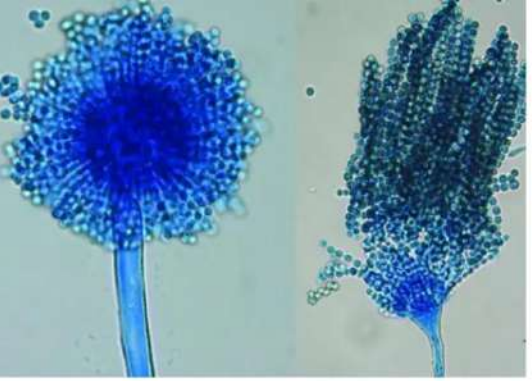
A. Demonstration of motility of trophozoites
B. Identify the internal structures of the cyst
C. Differentiate bile stained vs non bile stained eggs

A. Only A
B. Only B
C. Both A & C
D. A, B & C

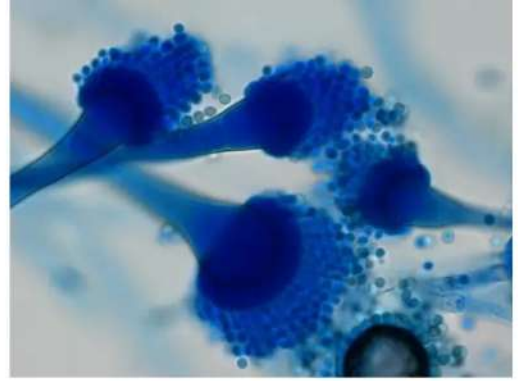
94. A 25-year-old female complains of recurrent rhinitis, nasal discharge and bilateral nasal blockage since 2 years. Biopsy is taken and shown below. Which of the following is the most likely responsible organism?



A. Aspergillus fumigatus
B. Aspergillus niger
C. Mucor
D. Aspergillus flavus



Aspergillus flavus



Aspergillus fumigatus

Aspergillus niger

95. A 22-year-old man comes with complaints of intermittent bloody diarrhea for 3 weeks after consuming street food during his travel. He is febrile and has RUQ tenderness. Which of the following is the infective form of the likely protozoan causing this disease?

A. Trophozoite

B. Mature quadrinucleate cyst

C. Metacyclic trophozoite

D. Precyst

96. Identify the staining method for a tissue biopsy of the painless ulcer shown below:

A. Fontana's method
B. Levaditi's method
C. Castaneda's method
D. Albert's method

97. Which of the following is a pigment-producing species of mycobacteria?

A. M. ulcerans
B. M. scrofulaceum
C. M. avium intracellulare complex
D. M. xenopi

Runyon Classification

- Group 1: Photochromogens
  Mycobacterium kansasii, Mycobacterium marinum, Mycobacterium simiae
- Group 2: Scotochromogens
  Mycobacterium scrofulaceum, Mycobacterium szulgai, Mycobacterium gordonae
- Group 3: Nonphotochromogens
  Mycobacterium avium-intracellulare, Mycobacterium malmoense, Mycobacterium xenopi
- Group 4: Fast growers
  Mycobacterium fortuitum, Mycobacterium chelonae, Mycobacterium abscessus

TABLE 42-1 Human infections caused by atypical *Mycobacterium* species

Bacteria	Diseases
Mycobacterium kansasii	Pulmonary disease
Mycobacterium marinum	Swimming pool granuloma
Mycobacterium simiae	Pulmonary disease (rare)
Mycobacterium scrofulaceum	Lymphadenopathy
Mycobacterium gordonae	Pulmonary disease (rare)
Mycobacterium szulgai	Pulmonary disease and bursitis (occasional)
Mycobacterium xenopi	Chronic pulmonary disease
Mycobacterium avium complex	Pulmonary disease, lymphadenopathy, and disseminated disease
Mycobacterium ulcerans	Buruli ulcer
Mycobacterium fortuitum	Post-trauma chronic abscesses
Mycobacterium chelonae	Post-trauma chronic abscesses
Mycobacterium abscessus	Abscesses
Mycobacterium genevense	Disseminated diseases (AIDS-related)

98. Identify the microaerophilic bacteria from the list:

1. Positive CLO test.

2. Gram-negative bacilli implicated in GBS

3. Gram-negative curved bacilli with 'fish-in-stream' appearance

4. Bacteria showing 'mercury drop' colonies.

5. LJ medium showing ruff, buff, tough colonies.

A. 2 and 5

B. 3 and 4

C. 1 and 4

D. 1 and 2

99. Which of the following is not a characteristic feature of El Tor vibrio?

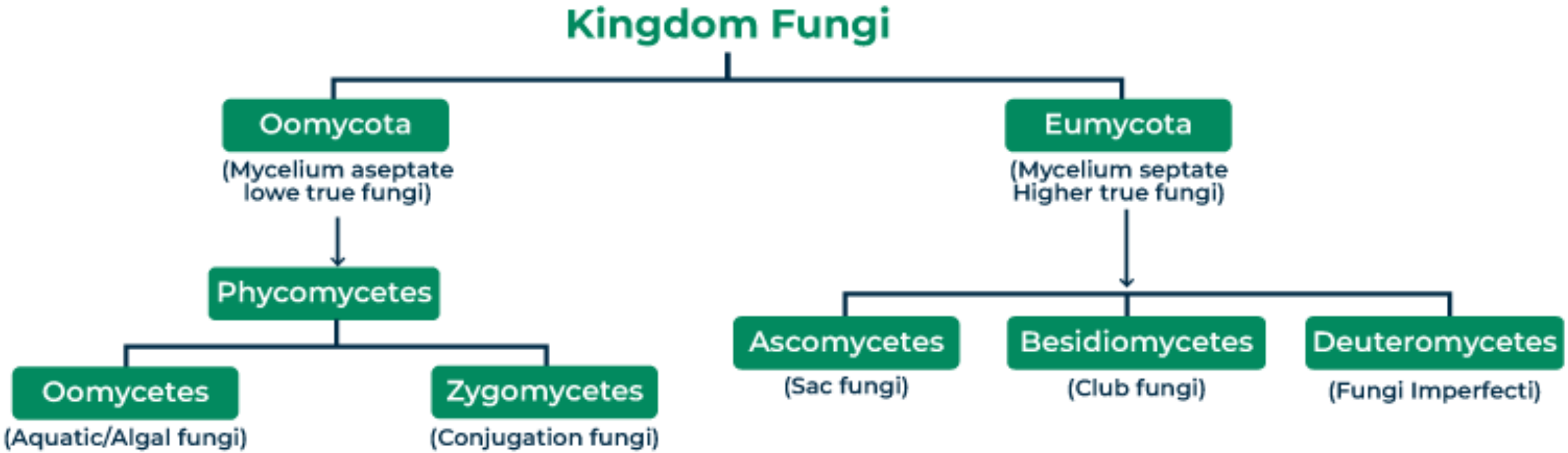
A. Resistant to El Tor phage V
B. Intrinsic resistance to polymyxin B
C. Voges-Proskauer test is positive
D. Not susceptible to group IV phage

TABLE 35-2 Biochemical characteristics of *Vibrio cholerae* biotypes

Properties	*Vibrio cholerae* biotype	
	Classical	Eltor
Hemolysis of sheep RBCs	−	+
Agglutination of chick erythrocytes	−	+
Voges–Proskauer test	−	+
Polymixin B sensitivity	+	−
Susceptibility to		
Mukerjee Group IV Phage	+	−
Eltor phage 5	−	+
Vibriostatic (O/129) agent	+	−

100. Which among the following is not a sexual spore?

A. Zygospore
B. Sporangiophore
C. Basidiospore
D. Ascospore


Kingdom Fungi
Oomycota
(Mycelium aseptate lowe true fungi)
Eumycota
(Mycelium septate Higher true fungi)
Phycomycetes
Oomycetes
(Aquatic/Algal fungi)
Zygomycetes
(Conjugation fungi)
Ascomycetes
(Sac fungi)
Besidiomycetes
(Club fungi)
Deuteromycetes
(Fungi Imperfecti)

Thank you

Cerebellum

Get the balance right

BTR Microbiology 30-09-2025

Dr. Zainab Vora

1. A 70-year-old diabetic woman comes to the physician complaining of progressive, severe pain and discharge from her left ear for the past 2 days. On examination, moving or touching the pinna produces extreme pain. Otoscopic examination shows granulation tissue in the left ear canal with a scant amount of discharge. Which of the following microbiological characteristics best describes the infecting organism?

A. Comma-shaped and grows well in high pH

B. Fast lactose fermenter

C. Motile and oxidase positive

D. Nonmotile and a lactose nonfermenter

Member	Motility	LF/NLF	IMViC	Urease
E. coli	M	LF	++--	-ve
Klebsiella	NM	LF	--++	+ve
Enterobacter	M	LF		-ve
Citrobacter	M	LF		-ve
Shigella	NM	NLF	-+--	-ve
Salmonella	M/NM	NLF	-+-+	-ve
Proteus	M	NLF		+ve
Yersinia	M/NM	NLF	-+--	-ve
Pseudomonas	M	NLF	---+	-ve

Urease Positive Organisms

Proteus

- Cryptococcus
- Helicobacter
- Ureaplasma
- Nocardia
- Klebsiella
- Staph saprophyticus
- Staph epidermidis

+ve = red color for IMV tests, blue for citrate test

2. Anti-larval measures are being taken for a pond in a city. Which of the following synthetic insecticides are not recommended for such measures?

A. Fenthion
B. Paris green
C. DDT adult
D. Abate

INTEGRATED VECTOR CONTROL

ANTI-LARVAL MEASURES

Chemical:
Paris green= Stomach poison
Temephos/Abate = Contact poison

Biological: Gambisia / Guppy
Bacillus thuringiensis

Environmental control → Best a/

ANTI-ADULT MEASURES

Space spray: LOW API
Malathion
Cyphenothrin
Pyrethrum

Residual spray: HIGH API
DDT (2 rounds)
Malathion (3 rounds)
Deltamethrin (2 rounds)

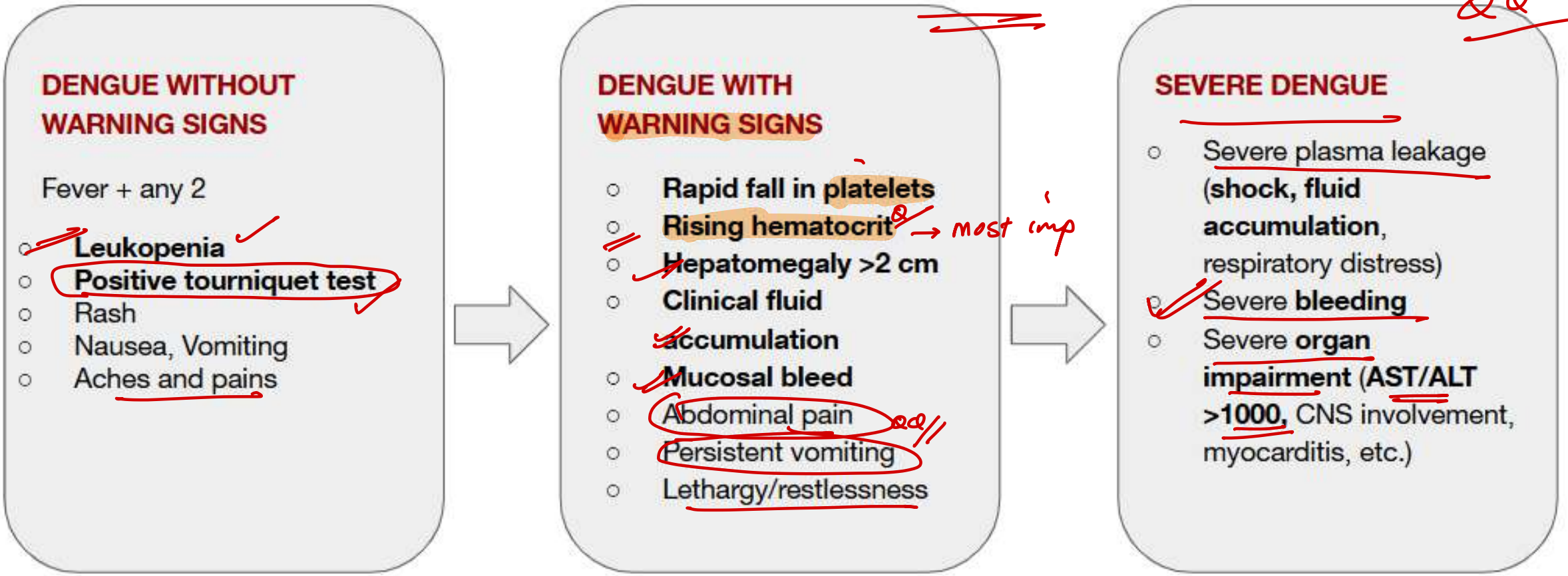
PERSONAL PROTECTION

Deltamethrin
-ITBN: 6mon
-LLIN:3yrs
0.0475inch
>150 holes/ich

3. Which of the following are features of severe dengue

1. AST and ALT are more than 1000 IU
2. Hepatomegaly >1cm
3. Leucopenia plus thrombocytopenia
4. Severe bleeding
5. Vomiting

A. 1, 2, 3
B. 1, 4
C. 1, 3, 4
D. 1, 2, 3, 4, 5


DENGUE WITHOUT WARNING SIGNS
Fever + any 2
Leukopenia
Positive tourniquet test
Rash
Nausea, Vomiting
Aches and pains
DENGUE WITH WARNING SIGNS
Rapid fall in platelets
Rising hematocrit
Hepatomegaly >2 cm
Clinical fluid accumulation
Mucosal bleed
Abdominal pain
Persistent vomiting
Lethargy/restlessness
SEVERE DENGUE
Severe plasma leakage (shock, fluid accumulation, respiratory distress)
Severe bleeding
Severe organ impairment (AST/ALT >1000, CNS involvement, myocarditis, etc.)

4. Under NVBDCP, the drug combination shown below can be given under which dose combination?

A. 80 mg, 480 mg
B. 25 mg, 12.5 mg
C. 120 mg, 200 mg
D. 400 mg, 50 mg

Organism	Drugs and Dosage
UNCOMPLICATED MALARIA	
P. vivax/ovale	•**Chloroquine (CQ)** 25 mg/kg: DAY 1-3 •**Primaquine (PQ)** 0.25 mg/kg: DAY 1-14
P. falciparum/ malariae	All Indian States (except northeastern): ACT-SP •**Artesunate** 4 mg/kg: DAY 1-3 •**Sulfadoxine + Pyrimethamine**, 25 mg/kg + 1.25 mg/kg : ONLY DAY 1 •**Primaquine** 0.75 mg/kg: ONLY DAY 2 Northeastern States: ACT-AL(due to SP resistance) •**Artemether + Lumefantrine:** DAY 1-3 •**Primaquine** 0.75 mg/kg: ONLY DAY 2
Mixed infections: Vivax + Falciparum	For All Indian States (except northeastern): ACT-SP •**Aretsunate** 4 mg/kg: DAY 1-3 •**Sulfadoxine + Pyrimethamine,** 25 mg/kg + 1.25 mg/kg : ONLY DAY 1 •**Primaquine** 0.25 mg/kg: DAY 1-14 For Northeastern States:ACT-AL •**Artemether + Lumefantrine:** DAY 1-3 •**Primaquine:** DAY 1-14
COMPLICATED MALARIA (Seizures, hypoglycemia, pulmonary edema and neurological deficits)	
P. falciparum (predominantly)	Initial Treatment: **IV Artesunate** at 2.4 mg/kg for 3 days. •Three doses at 0,12, and 24 hours on DAY 1 •Single dose on DAYS 2 and 3 After stabilisation: State based **Oral Artemisinin-based Combination Therapy (ACT)** for 3 days.

Mixed

ACT + PQ

- 20mg — d1-3
- SP — d1

PQ: 0.25mg/kg × 14d

5. Identify the disease transmitted by the vector shown in the image:

A. Epidemic typhus → Louse.

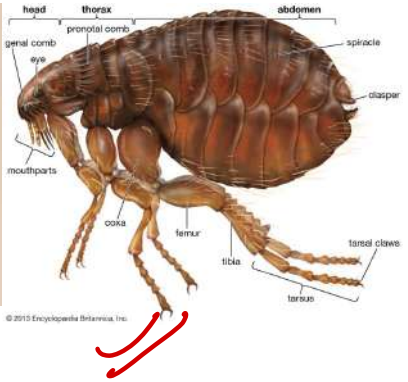
B. Endemic typhus

C. Q fever Soft tick / inhalation

D. Scrub typhus Mite

Flea.

ENTOMOLOGY



Transovarian transmission

Cheopsis index:

6. Criteria for discharging patients of dengue includes all except:

A. Absence of fever for at least 24 hours without the use of anti-fever therapy
B. Return of appetite
C. Minimum of three days after recovery from shock
D. Platelet count of more than 20,000/mm

The WHO discharge criteria for dengue patients include:

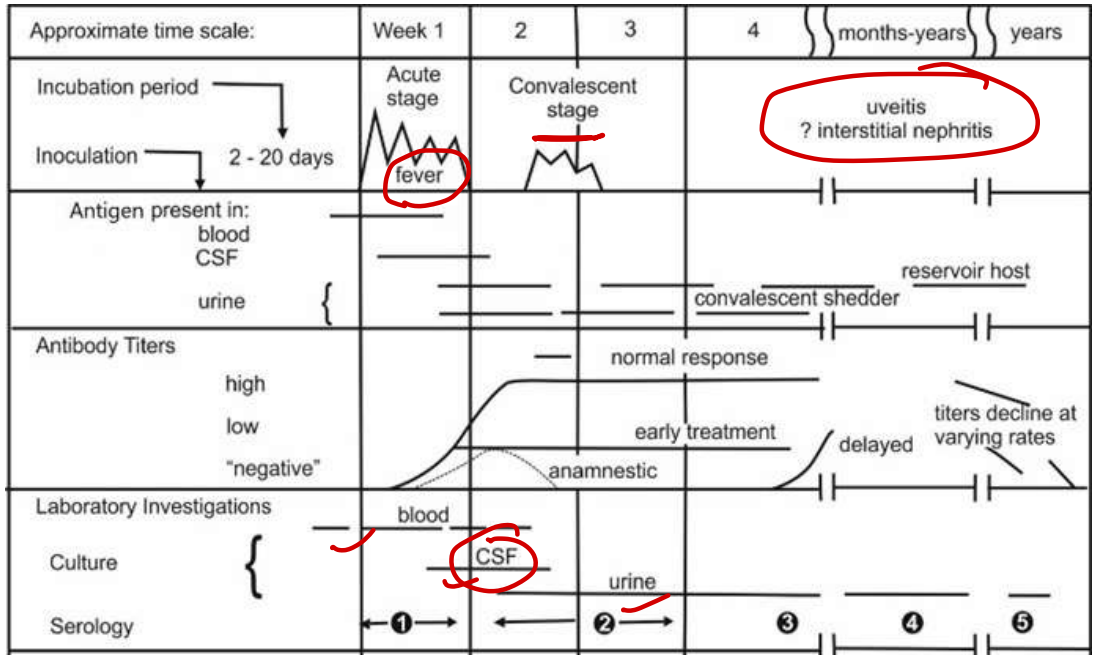
- No fever for at least 24 hours without antipyretics.
- Stable vital signs for at least 24 hours.
- Improvement in clinical status (well-being, appetite, urine output).
- Stable hematocrit without intravenous fluids.
- Platelet count >50,000/mm^3
- 2–3 days after recovery from shock

7. All of the following are true about NVBDCP except:

A. Most effective method of malarial control is personal protection
B. Long Lasting Insecticide Nets (LLIN) should be provided in areas with Annual Parasite Index ≥ 5.
C. Indoor Residual Sprays are useful in rural areas.
D. In case of DDT resistance, 3 rounds of spraying with Malathion should be done to provide protection during the entire transmission season.

