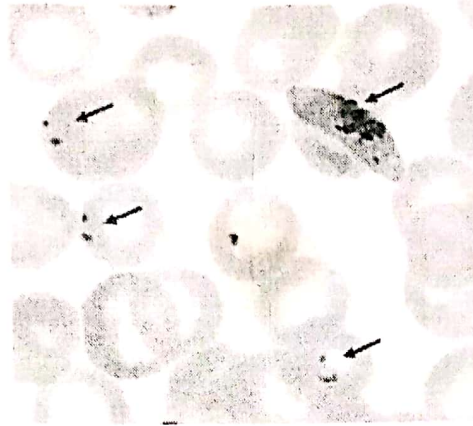


# SGD: Plasmodium

A twelve years old patient is presented in emergency with high grade fever and chills. He had history of alternate day fever and generalized weakness. Laboratory diagnosis revealed that he has slight anemia and disturbed liver function tests. A thin smear stained by Giemsa stain showed singated rings and banana like bodies inside RBCs



1. What is your diagnosis? *Plasmodium falciparum.*
2. Name the four species of this organism. *ovale, falciparum, vivax, malaria.*
3. What are the clinical forms of this parasite?
4. Give its laboratory diagnosis?
5. Draw the life cycle.

*~*

# Plasmodium falciparum.

## KEY:

1. Plasmodium falciparum
2. Plasmodium vivax, Plasmodium ovale. Plasmodium malariae, Plasmodium falciparum.
3. Quartan malaria: Fever recurs every fourth day/ Tertian malaria: Fever recurs every third day  
Benign Quartan malaria: *P. malariae* (72 hours) **QBM**.  
Malignant tertian malaria: *P. falciparum*. (48h) **TMF**  
Benign tertian malaria: *P. vivax* and *P. ovale*. (48h) **BT → O.V**

4. **Microscopy:** Malaria parasites identified by examining Giemsa stained blood smear under the microscope. Gold standard for laboratory confirmation of malaria.

Thick smear: To screen for organisms.

Thin smear: For species identification.

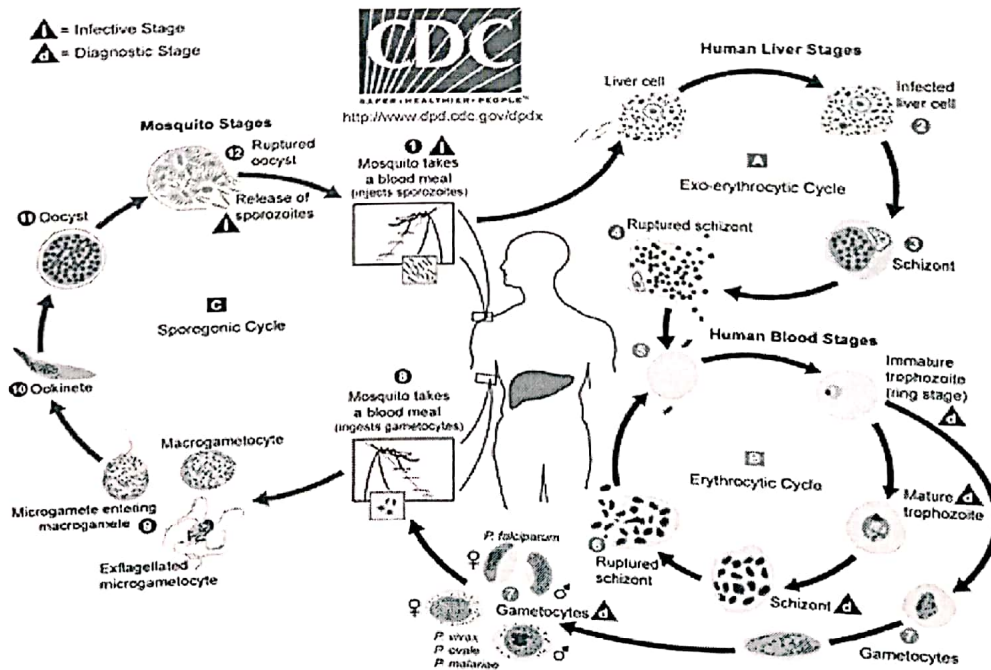
Ring-shaped trophozoites within infected red blood cells. Gametocytes of *P. falciparum* crescent-shaped ("banana-shaped"). Gametocytes of other plasmodia spherical.

Antigen Detection (Rapid Diagnostic Test): Immunochromatographic test, provide results in 2-15 minutes. **immunochromatographic test**

Molecular Diagnosis: PCR-based test for *Plasmodium* nucleic acids. Technique slightly more sensitive than smear microscopy. Result not available quickly. useful for confirming species of malarial parasite.

test **Serology:** Detects antibodies against malaria parasites, by either indirect immunofluorescence (IFA) or enzyme-linked immunosorbent assay (ELISA). Does not detect current infection, measures past exposure.