8. Following is a graphic representation of a patient admitted in medicine ward with fever. What could be the possible diagnosis?

A. Cerebral malaria
B. Leptospirosis
C. Brucellosis
D. Typhoid



9. A 31-year-old pregnant lady comes with dysuria and urethral discharge for 3 days. NAAT for gonorrhea was negative. What is the true statement regarding the condition the patient is most likely to have?

Chlamydia

A. The elementary body is the infectious form of the causative organism. T

B. Applying erythromycin to the newborn's eyes prevents the disease. silver NO3 — Bo

C. Infection in pregnant women is treated with doxycycline. Gonorrhea — CI in pregn.

D. Genital disease is caused by serotypes A, B, and C

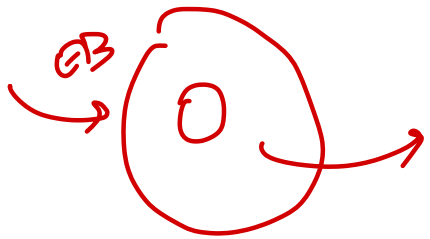
C. trachomatis

A - C → trachoma

D - K → urogenital
- adult inclusion conj
- neonatal conj → d 14

L1 - L2 - L3 → LGV

- **Elementary body (EB):** small, metabolically inactive, extracellular, **infectious form**.
- **Reticulate body (RB):** intracellular, metabolically active, replicative form.



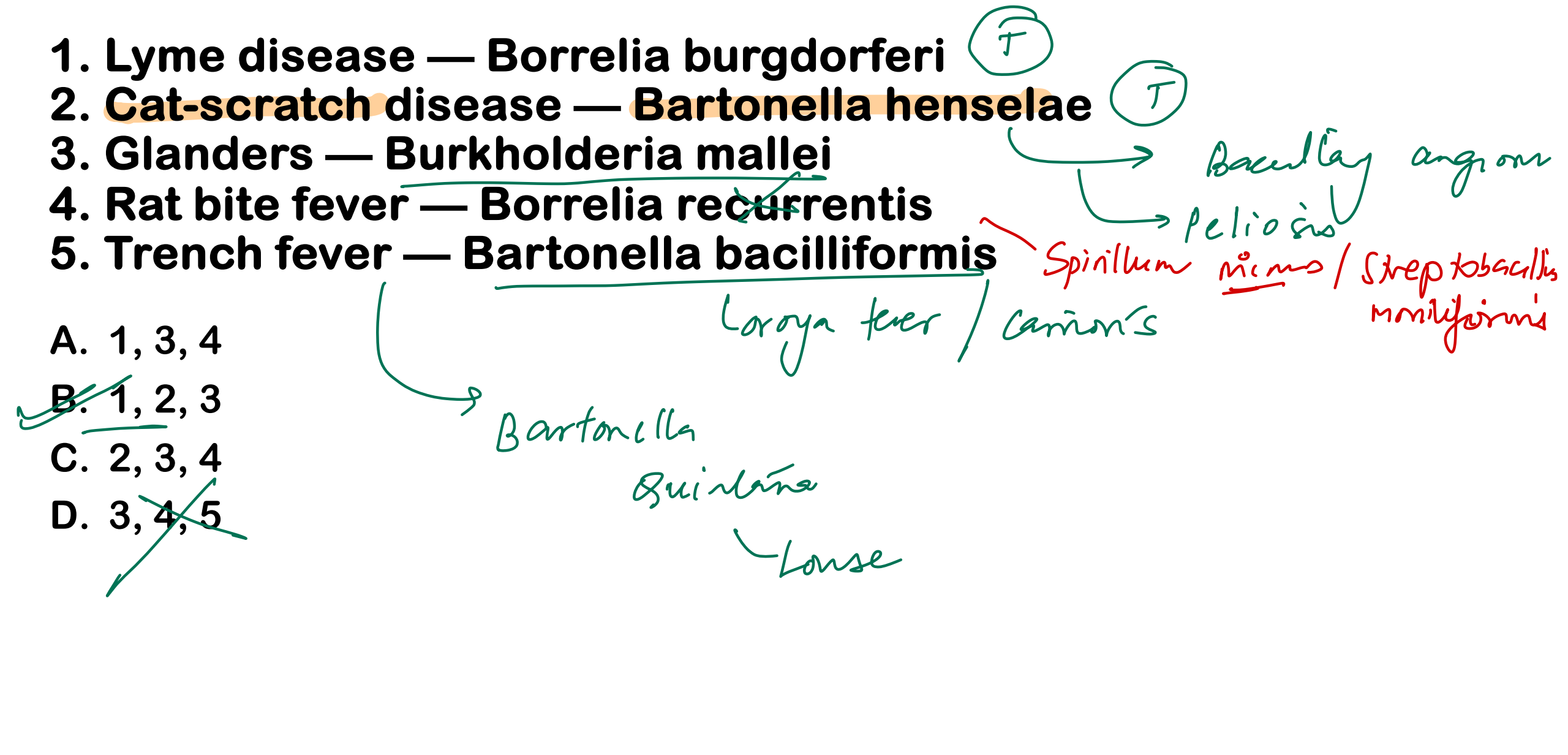
10. Which characteristic forms the basis for categorizing streptococci according to the Lancefield system?

A. C-substance
B. Glycoprotein O
C. Muramic acid
D. M-protein

11. Identify the correct agent-disease pairings from the list provided:

1. Lyme disease — Borrelia burgdorferi
2. Cat-scratch disease — Bartonella henselae
3. Glanders — Burkholderia mallei
4. Rat bite fever — Borrelia recurrentis
5. Trench fever — Bartonella bacilliformis

A. 1, 3, 4
B. 1, 2, 3
C. 2, 3, 4
D. 3, 4, 5



12. Which of the following is the most likely cause of this patient's condition?

A. Brown recluse spider bite
B. Hookworm infection
C. Mycobacterium marinum infection
D. Sporothrix schenckii infection

Eschar
Anthrax
Fish tank granuloma
QQ
Skin
A. duodenale
except
Hookworm
Strongyloides
A. braziliensis
Schistosoma
XX
CLM
mcc
Toxocara : VLM

13. A 24-year-old woman comes to the OPD due to skin lesions on her trunk and proximal upper limbs. The patient noticed the lesions after returning from a summer vacation at a Goa beach a week ago. During the vacation, she had sun exposure on several occasions without prior application of sunscreen. The lesions are mildly itchy but not painful. Medical history is notable for hypothyroidism, for which she takes levothyroxine. Which of the following is the most likely cause of this patient's current condition?

A. Autoimmune melanocyte injury

B. Dermatophyte skin infection

C. Malassezia globosa infection

D. Ultraviolet skin damage

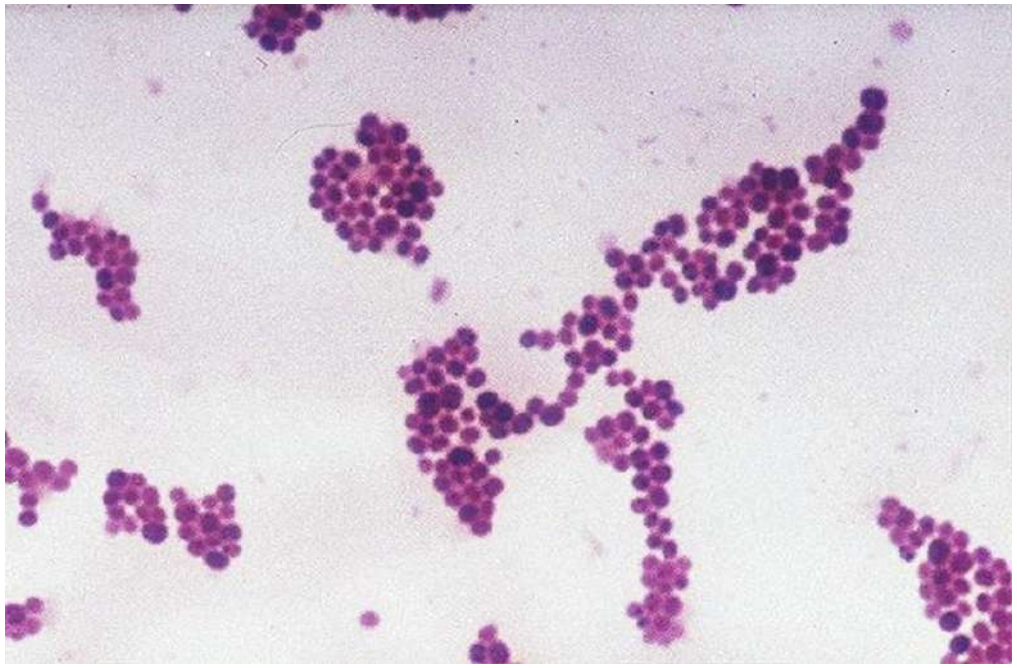
14. Gram staining from pus of a 30-year-old with chronic osteomyelitis is shown. Identify the incorrect statement about the causative organism.

A. The organism is catalase negative.

B. The organism is tube coagulase positive

C. On culture, golden yellow pigments are produced on nutrient agar

D. Beta-hemolysis is seen on blood agar



GPC cluster

Staph

15. Which of the following tests is a type of ring precipitation test?

A. VDRL test
B. Rose Bengal test
C. Ascoli's thermoprecipitation test
D. Elek test

ring ppt.

PRECIPITATION/FLOCCULATION:

Ring test: Ascoli Lancefield

Slide: VDRL

Tube: Kahn

Immunodiffusion/ Gel: Elek test

Rocket electrophoresis

AGGLUTINATION

Slide: Blood grouping Rose Bengal

Tube: Widal Weil Felix Paul-Bunnel CAT SAT MAT

Coombs test

Indirect/Passive agglutination:

Latex-ASO, CRP, RF, HCG

Heme-Rose Waaler test

Complement fixation:

Wassermann, TPI

Sabin Feldman

16. A 30-year-old man presents with severe pain in his gums, foul breath, and bleeding during brushing for the past week. On examination, his gingivae are red, edematous, and covered with ulcers and a necrotic membrane. The patient reports poor oral hygiene and stress due to a recent workload increase. Which of the following organisms is most commonly associated with this condition?

A. Streptococcus mutans
B. Fusiform bacilli + treponema (spirochete) / Prevotella.
C. Actinomyces israelii
D. Treponema pallidum

Vincent's angina = Trench mouth = ANUG

necrotizing ulcerative.

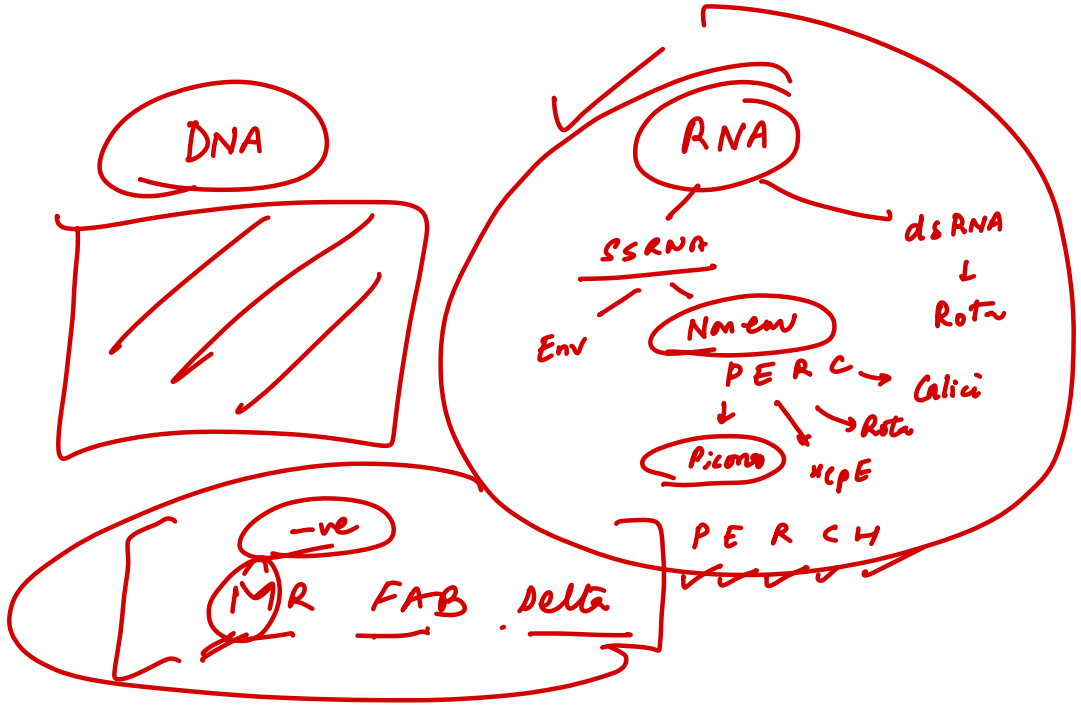
17. A 70-year-old man with a history of chronic smoking presented with fever, confusion, diarrhea and cough. Chest X-ray revealed bilateral infiltrates. Gram stain, immunofluorescence testing was done on sputum sample and came negative for organisms. Serology findings are given below. Which of the following organisms is responsible for this presentation?

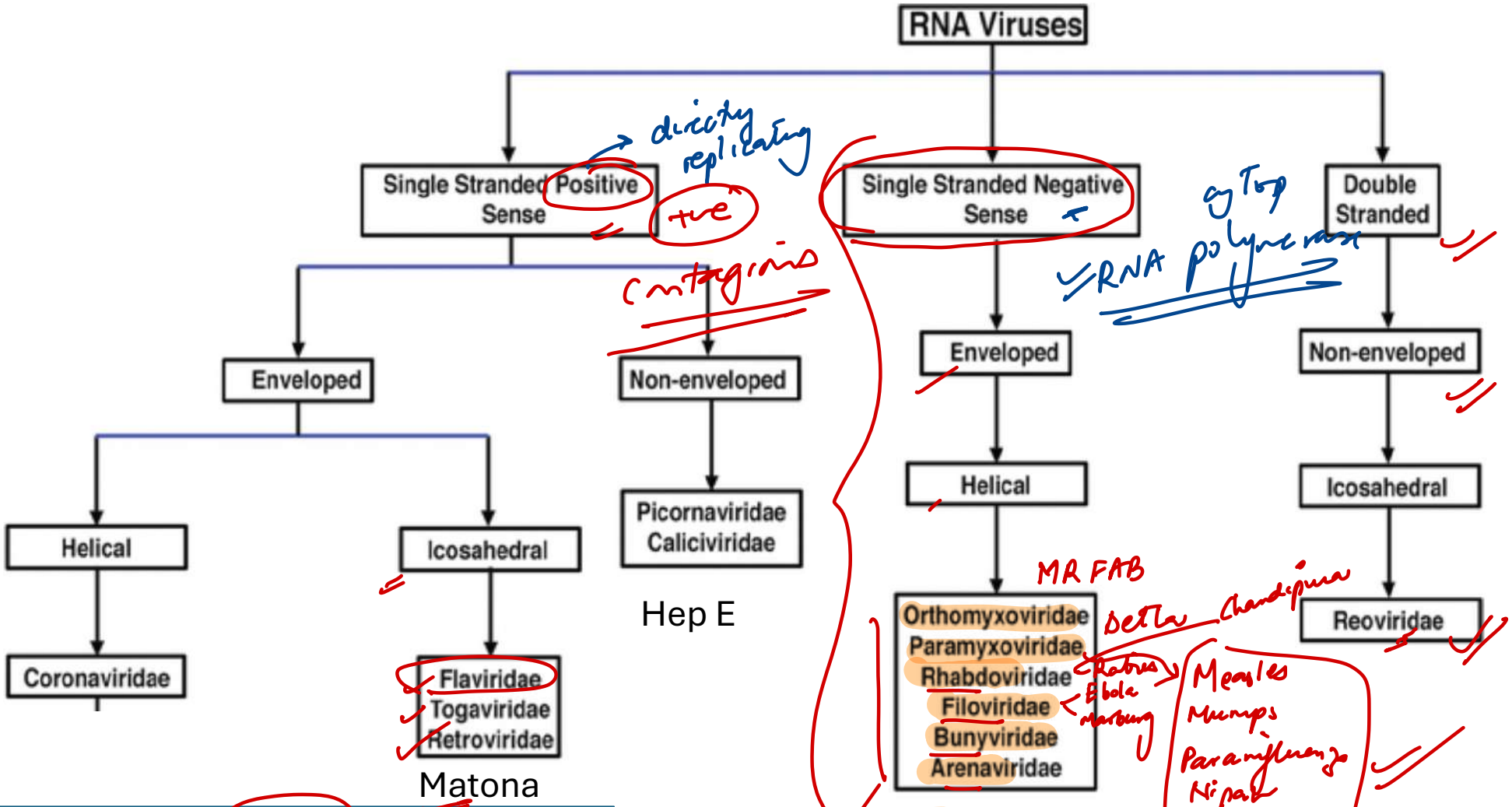
Serum Na+ – 120 meq/L
AST – 62 IU/L
ALT – 56 IU/L
HIV – Positive

A. Streptococcus
B. Legionella
C. Klebsiella
D. Pneumocystis carinii pneumonia

18. A 22-year-old man with 2 days of fever, cough, sore throat, and runny nose comes to the OPD. Lung sounds are clear to auscultation. A nasopharyngeal swab is obtained. Naked viral particles are seen, and purified RNA molecules are extracted from these particles. Once introduced into human cells, the purified RNA molecules induce viral protein synthesis and viral genome replication. Which of the following is the most likely cause of this patient's symptoms?

A. HIV
B. Influenza virus type A
C. Respiratory syncytial virus
D. Rhinovirus





HCV
Yellow fever[a]
Dengue[a]
West Nile virus[a]—meningoencephalitis, acute asymmetric flaccid paralysis
Zika virus[a]

Toga CREW—Chikungunya virus[a] (co-infection with dengue virus can occur), Rubella (formerly a togavirus), Eastern and Western equine encephalitis[a]

Poliovirus—polio-Salk/Sabin vaccines—IPV/OPV
Echovirus—aseptic meningitis
Rhinovirus—"common cold"
Coxsackievirus—aseptic meningitis; herpangina (mouth blisters, fever); hand, foot, and mouth disease; myocarditis; pericarditis
HAV—acute viral hepatitis

PERCH

LCMV—lymphocytic choriomeningitis virus
Lassa fever encephalitis—spread by rodents

California encephalitis[a]
Sandfly/Rift Valley fevers[a]
Crimean-Congo hemorrhagic fever[a]
Hantavirus—hemorrhagic fever, pneumonia

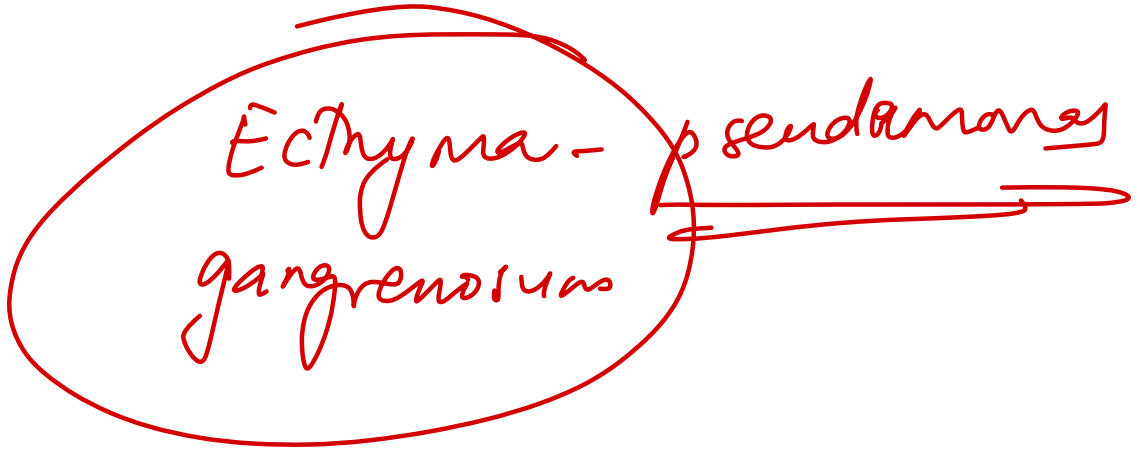
19. 43-year-old man comes to the emergency department due to 2 days of fever and a lesion on his right foot. The initial lesion was erythematous and oedematous, but it quickly developed into a bulla surrounded by erythema. Eventually, the bulla ruptured, leaving a painless ulcer with a black centre. The patient has a history of non-Hodgkin lymphoma and recently underwent chemotherapy. Which of the following is the best treatment for this patient's foot lesion?

A. Salvage chemotherapy

B. Corticosteroids

C. Antistaphylococcal penicillin

D. Antipseudomonal penicillin



20. Identify the incorrect pair

A. Calabar swellings: Chrysops = deerfly.
B. River blindness: Deerfly Blackfly
C. Sleeping sickness: Tse tse fly
D. Chagas disease: Reduvid bug

A. Wuchereria bancrofti

B. Brugia malayi

C. Loa loa (calabar swelling-deerfly-Chrysops)

D. Onchocerca volvulus (river blindness-Blackfly/Simulium)

E. Mansonella perstans

21. Which of the following method of disinfection and sterilization can also kill spores?

1. Glutaraldehyde
2. Ethylene oxide
3. Pasteurization
4. Orthophthalaldehyde

A. 1, 3 and 4

B. 1, 2 and 4

C. 2, 3 and 4

D. 1, 2, 3 and 4

22. Which of the following is a xenodiagnostic method?

A. Rabbit ileal loop for enterotoxigenic Escherichia coli
B. Injecting Aedes thorax with blood of a suspected dengue patient
C. Injecting a hamster with splenic biopsy for diagnosis of leishmaniasis
D. Intradermal test on guinea pigs for toxigenicity of Corynebacterium diphtheria

23. A 31-year-old man comes to the office due to a week of low-grade fever, dry cough, and right-sided chest pain. The pain is intermittent, sharp, and worse with deep inhalation or cough. The patient also notes mild "achiness" in his knees and ankles that started around the same time. He does not use tobacco, alcohol, or illicit drugs. The patient is an Army officer, and he returned after completing desert training exercises in Rajasthan. He does not know if other participants developed similar symptoms. Temperature is 37.8°C (100°F). Blood pressure is 120/80 mm Hg, pulse is 78/min, and respirations are 16/min. Lung auscultation shows right-sided crackles. No joint swelling or tenderness is present, but there are erythematous, tender nodules on the bilateral shins. Chest x-ray reveals a right lower lobe infiltrate with a prominent right hilum. Which of the following is most likely causing this patient's condition?

A. Blastomyces dermatitidis
B. Coccidioides immitis
C. Histoplasma capsulatum
D. Legionella pneumophila

desert rheumatic

NEET '24

24. Match the following:

Py 8

PARASITE	ORGAN OF LOCOMOTION
A. BALAMUTHIA MANDRILLARIS	1. FLAGELLA
B. BALANTIDIUM COLI	2. CILIA
C. TRICHOMONAS VAGINALIS	3. PSUEDOPOD
D. TOXOPLASMA GONDII	4. NO PARTICULAR ORGAN

A. A-2, B-1, C-3, D-4
B. A-3, B-2, C-1, D-4
C. A-4, B-1, C-2, D-3
D. A-1, B-2, C-4, D-3

25. A 22-year-old primigravid woman at 8 weeks gestation comes to the office for her initial prenatal visit. She has no symptoms except mild nausea. She smoked a pack of cigarettes a day and drank 7-8 beers each week but quit after learning she was pregnant. The patient has a history of an allergic reaction to penicillin; she developed a generalized rash with intense itching that responded to antihistamines and corticosteroid cream. Vital signs are within normal limits. Physical examination shows no abnormalities. The screening VDRL test is positive, fluorescent treponemal antibody absorption test is positive. Her HIV test is negative. Which of the following is the best next step in management of this patient?

A. Azithromycin ✗✗

B. Doxycycline ✗✓

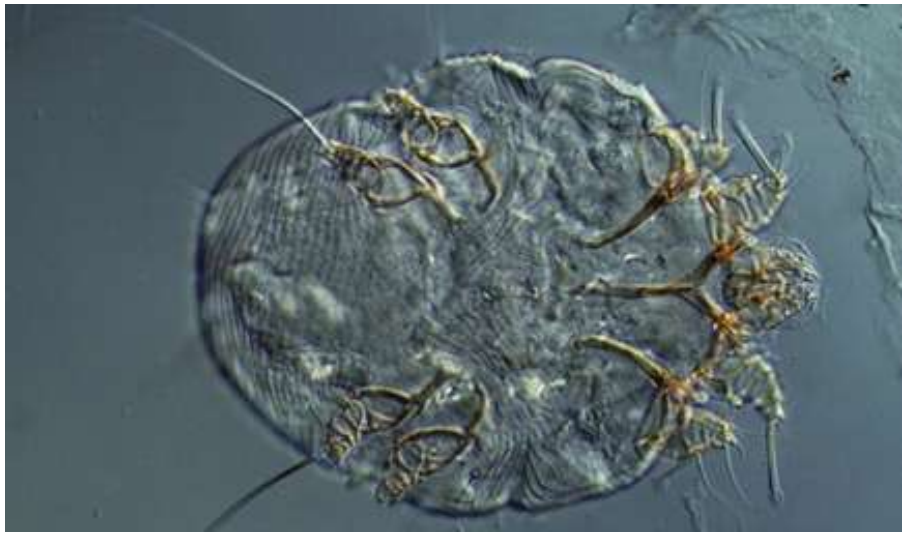
C. No treatment until delivery ✗✗

D. Skin testing and penicillin desensitization

Penicillin allergy
✓
Bme – Doxy.
Pregn → Desensitize

26. A 30-year-old female developed pruritic papules with excoriated plaques in the interdigital web spaces. Later the lesion spread to the groin and under-surface of the breasts. The lady gives a history of intense pruritus which is more severe at night. Given below is the organism responsible for this condition. Identify the wrong statement about the same?

A. Life history has 4 stages (T)
B. Larvae have 3 pairs of legs
C. The entire life cycle takes about 15 days
D. ~~Male~~ ♀ parasite burrows into the epidermis



egg → larva → nymph → adult

4 pairs

27. 6-hour-old boy is being evaluated in the nursery. He was born at 39 weeks' gestation via spontaneous vagina delivery to a 33-year-old primigravida. The pregnancy was complicated by intravenous drug use. First trimester serologies, including RPR, HIV antibodies, and hepatitis B surface antigen (HBsAg), were negative. Due to the mother's risk profile, follow up testing was obtained during the third trimester and revealed the following lab values:

HBSAg-Positive
Anti-HBsAg Negative
IgM Anti-HBcAg Negative
Anti-HBcAg Positive
Anti HCV negative

Liver function testing was normal. The remainder of the pregnancy was uncomplicated. The infant weighs 3.7 kg (8 lb 3 oz). Physical examination of the infant is normal. There is no jaundice or hepatomegaly. Which of the following is the most appropriate next step in management this infant?

A. Administer hepatitis B immune globulin
B. Administer hepatitis B immune globulin and vaccine
C. Administer hepatitis B vaccine
D. Obtain hepatitis B antibody panel

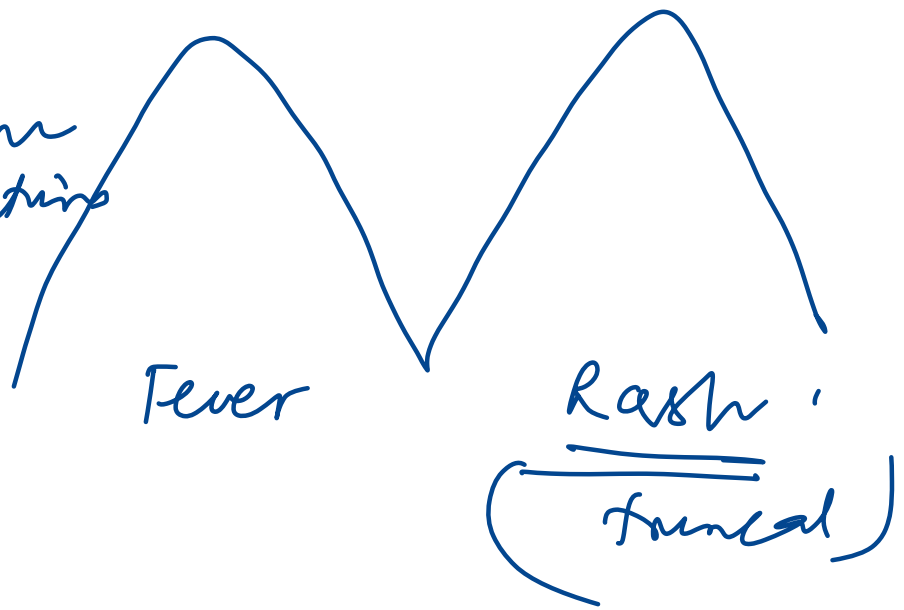
28. A 13-month-old boy is brought to the physician for evaluation of a painless, non-itchy rash that began this morning. The boy had a fever over the past 3 days, but it resolved on its own today. He takes no medications and his vaccinations are up to date. Examination shows a well-appearing infant with blanching, pink macules on his neck, back, abdomen, and chest. No vesicles are present. The rest of his examination is normal. Which of the following organisms is the most likely cause of this patient's condition?

A. Coxsackie virus A

B. Human herpesvirus 6

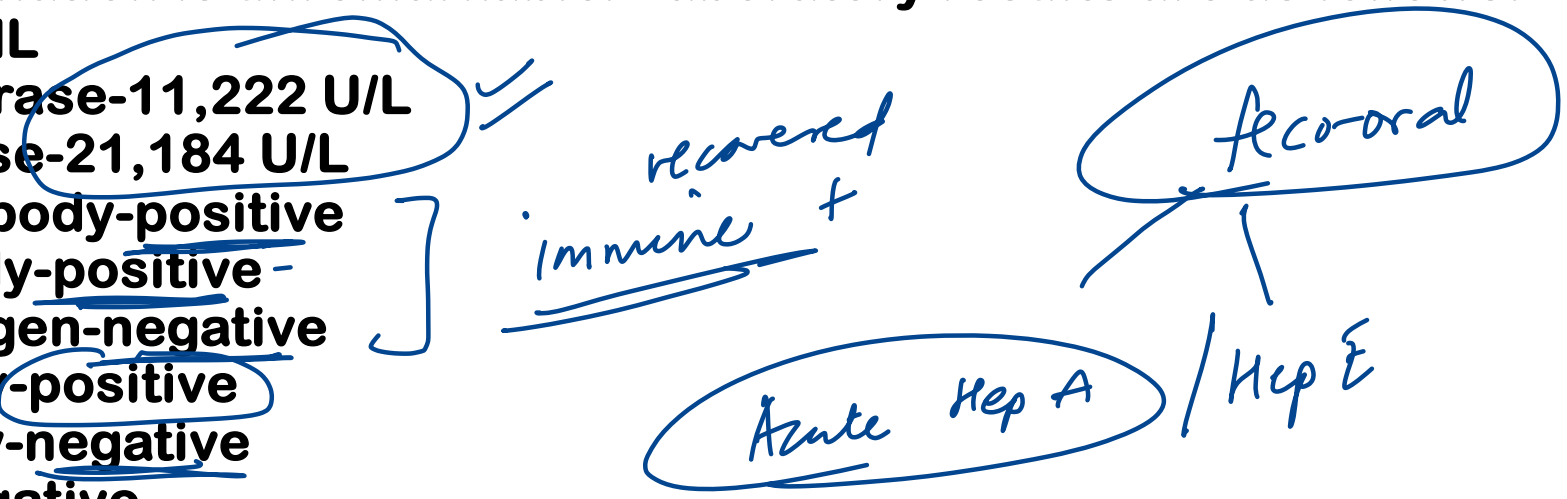
C. Measles-virus

D. Parvovirus B19-infection



29. A 26-year-old woman comes to the office due to a flulike illness with low-grade fever, malaise, nausea, and anorexia. The patient has no significant medical history and takes no medications. She occasionally smokes marijuana and has used injection drugs in the past. She has had several sexual partners. Temperature is 37.9°C (100.2°F), blood pressure is 121/78 mm Hg, and pulse is 86/min. The patient has scleral icterus. Cardiopulmonary examination is unremarkable. Laboratory results are as follows:

Total bilirubin-44.8 mg/dL
Aspartate aminotransferase-11,222 U/L
Alanine aminotransferase-21,184 U/L
Hepatitis B surface antibody-positive
Hepatitis B core antibody-positive
Hepatitis B surface antigen-negative
Hepatitis A IgM antibody-positive
Hepatitis A IgG antibody-negative
Hepatitis C antibody negative



After discussing the findings, the patient says she is worried that she may transmit the disease to her boyfriend. Which of the following interventions for the boyfriend is most likely to decrease his risk of disease acquisition?

A. Barrier contraceptive use
B. Hepatitis A vaccination
C. Hepatitis B immune globulin
D. Hepatitis B vaccination

30. Identify the false statements:

1. Rickettsial morula in a monocyte is diagnostic of Ehrlichia chaffeensis

2. E6, E7 are targets of vaccine against HPV

3. SARS CO-2 specimen handling for molecular testing needs BSL-2

4. Peptostreptococcus causes scromboid fish poisoning

A. 2, 4

B. 1,2,4

C. 3,4

D. 2,3

TOXIN	SOURCE	ACTION	SYMPTOMS	TREATMENT
Histamine (scombroid poisoning)	Spoiled dark-meat fish such as tuna, mahi-mahi, mackerel, and bonito	Bacterial histidine decarboxylase converts histidine to histamine Frequently misdiagnosed as fish allergy	Mimics anaphylaxis: oral burning sensation, facial flushing, erythema, urticaria, itching; may progress to bronchospasm, angioedema, hypotension	Antihistamines Albuterol +/– epinephrine
Tetrodotoxin	Pufferfish	Binds fast voltage-gated Na^+ channels in nerve tissue, preventing depolarization	Nausea, diarrhea, paresthesias, weakness, dizziness, loss of reflexes	Supportive
Ciguatoxin	Reef fish such as barracuda, snapper, and moray eel	Opens Na^+ channels, causing depolarization	Nausea, vomiting, diarrhea; perioral numbness; reversal of hot and cold sensations; bradycardia, heart block, hypotension	Supportive

31. A 54-year-old man comes to the clinic with fever, exertional dyspnoea, and non productive cough for one week. He was diagnosed with HIV infection 3 years ago but has been asymptomatic since. He has not been taking his medications consistently. His temperature is 38.9°C (102°F), blood pressure is 120/80 mm Hg, pulse is 100/min, and respirations are 28/min. The patient's pulse oximetry shows 80% on room air. With use of a 100% nonrebreather mask, his oxygen saturation increases to 92%.
Laboratory results are as follows:
Hemoglobin-9.6 g/dL
Platelets-120,000/mm³
Leukocytes-8,000/mm³ (no bands)
Arterial blood gases on room air
pH-7.45
PaO_2-54 mm Hg
$PaCO_2$-44 mm Hg
Chest x-ray shows diffuse bilateral interstitial infiltrates. His CD4 count is 190/mm³ and lactate dehydrogenase level is 400 U/L. What is the most appropriate next step in management of this patient?

A. Initiation of antiretroviral treatment

B. Intravenous pentamidine and corticosteroids

C. Trimethoprim-sulfamethoxazole and corticosteroids

D. Trimethoprim-sulfamethoxazole

- **PaO_2 <70 mm Hg on room air or**
- **Alveolar-arterial (A-a) gradient ≥35 mm Hg.**

32. A 3-year-old girl is brought to the emergency department with abrupt-onset vomiting followed by frequent, large-volume, watery diarrhea for the last day. She has no prior medical conditions but has not received recommended vaccinations. Physical examination shows mild dehydration. The abdomen is soft and mildly tender to palpation throughout. Bowel sounds are increased. Polymerase chain reaction testing of the stool sample yields a virus with a segmented, double-stranded RNA genome. Which of the following pathologic findings is most likely to be present in this patient?

Rota

A. Blunting of the villi in the duodenum and proximal jejunum

B. Extensive colonic injury with yellow-white adherent layer → C. difficile

C. Flask-shaped ulcerations in the cecum and ascending colon → E. histolytica

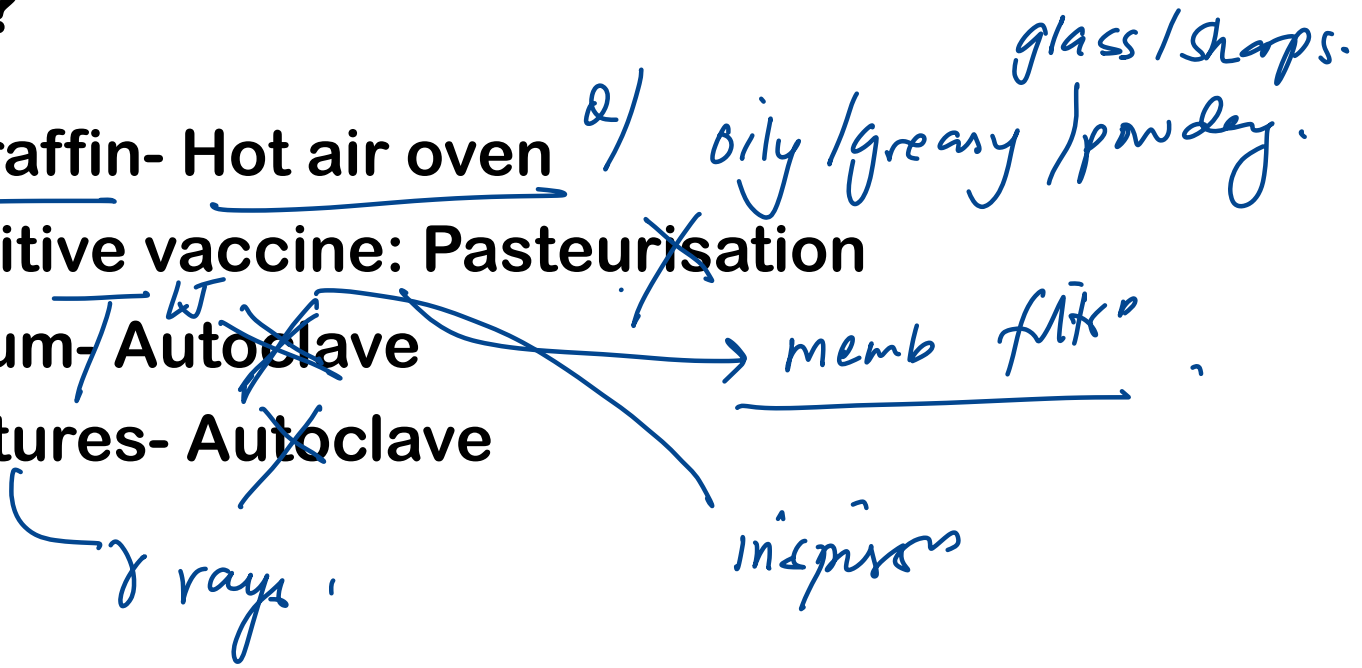
D. Foamy macrophages in the small intestinal lamina propria

→ whipple

→ TB.

33. A technician wants to sterilize the material of the laboratory. Which of the following is a correct combination for him to use?

A. Liquid paraffin- Hot air oven
B. Heat sensitive vaccine: Pasteurisation
C. LSS medium- Autoclave
D. Catgut sutures- Autoclave



34. A 26-year-old man develops dysuria and purulent urethral discharge following unprotected sex with a new partner. Nucleic acid amplification testing is positive for Neisseria gonorrhea infection. The patient develops antibody against the bacterial pili that enhance attachment to host cells. His symptoms resolve with adequate treatment. His partner does not receive treatment. Several weeks later, the patient develops N gonorrhoeae reinfection after repeat exposure to the same partner. Which of the following is the most likely reason for the lack of long-lasting immunity against the bacteria despite antibody formation in this patient?

A. Antigenic mimicry

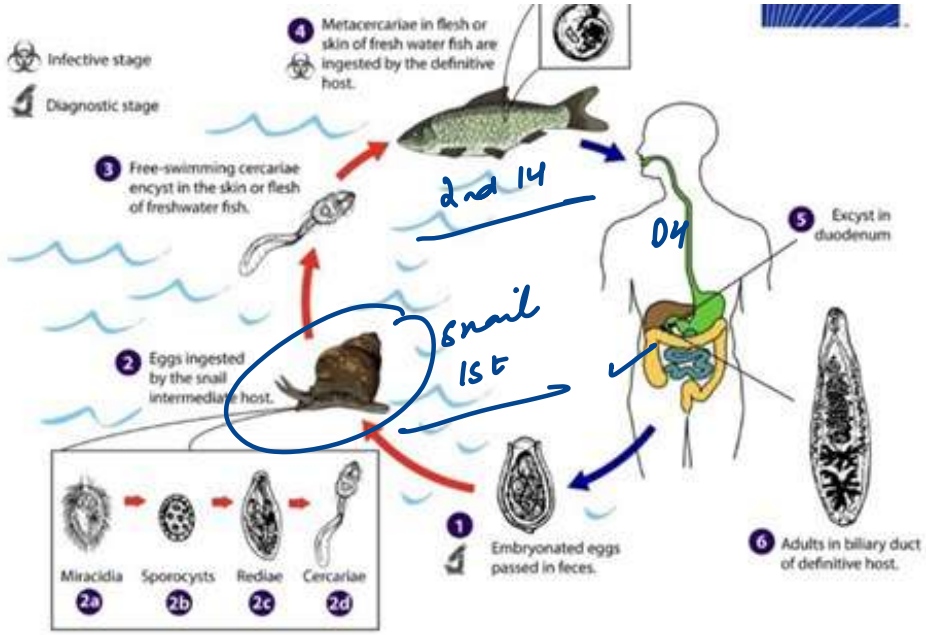
B. Antigenic variation

C. Conjugative plasmid

D. Low molecular weight antigen

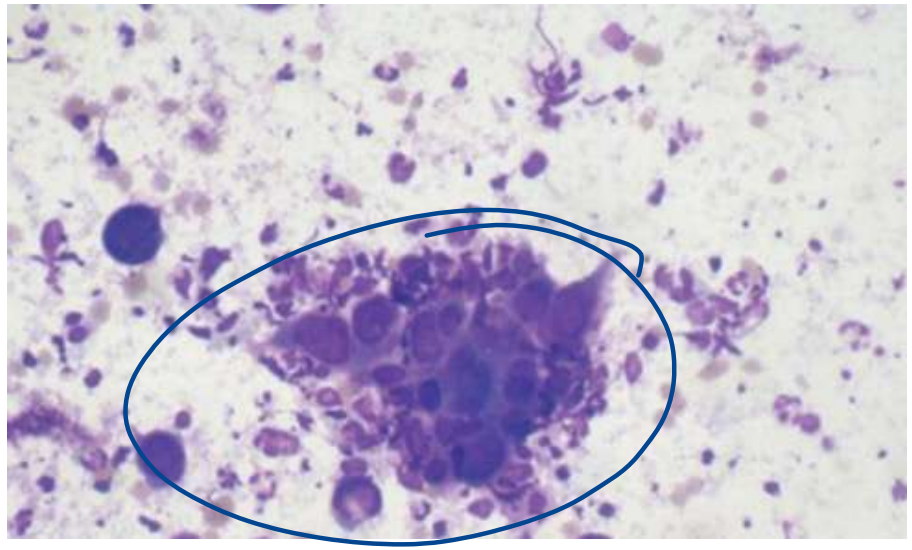
35. The organism whose life cycle is shown below is associated with which of the following malignancies?

A. HCC
B. Cholangiocarcinoma
C. Gastric carcinoma
D. Bladder carcinoma



36. A 23-year-old man comes to the OPD due to penile ulcers that appeared after unprotected sexual intercourse. Physical examination shows 3 subcentimeter ulcers on the penile shaft. Microscopic examination of a scraping from an ulcer base reveals the following. Which of the following medications is most appropriate for this patient?

A. Acyclovir
B. Azithromycin
C. Fluconazole
D. Penicillin



HSV

37. A 36-year-old man comes to the OPD due to 2 months of fatigue, intermittent arthralgias, and poor appetite. Liver aminotransferases are elevated. Hepatitis serology shows the following:

Hepatitis A virus antibody: negative
Hepatitis B surface antibody (HBsAb): negative
Hepatitis B core antibody (HBcAb), total: positive
Hepatitis B surface antigen (HBsAg): positive
Hepatitis B E antigen (HBeAg): positive
Hepatitis C virus antibody: negative

Which of the following genome replicative processes is most likely used by the virus infecting this patient?

A. Double-stranded DNA -› double-stranded DNA template - › double-stranded DNA progeny
B. Double-stranded DNA -› RNA template -› partially double-stranded DNA progeny
C. Single-stranded DNA -› double-stranded DNA template -› single-stranded DNA progeny
D. Single-stranded RNA -> double-stranded DNA template -> single-stranded RNA progeny

38. Match the following:

A. BCYE agar	1. Legionella
B. EMJH agar	2. Campylobacter
C. PEMBA agar	3. Leptospira
D. Butzler's agar.	4. B.cereus

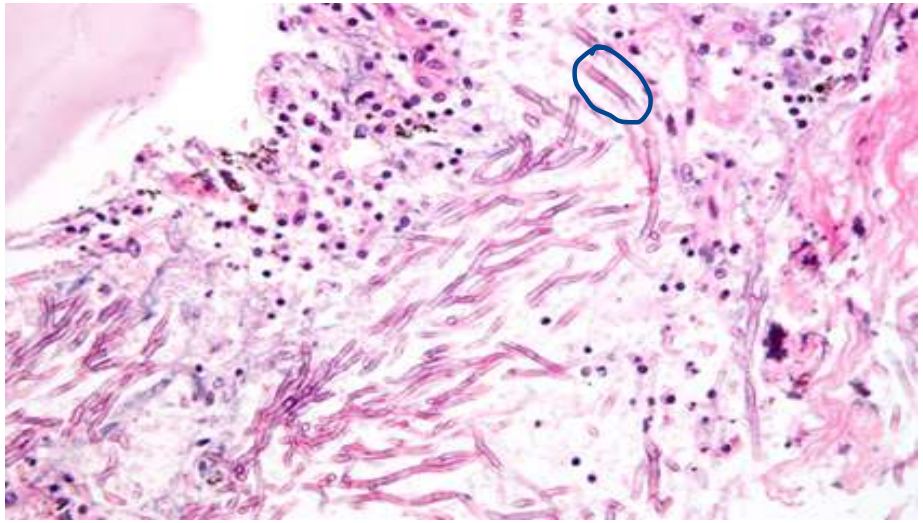
A. A-1, B-2, C-3, D-4
B. A-1, B-3, C-2, D-4
C. A-1, B-3, C-4, D-2
D. A-3, B-2, C-1, D-4

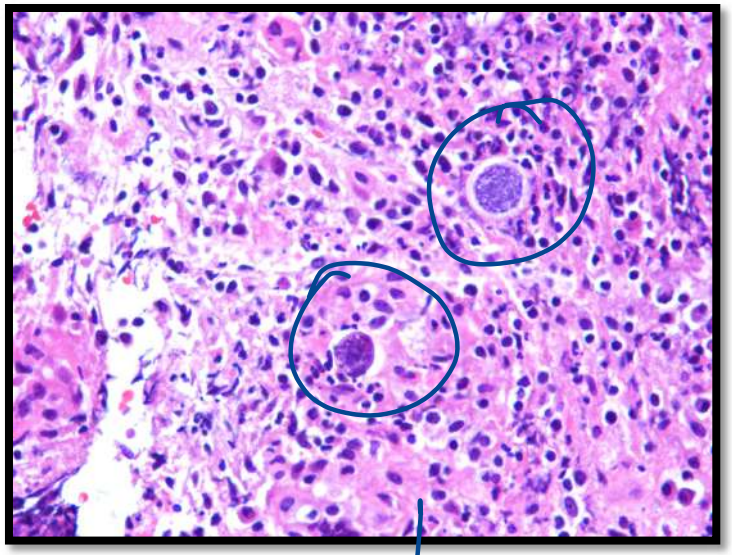
39. A 65-year-old man comes to the emergency department with a sore on his right hand. The lesion began as a small, painless papule 3 days ago and rapidly enlarged and ulcerated. He is in the wool business and recently returned from a tour of wool-processing plants in several Asian countries. Physical examination is shown below. The toxin causing edema around this patient's ulcer has a mechanism of action most similar to a different toxin produced by which of the following bacteria?

A. Bordetella pertussis
B. Clostridium botulinum
C. Clostridium difficile
D. Shigella dysenteriae

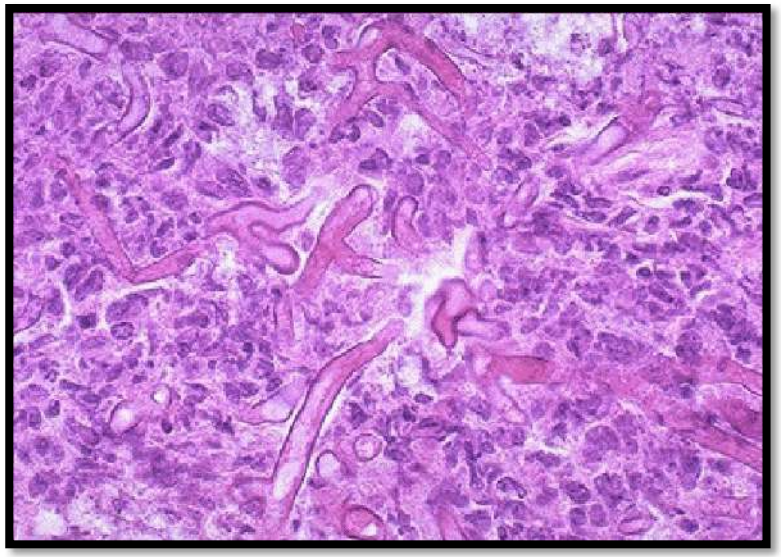
40. A 47-year-old man initially comes to his primary care physician with persistent fever, night sweats, and fatigue. Thorough evaluation yields a diagnosis of chronic myeloid leukemia. While undergoing treatment for his malignancy, the patient comes to the oncologist complaining of headaches, scant nasal discharge, and a problem with his left eye. Physical examination reveals tenderness over the paranasal sinuses in addition to left-sided orbital swelling and cellulitis. Mild proptosis and ptosis of the left eye are also present. Biopsy of his sinus mucosa is shown below. What is the likely cause?

A. Aspergillus fumigatus
B. Blastomyces dermatitidis
C. Mucor
D. Coccidioides immitis





Coccidio.



Mucor.

Blastomyces

41. Identify the correct statements:

1. Phase contrast microscopy is the technique used to study motility in live bacteria.
2. Interferon-beta (IFN-β) is a type I interferon, which is predominantly secreted in response to viral infections.
3. Alveolar echinococcosis can mimic HCC on imaging.
4. Protein A binds the Fc portion of IgG

A. 1, 2, 3, 4

B. 3, 4

C. 1, 2, 3

D. 1, 2

- **Type I Interferons**
- **Includes:** IFN-α (alpha), IFN-β (beta), IFN-ε (epsilon), IFN-κ (kappa), IFN-ω (omega).
- **Produced by:** Almost all nucleated cells (esp. plasmacytoid dendritic cells).
- **Induced by:** Viral infections and double-stranded RNA.

- **Type II Interferon**
- **Includes:** IFN-γ (gamma).
- **Produced by:** Activated T-lymphocytes (Th1, CD8+) and NK cells.
- **Induced by:** Antigenic stimulation and IL-12.

- **Type III Interferons**
- **Includes:** IFN-λ (lambda, also called IL-28A, IL-28B, IL-29).
- **Produced by:** Epithelial cells, dendritic cells.
- **Act mainly on:** Epithelial barriers.

innate Immunity

β :

INFα → Hep / kaposi sarcoma / Hairy cell leuk

INF β → MS

INF γ → CGD

42. A 19-year-old man comes to the physician due to diarrhea for the last 4 months. He visited a student health clinic at his university a month ago and was prescribed a course of antibiotics, but his diarrhea failed to improve. He also has persistent nausea, a bloating sensation, and a 6.8-kg weight loss. Microscopic examination of his stool is shown in the image. Impairment of which of the following immune functions would most likely predispose to this patient's infection?

A. Bacterial killing by neutrophils

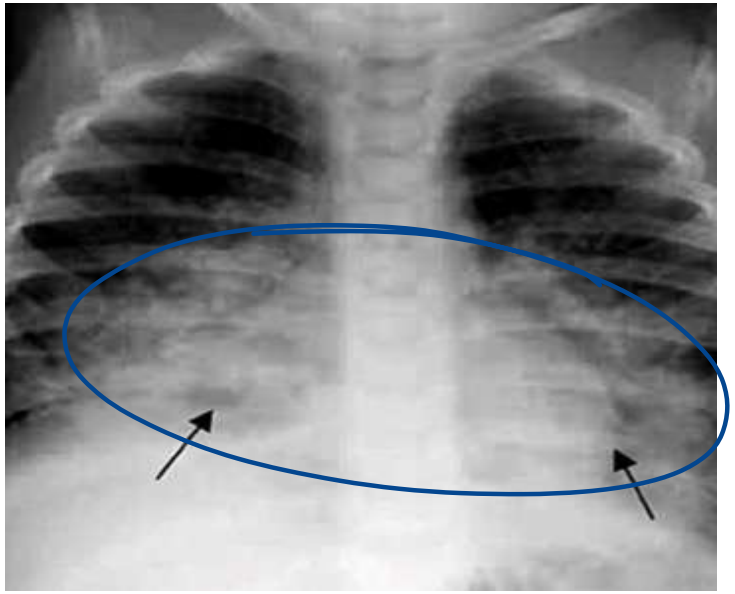
B. CD8+ T lymphocyte-mediated cytotoxicity

C. Eosinophil-mediated cytotoxicity

D. Secretory IgA production

43. A 56-year-old woman comes to the emergency department due to a week of fever, dyspnea, and cough with productive, foul-smelling sputum. She underwent an upper gastrointestinal endoscopy 10 days ago for a long history of heartburn. Temperature is 38.7°C (101.7°F), blood pressure is 130/80 mm Hg, pulse is 108/min, and respirations are 22/min. Dentition is poor. Crackles are heard over the right upper lung field. Complete blood count shows leukocytes of 14,500/mm'. Chest x-ray is shown below. Which of the following additional therapies would be most helpful for this patient's condition?

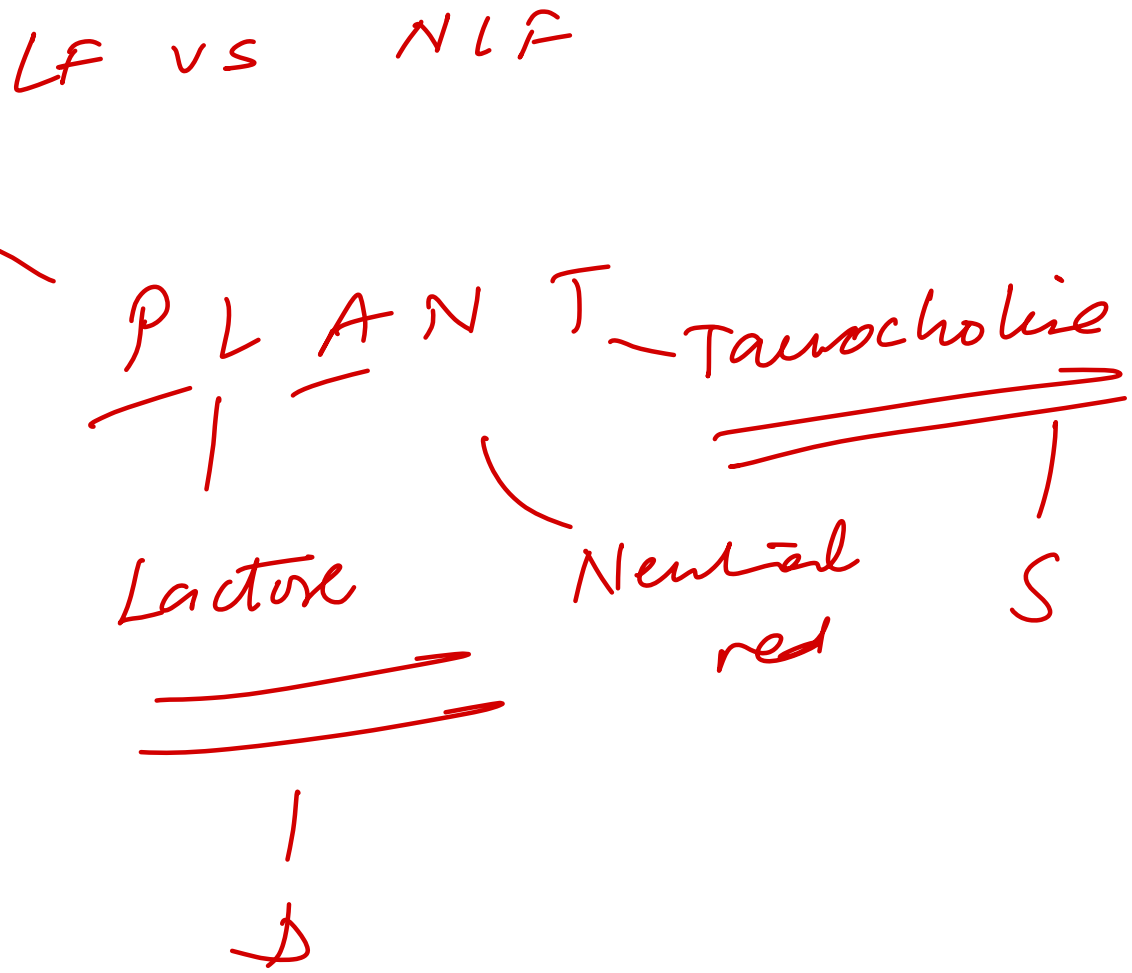
A. Ampicillin and gentamicin
B. Ciprofloxacin
C. Clindamycin
D. Doxycyclin



44. Which of the following terms best describes the MacConkey medium?

1. Differential
2. Enrichment
3. Transport
4. Selective

A. 1,2,3,4
B. 1,3
C. 1,4
D. 2,3,4



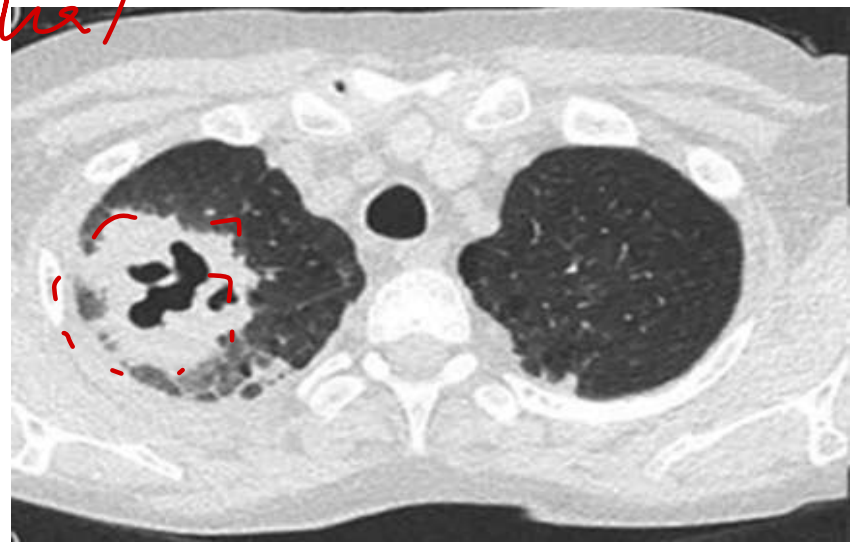
Type	Examples
Differential Media	- Blood agar (hemolysis) - MacConkey agar (lactose fermentation) - Mannitol salt agar - CLED
Enrichment Media	- Selenite F broth (*Salmonella*) - Tetrathionate broth (*Salmonella*, *Shigella*) - Alkaline peptone water (*Vibrio*)
Transport Media	- Stuart's medium - Amies medium (± charcoal) - Cary-Blair medium
Selective Media	- MacConkey agar (lactose fermentation) - Mannitol salt agar - Lowenstein–Jensen (for *Mycobacterium*) - Deoxycholate citrate agar (DCA): Selective for enteric bacilli - TCBS agar (for *Vibrio*) - Sabouraud's agar with antibiotics (for fungi)

45. A 46-year-old man comes to the emergency department due to a week of fever, chills, productive cough with yellow-white sputum, and shortness of breath. The patient received an allogenic renal transplantation 6 months ago and currently takes maintenance immunosuppressive therapy. Chest imaging is shown below. Sputum Gram stain and culture are negative. Bronchoalveolar lavage cultures yield light growth of branching, filamentous rods that are partially acid-fast. Which of the following is the most likely causative organism of this patient's condition?

A. TB
B. Nocardiosis
C. Histoplama
D. Mucormycosis

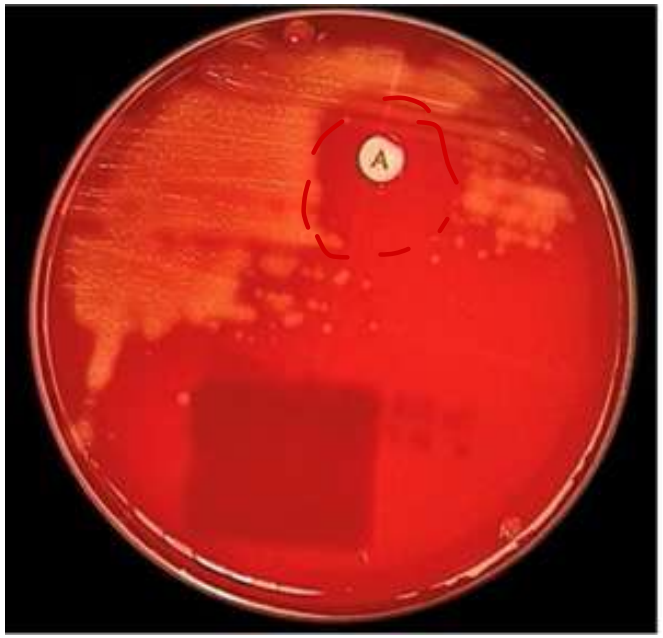
TB / nocardia / Mucor

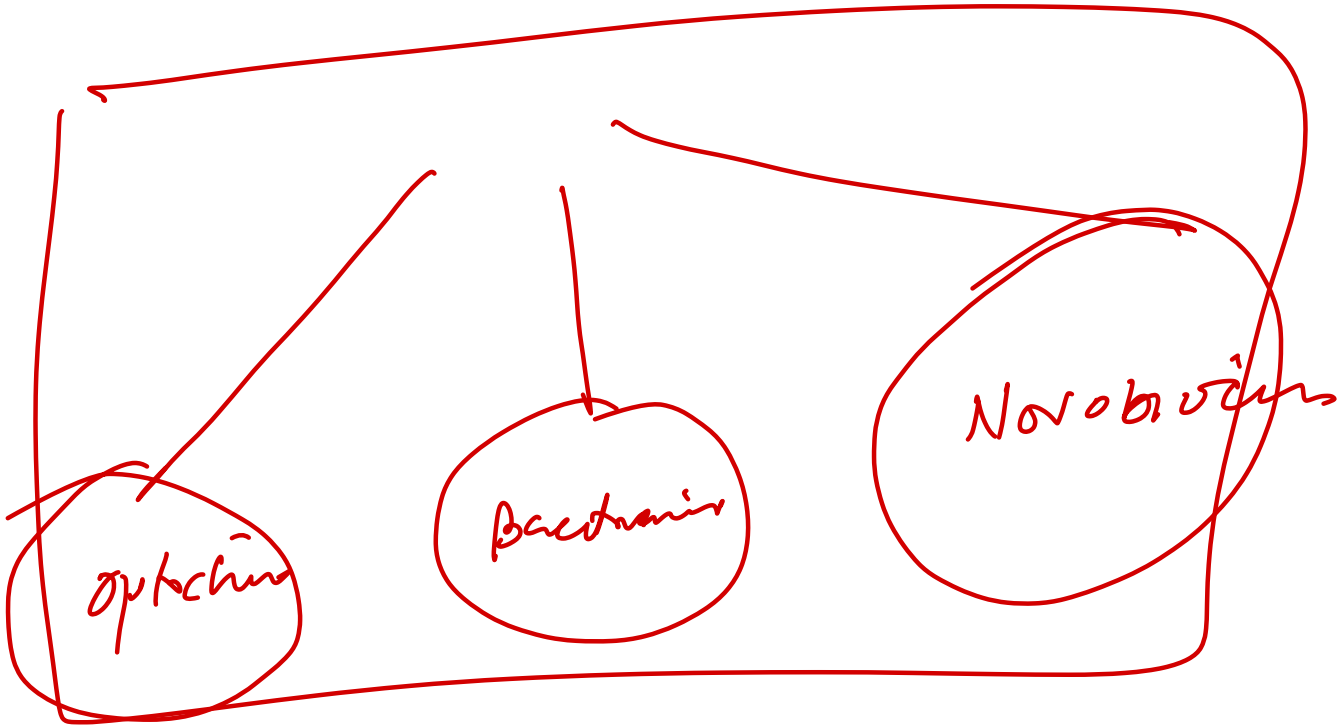
abscess



46. The test shown below, which uses a bacitracin disk, is useful in identifying?

A. Staphylococcus aureus
B. Streptococcus pyogenes
C. Clostridium botulinum
D. Bacillus



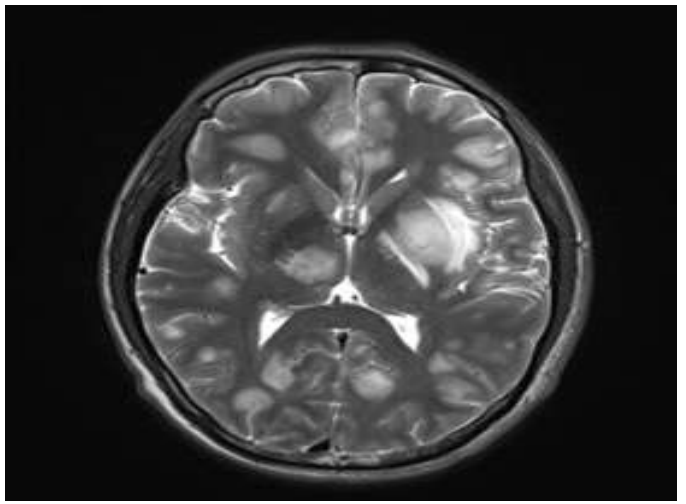


47. A 28-year-old man comes to the office due to abnormal movements of his arm and face over the last week. The patient has had 1- to 2-minute episodes of jerking and twitching of the left arm and left side of the face The patient was recently diagnosed with HIV and started antiretroviral therapy 2 months ago. At that time, his CD4 count was 46./mm3. Temperature is 37.8°C (100°F), blood pressure is 124/82 mm Hg, and pulse is 76/min. Left arm motor strength is 4/5, and deep tendon reflexes are 3+. An MRI of the brain is shown below. Which of the following is the most appropriate treatment for this patient?

A. Spiramycin – preg
B. Amphotericin B and flucytosine
C. Ganciclovir CMV
D. Sulfadiazine and pyrimethamine

Toxo

Cryptococcal –




Page: 1 of 1
cm
IM: 23 SE: 3

48. Identify the correct statements:

1. Incubation period of LGV is 10-30days (T)
2. Mycobacterium indicus pranii (MIP) was indigenously developed in India for use in malaria. Leprosy.
3. C.parvum is the most common coccidian parasite to be causing diarhhea in HIV/AIDS. hominis
4. Ganciclovir resistance is due to mutation in U797 phosphotransferase (T)

A. 1,2,3,4

B. 1,3,4

C. 1,4

D. 2,3

49. A 22-year-old student comes to the physician complaining of 4 days of fever, double vision, and painful swelling around his eyes. He also has significant muscle pain in his neck and jaw muscles. Two weeks ago the patient returned from a trip to Goa. One week after his return, he developed abdominal pain, nausea, vomiting, and diarrhea . These symptoms resolved spontaneously. He has a history of intravenous drug abuse but recently completed a drug rehabilitation program. His temperature is 38.3°C (101°F), blood pressure is 110/70 mm Hg, pulse is 92/min,
and respirations are 14/min. Physical examination shows subungual splinter hemorrhages, periorbital edema, and chemosis. Lungs are clear to auscultation. Cardiac examination shows no murmurs. The abdomen is soft and nontender without organomegaly. Laboratory results are as follows:
Mean corpuscular volume: 13.0 g/dL
Platelets: 228,000/mm³
Leukocytes: 10,500/mm³
Neutrophils: 56%
Eosinophils: 22%
Lymphocytes: 23%
Creatine kinase: 220 U/L
Which of the following is the most likely diagnosis?

A. Ascariasis X pulmonary / GI
B. Dengue fever
C. Trichinellosis Pork
D. Infective endocarditis

50. A 20-year-old farmer presents with firmly adherent, black, gritty, hard nodules on the hairs of the scalp. What is the most likely causative organism?

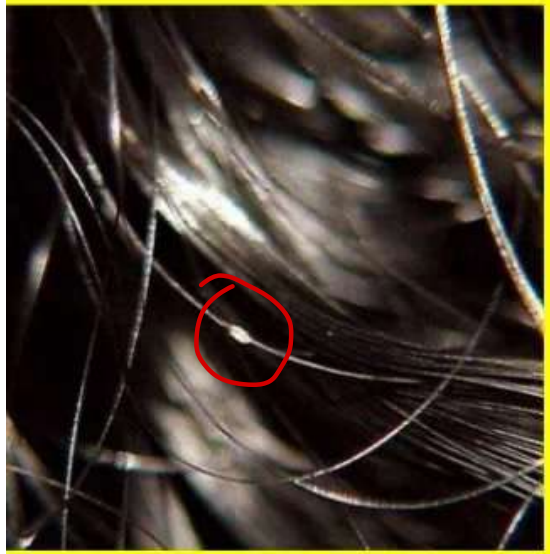
A. Piedraia hortae
B. Trichosporon
C. Hortaea werneckii
D. Aspergillus niger

black
white
black
= T. nigra
otomycosis

Hortae = black

White piedra

Trichosporon asahii



Black piedra

Piedraia hortae

51. What is the intermediate host for the organism shown in the image below?

A. Vegetables
B. Pig
C. Cattle
D. No intermediate host

Man .

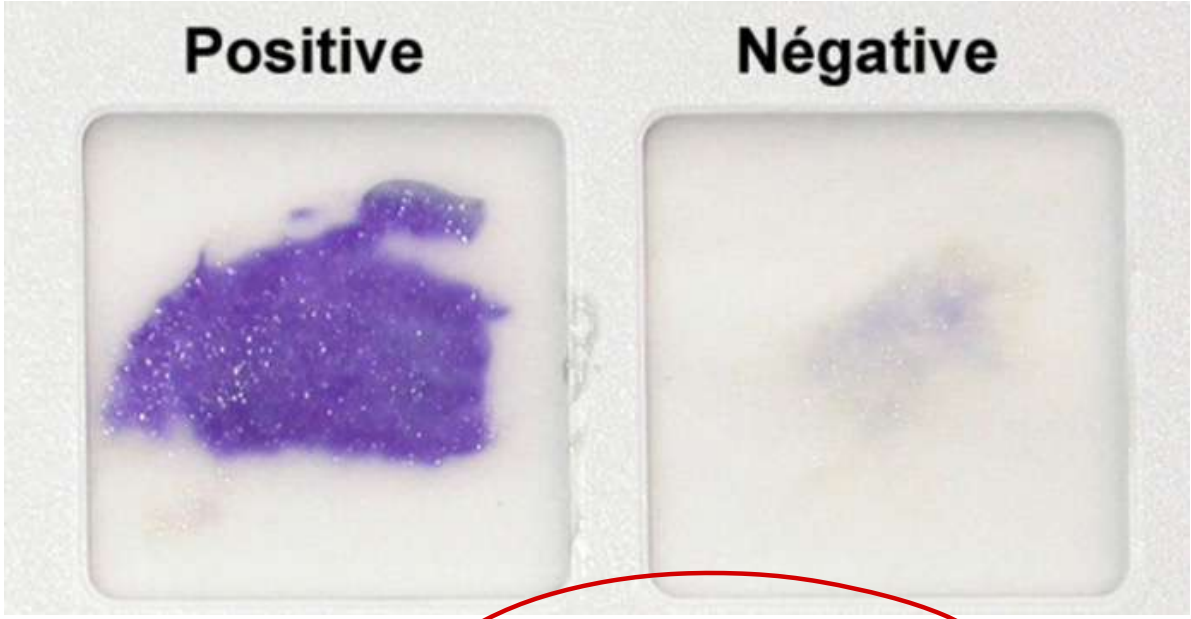
Ascaris

52. A young man presents with skin lesions as shown in the image below. All of the following organisms can spread through dermal and subcutaneous lymphatics, except?

A. Sporothrix schenckii
B. Staphylococcus aureus – lymphangitis
C. Nocardia asteroides
D. Mycobacterium marinum

53. A patient admitted with 50% burns develops an infection at the burn site. The swab was cultured, the isolate is a strict aerobe and the test that is shown in the image is positive. What is the likely etiology of the burn infection? (NEET PG 2021)

A. Klebsiella
B. Escherichia coli
C. Pseudomonas aeruginosa
D. Salmonella



Oxidase

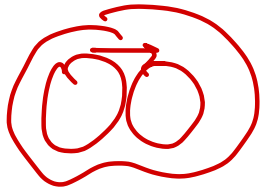
Oxidase +ve

- Neisseria, Moraxella
- Pseudomonas, Burkholderia
- Vibrio, Campylobacter, H.pylori
- Legionella

54. Which of the following statement is false about biofilms?

A. Responsible for prosthetic infections
B. Bacteria that form biofilms are usually metabolically more active
C. Glycocalyx enclosed bacteria
D. Associated with quorum sensing

↓ active.



Cell-to cell signaling

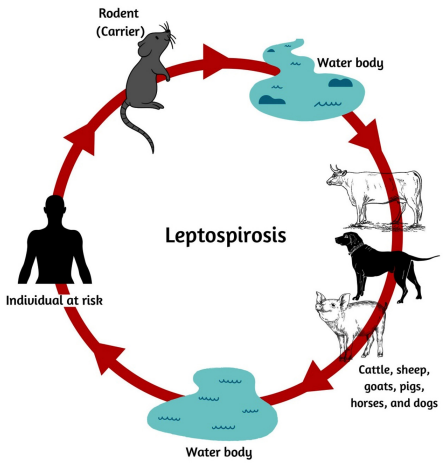
Biofilms

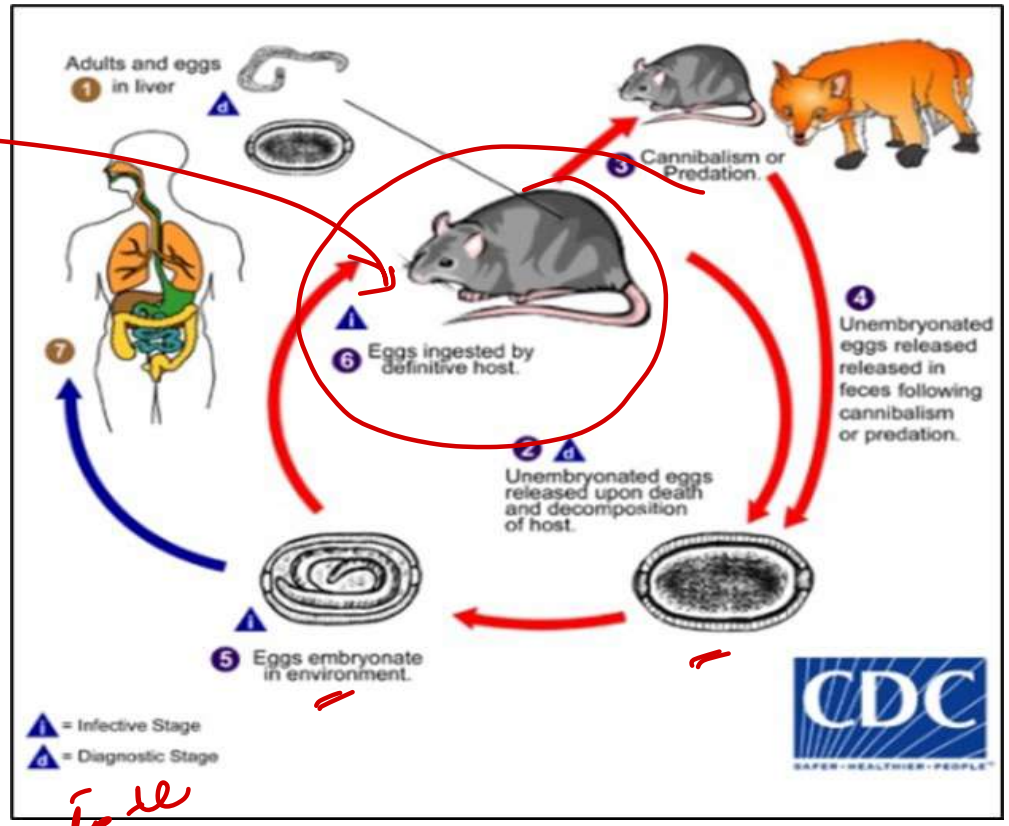
Bacteria	Associated Infections
Staphylococcus epidermidis CoNS	Catheter and prosthetic device infections
Viridans streptococci (*S. mutans, S. sanguinis*)	Dental plaques, infective endocarditis
Pseudomonas aeruginosa	Respiratory tree colonization in cystic fibrosis, ventilator-associated pneumonia, contact lens–associated keratitis
Nontypeable (unencapsulated) *Haemophilus influenzae* OM	Otitis media

55. What is the drug of choice for the treatment the disease, caused by the organism whose life cycle is shown below?

A. IV Penicillin G
B. Oral Amoxicillin
C. Oral Azithromycin
D. Oral Ampicillin

Leptospira





Nematode

Capillaria Hepatica

56. The following test is positive for identification of:

A. Candida dubliniensis
B. Candida glabrata
C. Candida parapsilosis
D. Candida tropicalis

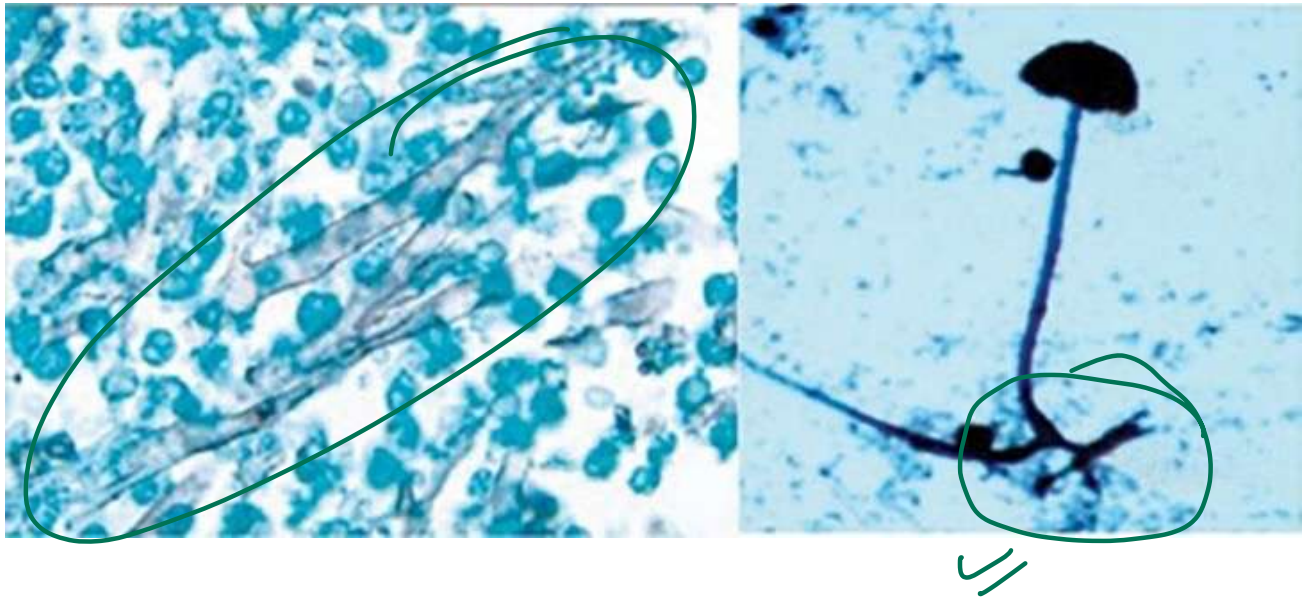
gem tube

57. A 30-year-old man who frequently travels barefoot is suspected to have acquired a parasitic infection via skin penetration. Any of the following parasites may be implicated in this case except?

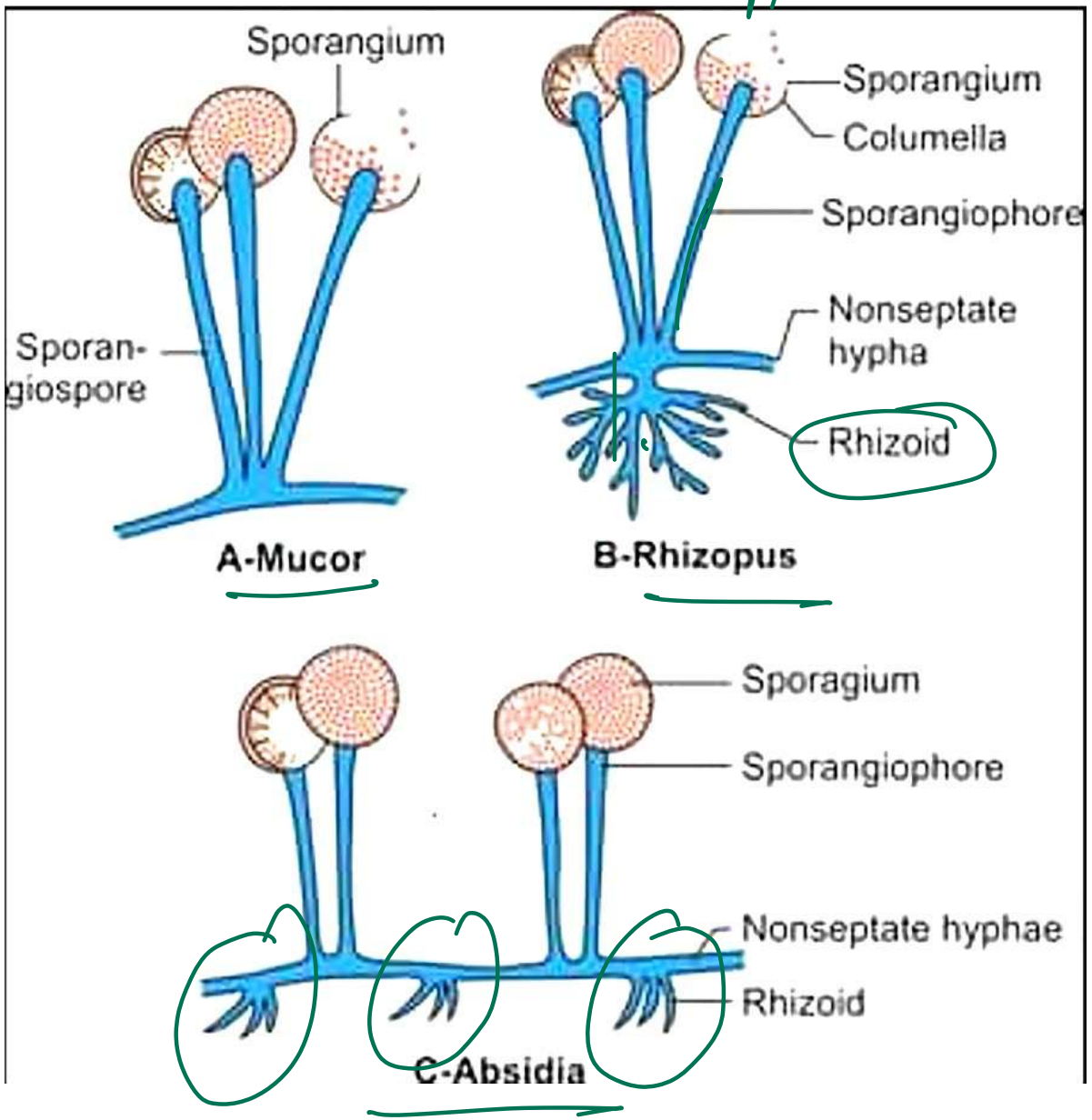
A. Enterobius vermicularis
B. Necator americanus
C. Strongyloides stercoralis
D. Schistosoma haematobium

58. Identify the organism in the given image showing KOH and LPCB culture morphology

A. Aspergillus
B. Mucor
C. Rhizopus
D. Blastomyces



Mucor spp.


Sporangium
Sporan-
giospore
A-Mucor
Sporangium
Columella
Sporangiophore
Nonseptate
hypha
Rhizoid
B-Rhizopus
Sporagium
Sporangiophore
Nonseptate hyphae
Rhizoid
C-Absidia

59. Which of the following sites is used for the influenza virus vaccine production?

A. Chorioallantoic membrane
B. Suckling mice
C. Primary cell line
D. Allantoic cavity

animal (sucking mice): Coxsackie

QQ

Embryonated Egg (4 cavities)

- Chorioallantoic membrane: → CAM – Pock / Plaque assay
- Pox, HSV 1 & 2
- Yolk sac → Chlamydia, Arbovirus, Rickettsia (CAR)
- Amniotic membrane → Influenza isolation
- Allantoic cavity → Yellow fever, vaccine (Influenza, Rabies)

Egg allergy

QQ

Cell Lines

- **Primary** (5–10 divisions): Rhesus kidney, Human amniotic, Chick embryo fibroblast
- **Secondary** (10–50 divisions): Human fibroblast (CMV, MRC5, W138)
- **Continuous** (infinite): HeLa, HEP-2, KB, McCoy, Vero, BHK

60. All of the following are obligate anaerobes except

A. Burkholderia cepaci
B. Bacteroides
C. Peptostroptococcus
D. Prevotella

anerobes obligate

- Actinomyces
- Bacteroides
- Clostridium
- Fusobacterium

- Peptostreptococcus (aero-tolerant)

- Lack catalase
- Ineffective: Ag

facultative anaerobes

- Staphylococcus
- Streptococcus
- Enterobacteraceae
- Hemophilus
- Vibrio

Micro aerophilic → 5% O_2

- Helicobacter
- Campylobacter
- M.bovis

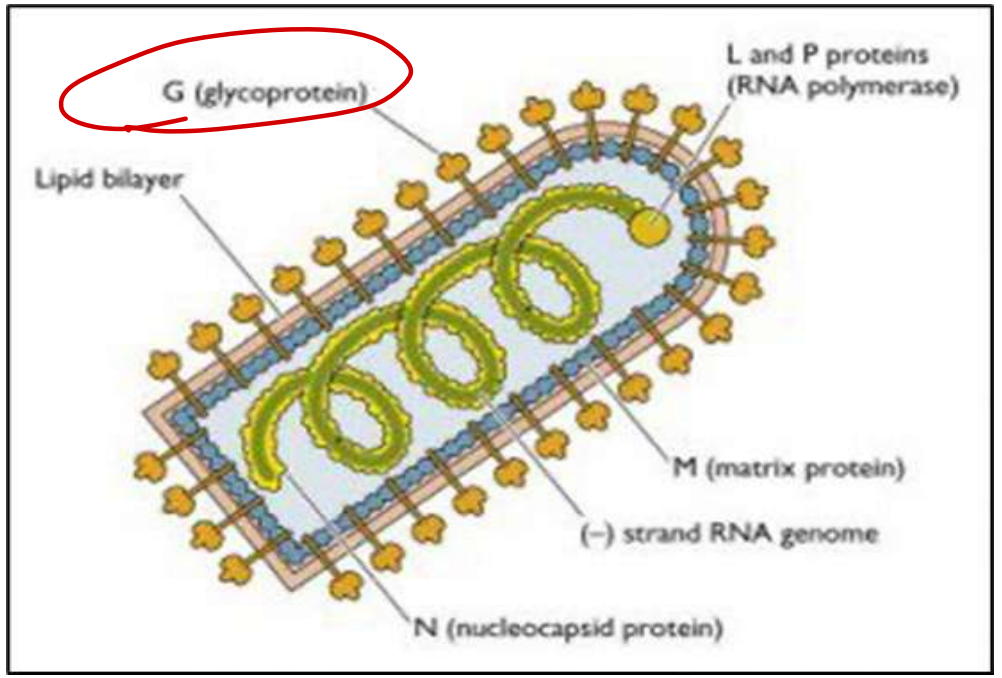
61. Which of the following components of the following virus can be used to prepare vaccines?

A. Glycoprotein-G

B. Matrix protein

C. Nucleocapsid protein

D. L protein



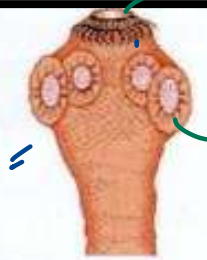
Rabies

62. Identify the organism from the head end as shown below:

A. H.nana
B. T.solium
C. E.granulosus
D. D.latum

Cestodes

T. Solium T. saginata H. nana H. diminuta D. Latum E. granulosus

Heads						
	4 suckers 2 rows of hooks	4 suckers No hooks	4 suckers single row of 20–30 hooks	4 suckers No hooks	2 Suctorial grooves or bothria, no suckers, No hooks	4 suckers 2 rows of hooks

Taenia — no hooks

63. A 21-year-old female complains of fever, headache and vomiting from the past 3 days. She has been living in the army recruitment camp for the last three weeks. On examination, she has neck stiffness and petechial rash was noted over the trunk and extremities. Which of the following is false about the disease she's likely suffering from?

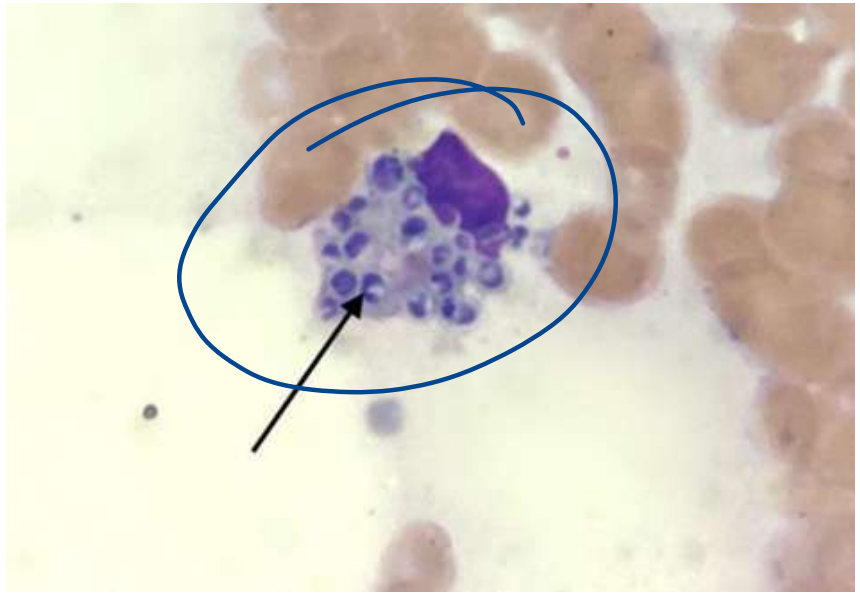
Meningococcus

A. Carriers of this disease can be treated with Rifampicin / FQs / Cephalosporins
B. It can lead to adrenal hemorrhage
C. Terminal complement deficiency increases the risk of this disease
D. Azithromycin is the drug of choice

ceftriaxone

64. A 34-year-old male patient present with chronic fever. Bone marrow examination of this patient is shown in the given image below. Which of the following statement is false about the organism shown below?

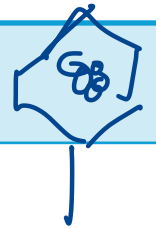
A. It cannot be grown in sabouraud dextrose agar
B. Spores are infective form
C. Can be transmitted through soil in bat caves
D. It doesn't cause person to person transmission.



Histoplasma

65. Match the following:

1. Rapid crenation and degeneration of entire cell sheath	a. Enterovirus
2. Large granular lumps resembling bunch of grapes	b. Adenovirus
3. Diffuse roundening and ballooning of cell line	c. HSV
4. Cytoplasmic vacuolations	d. SV-40



A. 1-a, 2-b, 3-c, 4-d
B. 1-b, 2-a, 3-c, 4-d
C. 1-c, 2-b, 3-a, 4-d
D. 1-d, 2-a, 3-c, 4-b

66. Food poisoning due to which of the following organisms is typically associated with 8-16 hours of incubation period?

1. C. jejuni
2. Bacillus cereus - Emetic type
3. Bacillus cereus - Diarrheal type
4. Vibrio cholerae
5. Clostridium perfringens

A. 2 & 5

B. 3 & 5

C. 1, 4, & 5

D. 1, 2 & 4

67. Identify the incorrect statements

1. Kanagawa phenomenon is seen with V.vulnificans and V.parahemolyticus
2. TLR3 and AXL receptors are associated with Nipah virus.
3. Dusting powder can be sterilised by autoclave.
4. Schistosomes are monoecious

A. 1, 2, 3, 4

B. 2, 3

C. 1, 4

D. 1, 3

68. Identify the correct statements

1. Miyagawa corpuscles are found in K.granulomatosis
2. S. sonnei shows late lactose fermentation
3. B. Cepacia complex strains are intrinsically resistant to Aminoglycosides and cephalosporins
4. Cytomegalovirus is the leading cause of infection in renal transplant recipients during the first four months post-transplantation.

A. 2, 3

B. 1, 3

C. 1, 4

D. 2, 3, 4

C. trachomatis
LGV
Frei

T

T

DOC → TMP: SMX

T

Lennhal - Colle bodies

(C. psittachosis

Antibiotic	Pseudomonas aeruginosa	Burkholderia cepacia	Stenotrophomonas maltophilia	Acinetobacter baumanni
Ticarcillin-clavulanic acid	Sensitive	Sensitive	Sensitive	Resistant
Cephalosporins	Sensitive to 3rd & 4th generation	Resistant	Resistant (Intrinsic)	Resistant
Carbenepemes	Sensitive (Resistance is developing)	Sensitive	Resistant	Sensitive (Resistance is developing)
Aminoglycosides	Sensitive	Resistant (Intrinsic)	Resistant	Resistant
Cotrimoxazole (TMP-SMX)	Resistant	Sensitive (Drug of Choice)	Sensitive (Drug of choice)	Resistant
Polymixin	Sensitive	Resistant (Intrinsic)	Resistant	Sensitive

69. A 47-year-old pig farmer presented with fever, headaches, myalgia, and a sore throat. He later develops dizziness, altered consciousness, and seizures. Identify the false statement regarding the condition.

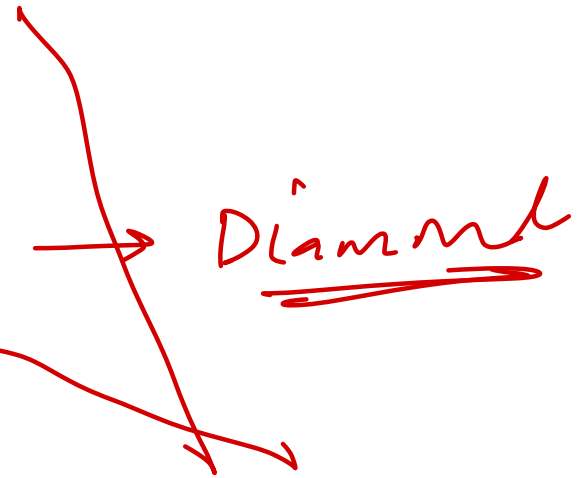
A. Causative organism is a paramyxovirus.
B. Pigs are the intermediate hosts
C. No human to human transmission
D. Fruit bats are the natural host

70. A 30-year-old HIV-positive patient presented with a chronic history of watery diarrhea. Histopathology of the duodenum is shown in the image below. Which of the following is the causative organism?

A. Giardia lamblia
B. Entamoeba histolytica
C. Microsporidia
D. Cryptosopridia

71. For which of the following parasites is NNN medium used for isolation?

1. Leishmania donovani
2. Giardia → Diamond.
3. E. histolytica
4. Trichomonas vaginalis → Diamond
5. Trypanosoma cruzi



A. 1, 2 and 4

B. 1 and 5

C. 2 and 3

D. 3 and 4

E. histolytica

- TYI-S-33 medium
- CLUPS medium
- PEHPS medium
- Locke-egg medium (LEM) and Liver Infusion Agar Medium (LIAM)
- Robinson's medium and Jones' medium

axenic

72. Which method is typically not used to determine the minimum inhibitory concentration (MIC) of an antibiotic?

A. Gradient diffusion method = E test
B. Broth microdilution method
C. Disk diffusion method K-B — Qualitative
D. Agar dilution method

73. What is the primary function of the CRISPR system in bacteria?

PYQ

A. To facilitate horizontal gene transfer between bacterial cells

B. To enable bacteria to resist viral infections through sequence-specific DNA cleavage

C. To allow the incorporation of viral DNA into the bacterial genome

D. To protect bacteria from the eukaryotic immune system

74. A 7-year-old girl is brought to the outpatient department with a 10-day history of abdominal pain, intermittent diarrhea, and mild weight loss. Her family reports no significant travel history or exposure to pets. Stool microscopy reveals eggs characteristic of a specific helminth infection shown below. Given this diagnosis, what is the most appropriate treatment for her condition?

A. Albendazole
B. Mebendazole
C. Praziquantel
D. Pyrantel pamoate

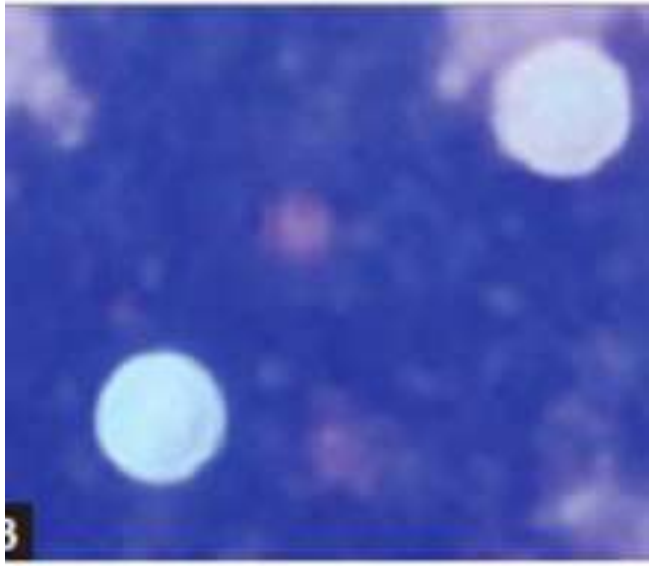
H. nana

DOC: Cestodes, Trematodes- Praziquantel

- LIVER FLUKE- Triclabendaz
- HYDATID, Nematodes Albendazole
- FILARIA- DEC
- ONCHOCERCA, STRONGYLOIDES- Ivermectin.

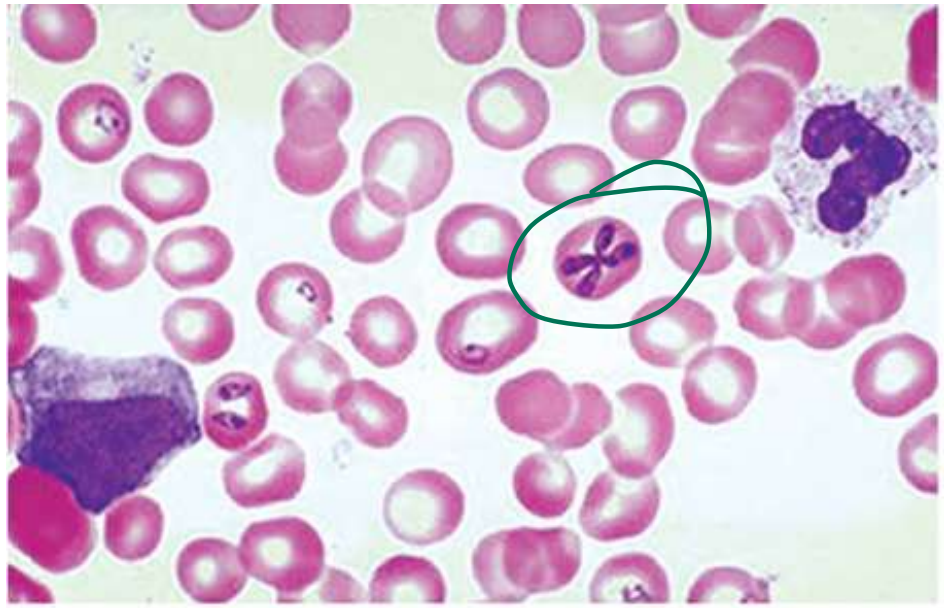
75. A 45-year-old postrenal transplant patient presents with diarrhea three months after the transplant. Stool microscopy reveals spherical organisms that are Kinyoun stain positive. Epifluorescence microscopy is shown. What is the most likely causative agent?

A. Balantidium coli
B. Cyclospora
C. Cystoisospora belli
D. Cryptosporidium hominis



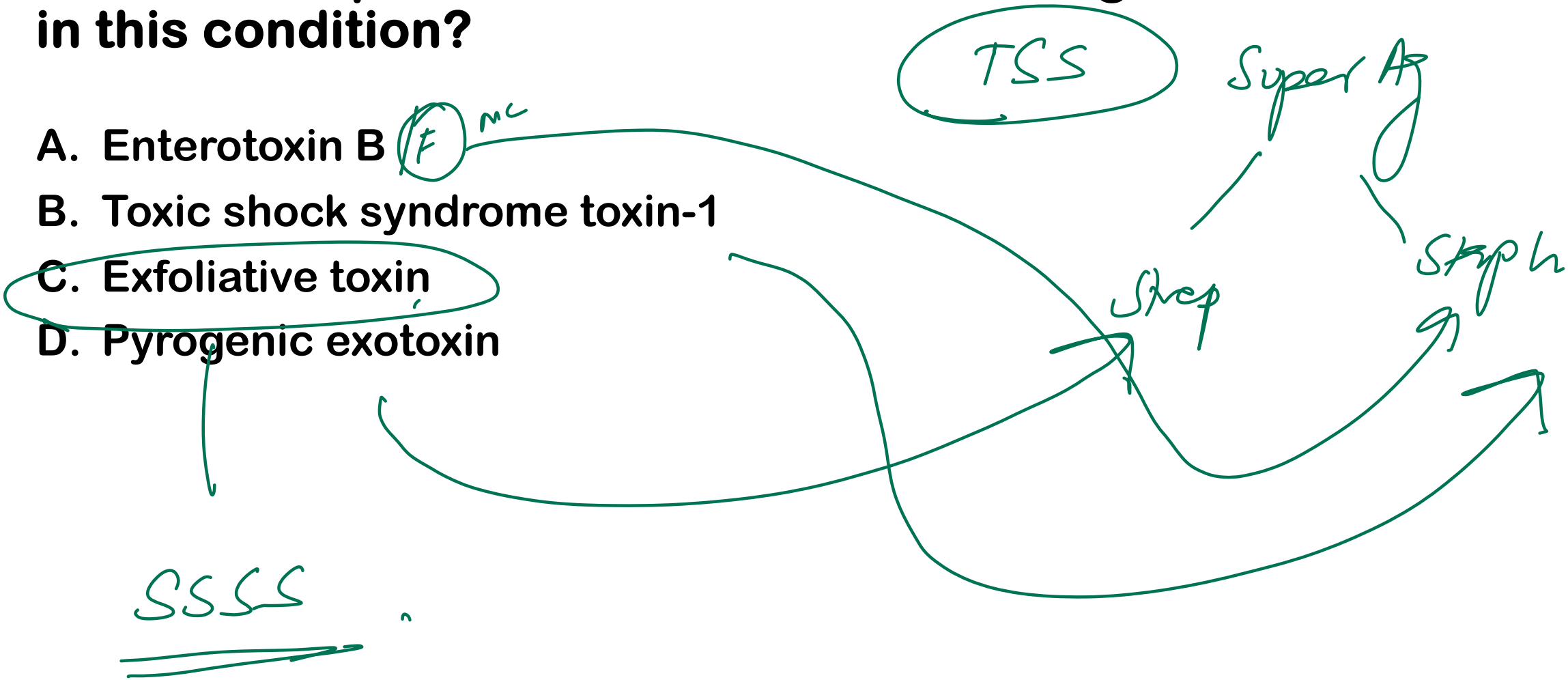
76. A 54-year-old man from the Northeastern States presents to the clinic with a 1-week history of fever, fatigue, and myalgia. Physical examination reveals mild jaundice, and laboratory tests show hemolytic anemia. A peripheral blood smear is performed, revealing the following: Based on the patient's history, clinical presentation, and the peripheral blood smear findings, which vector is most likely involved in the spread of the disease?

A. Ixodid tick
B. Anopheles
C. Louse
D. Sandfly



77. A 15-year-old girl presented with fever, hypotension, and skin rash. She had a tampon in situ for 24 hours. A bacterial cause is suspected. Which of the following toxin is not involved in this condition?

A. Enterotoxin B
B. Toxic shock syndrome toxin-1
C. Exfoliative toxin
D. Pyrogenic exotoxin



78. Which of the following features are characteristic of the Anopheles mosquito?

1. Stripes on wings
2. Larva rests at an angle to water surface
3. Adult rests at an angle to the surface of the skin
4. Eggs laid in clusters
5. No siphon tube in larvae

A. 1, 2

B. 3, 5

C. 2, 4

D. 1, 4

NVBDCP

Anopheles

Clean water
5km
Single eggs –with floats
Larva parallel
Adult angle
Spotted wings

Malaria

Aedes

Artificial water collections
100m
Single eggs-No floats
Stripes on body and legs
Adult parallel

Dengue
Chikungunya
YF
Zika
Rift valley

Breteau index:

Dirty water
10km
Hunchback at rest
Larva with siphon tube
Raft eggs-No floats

W. Bancrofti
JE
West Nile

With PISTIA plant

Brugia malayi

79. A laboratory researcher is studying the pathogenesis of Staphylococcus aureus and focuses on the toxins that contribute to its virulence. One group of toxins has been noted to have synergistic hemolytic activity on sheep blood agar when combined with other staphylococcal hemolysins. Which toxin is known for this synergistic activity?

A. Alpha toxin

B. Beta toxin

C. Delta toxin

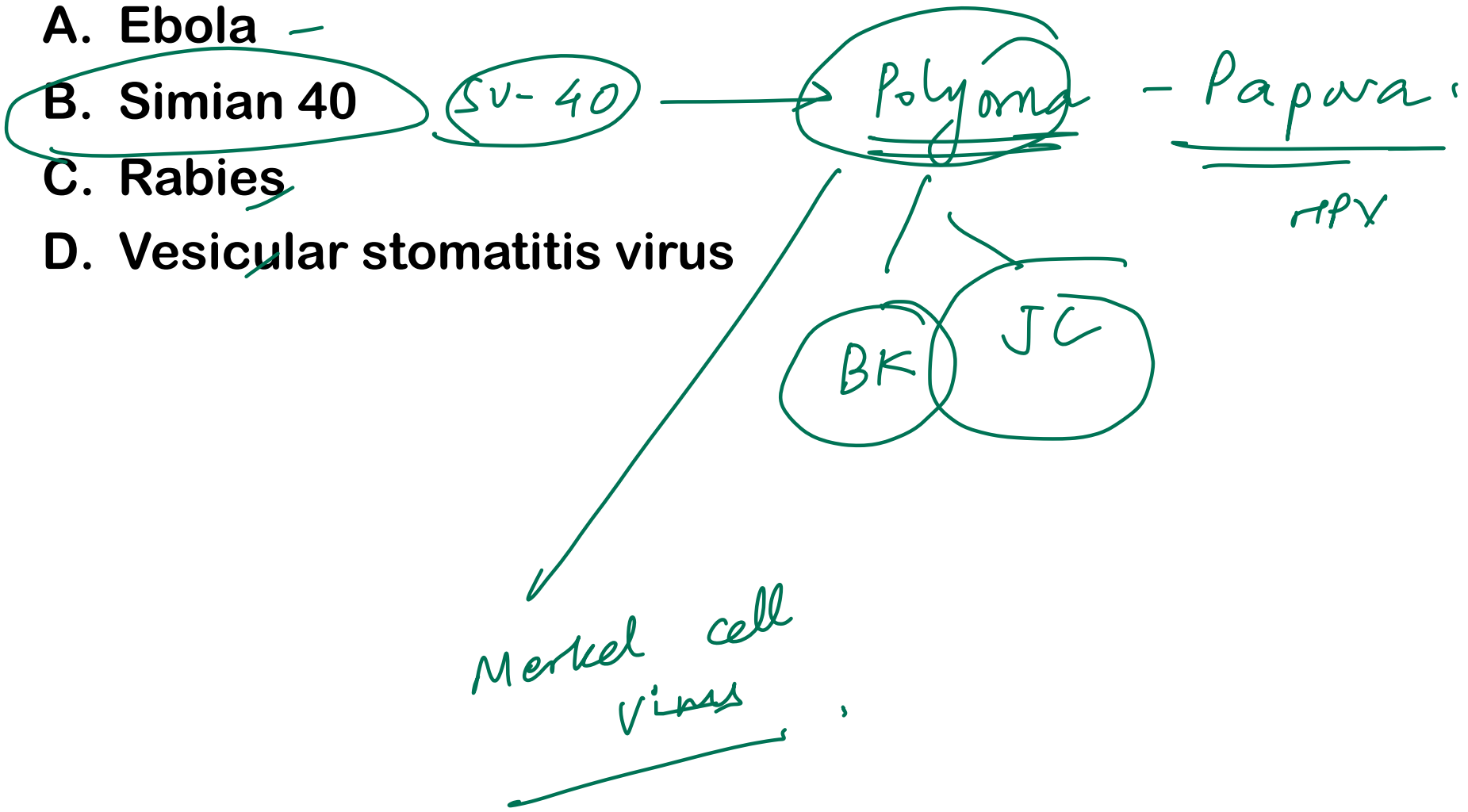
D. Panton-Valentine leukocidin

MRSA

mecA gene.

80. Which of the following viruses will not need RT-PCR for its detection?

A. Ebola
B. Simian 40
C. Rabies
D. Vesicular stomatitis virus



81. A 45-year-old male presents to the clinic complaining of fever, headache, and a persistent dry cough. He mentions that his symptoms started a few days after he was cleaning an old, abandoned aviary. His physical examination is unremarkable except for mild respiratory distress. A chest X-ray is performed, revealing interstitial infiltrates. Laboratory investigations, including serology, indicate atypical pneumonia with inclusion bodies suggestive of a zoonotic infection. Based on these findings, the physician is considering the diagnosis of a specific zoonotic atypical pneumonia. Which inclusion body is most likely associated with this patient's diagnosis?

A. Henderson-Patterson bodies → MCV

B. Miyagawa corpuscles → LGV

C. Leventhal Cole Lillie bodies — Psittacosis

D. Negri bodies → Rabies

82. During a surgical rotation, a medical student observes that a patient with a deep skin infection has rapid spreading of the infection through the fascial planes. The attending physician explains that certain bacterial exoenzymes facilitate the spread of infection by degrading connective tissue components. Which Streptococcus exoenzyme is primarily responsible for the breakdown of connective tissue, contributing to the spread of the infection?

A. Hyaluronidase

prevent wound healing

B. Streptolysin O

C. Streptolysin S

D. Streptococcus pyogenic exotoxin

83. A 45-year-old man with diabetes presents with a tender swelling on his forehead. Incision and drainage yield foul-smelling pus that fluoresces red under ultraviolet light. What is the most likely causative organism?

A. Bacteroides spp. ← Red

B. Peptostreptococcus spp.

C. Pseudomonas aeruginosa → Blue / Blue green

D. Acanthamoeba spp.

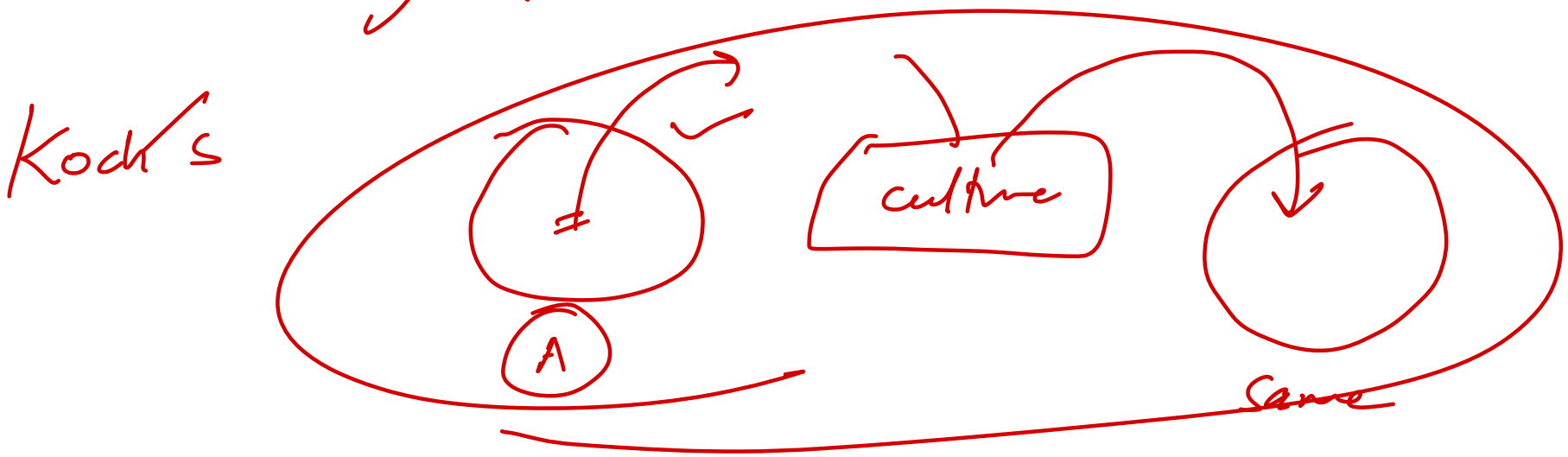
84. All are Koch's postulates except:

A. A microorganism should be constantly associated with the lesions of the disease

B. It should be possible to isolate the bacterium in pure culture from the lesions

C. Inoculation of such pure culture into laboratory animals should reproduce the lesions

D. Administration of broad-spectrum antimicrobial agent dependably eradicates the organisms and cures the diseases



85. A farmer presenting with fever off and on for the past 4 years was diagnosed to be suffering from chronic brucellosis. All of the following serological tests would be helpful in the diagnosis at this state except:

A. Standard Agglutination test

IgM

B. 2 Mercaptoethanol test

C. Complement fixation test

D. Coomb's test

86. A 2-week-old boy is brought to the OPD due to runny nose, low-grade fever, and skin rash for 2 days. The patient was born at 38 weeks gestation to a 19-year-old woman who had poor access to prenatal care. Temperature is 38°C (100.4°F). Vital signs are otherwise normal for age. On examination, the patient has nasal drainage and peeling skin on his face, hands, and feet. Hepatosplenomegaly and generalized lymphadenopathy are present. Which of the following is the most likely diagnosis?

A. Erythema multiforme
B. Kawasaki disease
C. Measles
D. Syphilis

'rhagades'

Snuffles

early : < 2yo

late : > 2yo : - Hutchinson △ (incisors peg, IF, SNHL)
- bony changes
- osteitis

87. An isolate from a cancer patient in the critical care unit is found to be resistant to meropenem and aminoglycosides and sensitive to cotrimoxazole, ticarcillin-clavulanic acid. What is the likely microorganism involved?

A. Burkholderia cepacia

B. Acinetobacter baumannii

C. Pseudomonas aeruginosa

D. Stenotrophomonas maltophila

88. Select the one which doesn't cause Urethritis in males:

A. Haemophilus ducreyi
B. Trichomoniasis
C. Chlamydia
D. Gonococcus

89. A young male patient with urethral discharge showed up. Pus cells were discovered after a urine analysis, but no organisms. Which approach is ideal for cultures?

A. McCoy Cell Line

B. Thayer Matin Medium

C. L.J medium

D. Levinthal Medium

Chlamydia

TB

H. influenzae

Stein-Leventhal

PCOD

90. True about cholera:

1. There's no role of mass prophylaxis in cholera outbreak
2. Dukoral vaccine can be given for age less than 2 years
3. Dukoral vaccine is Monovalent
4. Shanchol Vaccine is Bivalent
5. Gastric buffer is added in shanchol vaccine
6. 5% Cresol is used for disinfecting Feces, vomitus during outbreaks

A. 1, 2, 3, 4, 5, 6

B. 1, 2, 3, 4

C. 1, 3, 4, 6

D. 1, 3, 4, 5

Cholera-Dukoral >2yrs (Cholera O1+ B subunit+ bicarbonate buffer)
Shanchol, mORCVAX >1yr (Cholera O1,139)

91. Farmer presents with the features of high fever, painful inguinal lymphadenopathy, vomiting and diarrhea and hypotension. Which stain will help in the diagnosis?

A. Neisser stain

B. Wayson's stain

C. Albert's stain

D. McFadyean's stain

PLAN

Diphtheria

Y. Pestis

bipolar staining

Anthrax

92. Which of the following species of hemophilus requires only factor X for growth

A. Hemophilus ducreyi
B. Hemophilus parainfluenza
C. Hemophilus parahemolyticus
D. Hemophilus paraphrophilus

93. Advantages of Saline wet mount over iodine wet mount is /are?

A. Demonstration of motility of trophozoites

B. Identify the internal structures of the cyst

C. Differentiate bile stained vs non bile stained eggs

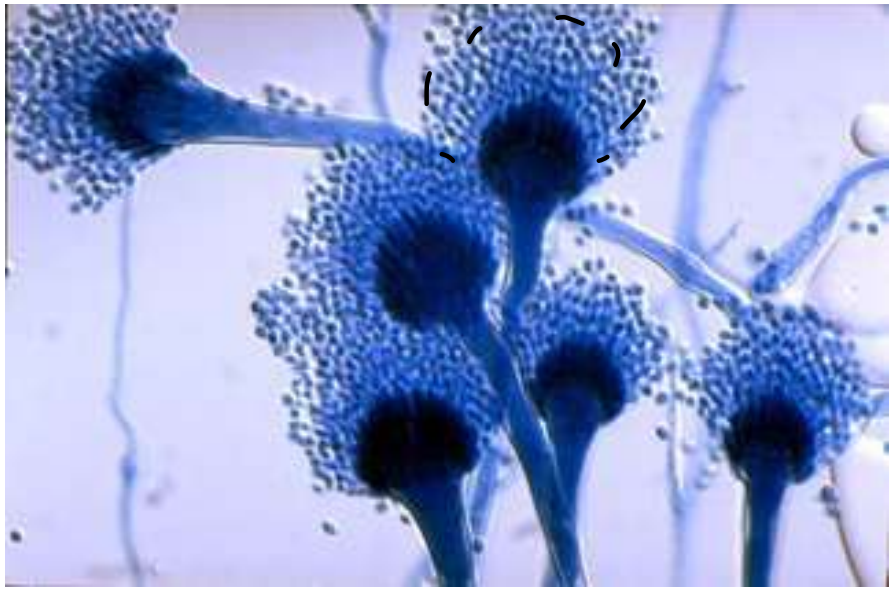
A. Only A

B. Only B

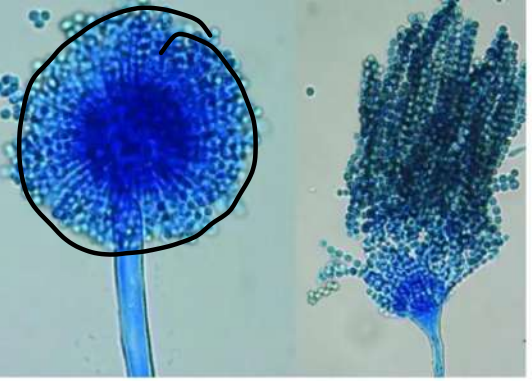
C. Both A & C

D. A, B & C

94. A 25-year-old female complains of recurrent rhinitis, nasal discharge and bilateral nasal blockage since 2 years. Biopsy is taken and shown below. Which of the following is the most likely responsible organism?



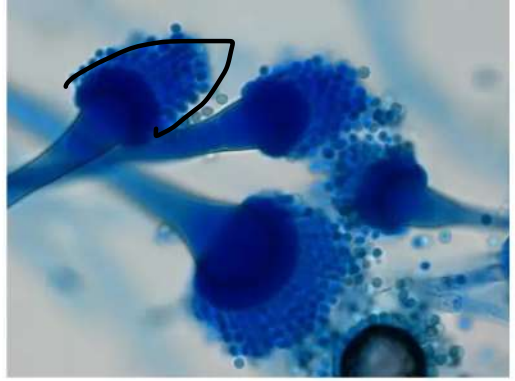
A. Aspergillus fumigatus
B. Aspergillus niger
C. Mucor
D. Aspergillus flavus



Aspergillus flavus

↓

green



Aspergillus fumigatus

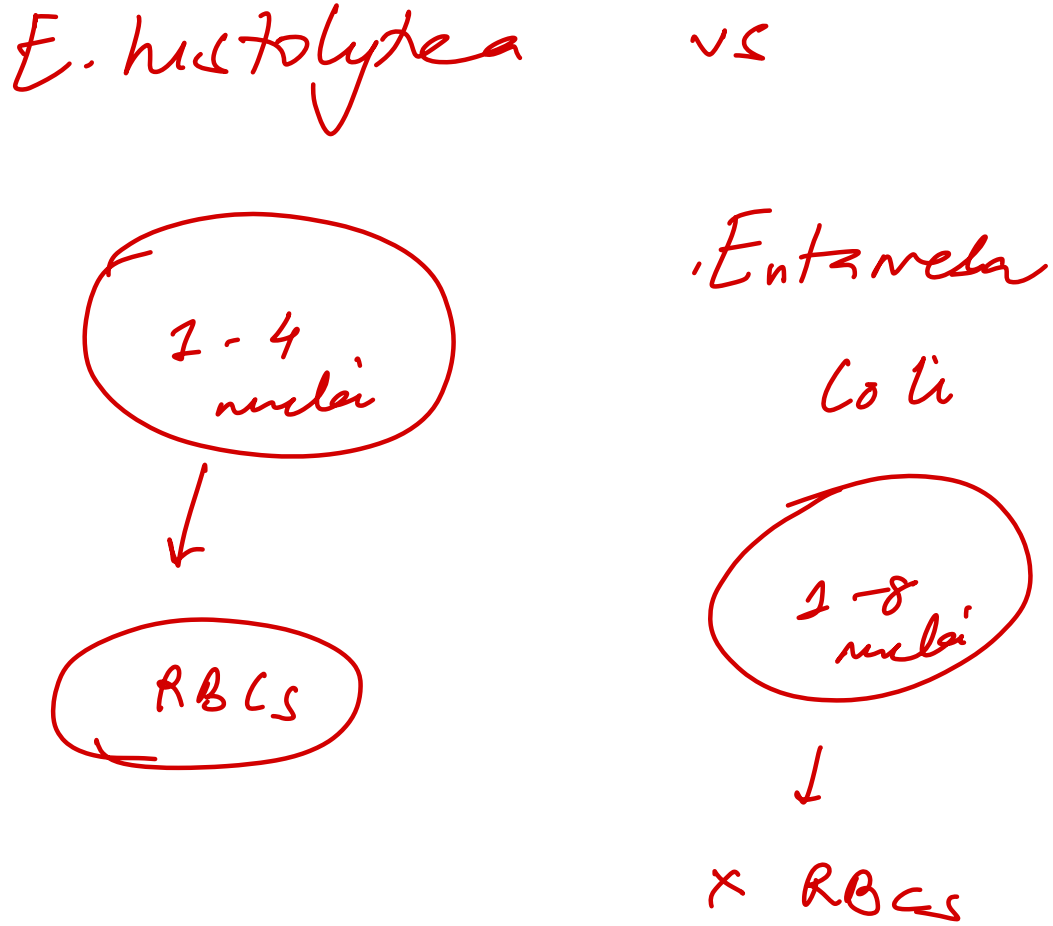
↓

Smoky - green

Aspergillus niger

95. A 22-year-old man comes with complaints of intermittent bloody diarrhea for 3 weeks after consuming street food during his travel. He is febrile and has RUQ tenderness. Which of the following is the infective form of the likely protozoan causing this disease?

A. Trophozoite
B. Mature quadrinucleate cyst
C. Metacyclic trophozoite
D. Precyst



96. Identify the staining method for a tissue biopsy of the painless ulcer shown below:

A. Fontana's method → fluid
B. Levaditi's method → tissue
C. Castaneda's method
D. Albert's method

Syphilis

97. Which of the following is a pigment-producing species of mycobacteria?

A. M. ulcerans

B. M. scrofulaceum

C. M. avium intracellulare complex

D. M. xenopi

Runyon Classification

- Group 1: Photochromogens
  Mycobacterium kansasii, *Mycobacterium marinum*, *Mycobacterium simiae*
- Group 2: Scotochromogens
  Mycobacterium scrofulaceum, *Mycobacterium szulgai*, *Mycobacterium gordonae*
- Group 3: Nonphotochromogens
  Mycobacterium avium-intracellulare, *Mycobacterium malmoense*, *Mycobacterium xenopi*
- Group 4: Fast growers
  Mycobacterium fortuitum, *Mycobacterium chelonae*, *Mycobacterium abscessus*

TABLE 42-1 Human infections caused by atypical *Mycobacterium* species

Bacteria	Diseases
Mycobacterium kansasii	Pulmonary disease
Mycobacterium marinum	Swimming pool granuloma
Mycobacterium simiae	Pulmonary disease (rare)
Mycobacterium scrofulaceum	Lymphadenopathy
Mycobacterium gordonae	Pulmonary disease (rare)
Mycobacterium szulgai	Pulmonary disease and bursitis (occasional)
Mycobacterium xenopi	Chronic pulmonary disease
Mycobacterium avium complex	Pulmonary disease, lymphadenopathy, and disseminated disease
Mycobacterium ulcerans	Buruli ulcer
Mycobacterium fortuitum	Post-trauma chronic abscesses
Mycobacterium chelonae	Post-trauma chronic abscesses
Mycobacterium abscessus	Abscesses
Mycobacterium genevense	Disseminated diseases (AIDS-related)

98. Identify the microaerophilic bacteria from the list:

1. Positive CLO test.

2. Gram-negative bacilli implicated in GBS

3. Gram-negative curved bacilli with 'fish-in-stream' appearance

4. Bacteria showing 'mercury drop' colonies.

5. LJ medium showing ruff, buff, tough colonies.

A. 2 and 5

B. 3 and 4

C. 1 and 4

D. 1 and 2

99. Which of the following is not a characteristic feature of El Tor vibrio?

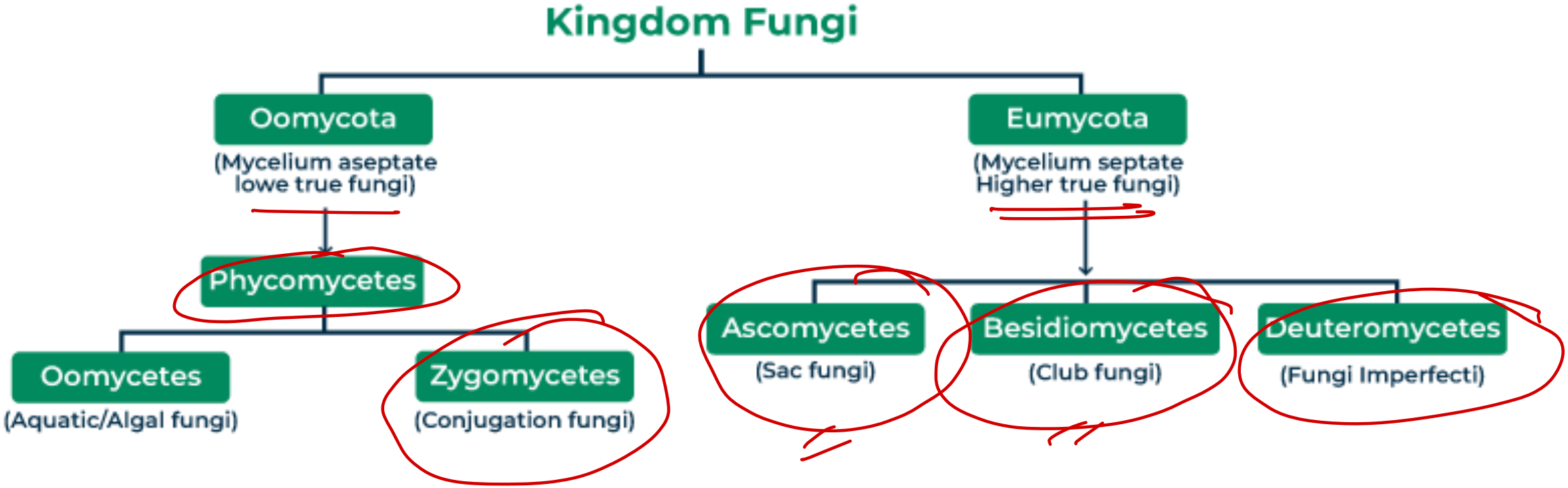
A. Resistant to El Tor phage V
B. Intrinsic resistance to polymyxin B
C. Voges-Proskauer test is positive
D. Not susceptible to group IV phage

TABLE 35-2 Biochemical characteristics of *Vibrio cholerae* biotypes

Properties	*Vibrio cholerae* biotype	
	Classical	Eltor
Hemolysis of sheep RBCs	–	+
Agglutination of chick erythrocytes	–	+
Voges–Proskauer test	–	+
Polymixin B sensitivity	+	–
Susceptibility to		
Mukerjee Group IV Phage	+	–
Eltor phage 5	–	+
Vibriostatic (O/129) agent	+	–

100. Which among the following is not a sexual spore?

A. Zygospore
B. Sporangiophore asexual.
C. Basidiospore
D. Ascospore


Kingdom Fungi
Oomycota
(Mycelium aseptate lowe true fungi)
Eumycota
(Mycelium septate Higher true fungi)
Phycomycetes
Oomycetes
(Aquatic/Algal fungi)
Zygomycetes
(Conjugation fungi)
Ascomycetes
(Sac fungi)
Besidiomycetes
(Club fungi)
Deuteromycetes
(Fungi Imperfecti)

Thank you