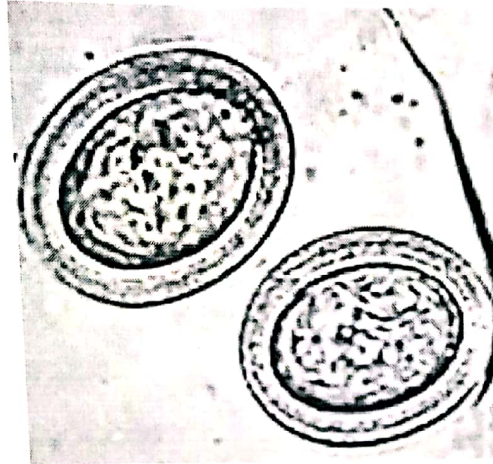
5.





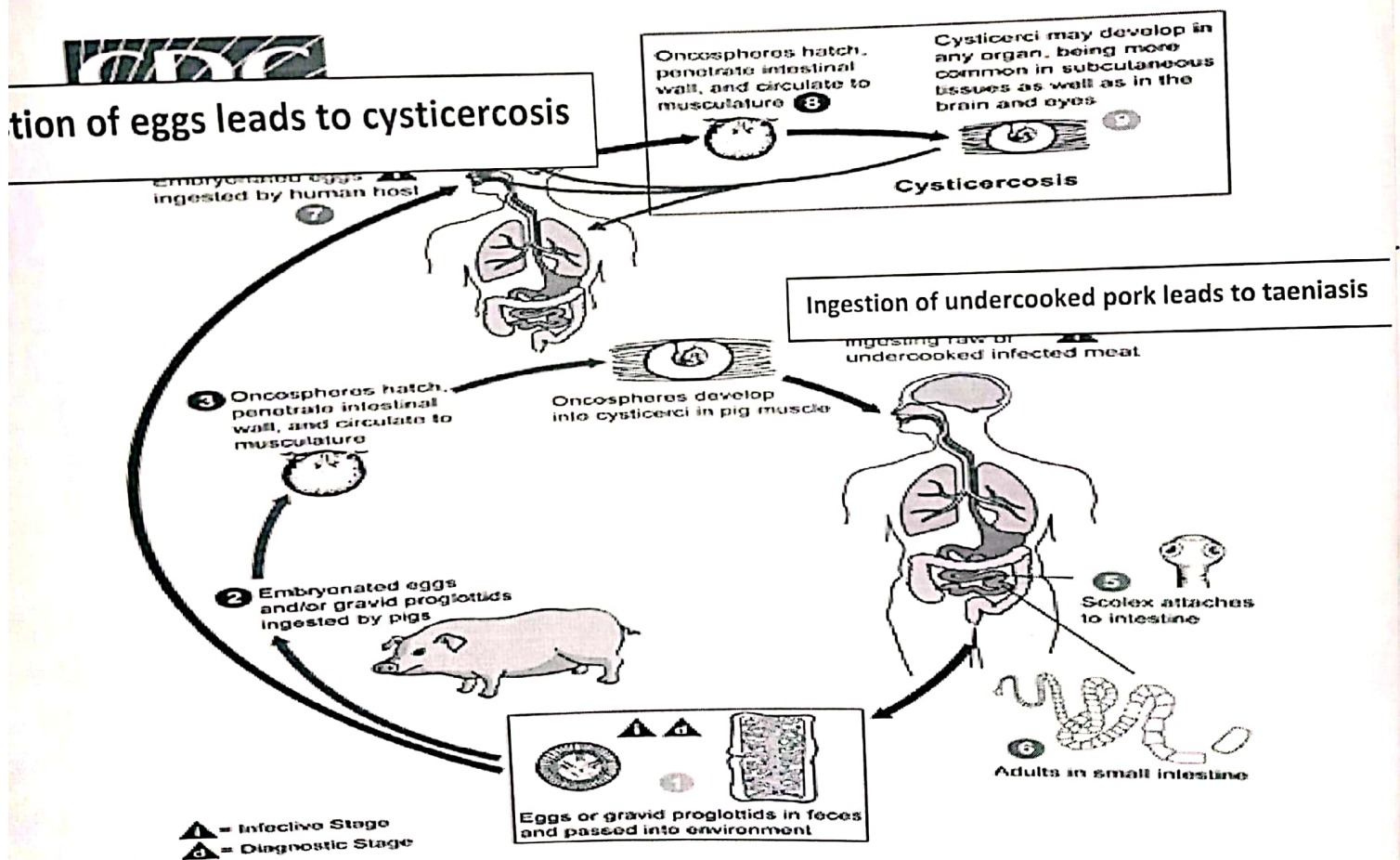
## SGD

A farmer having cows in his house having history of ingestion of contaminated under cooked pork, developed anorexia and diarrhea and a space occupying lesion was observed on CT scan of brain. On stool examination the following ova was seen.



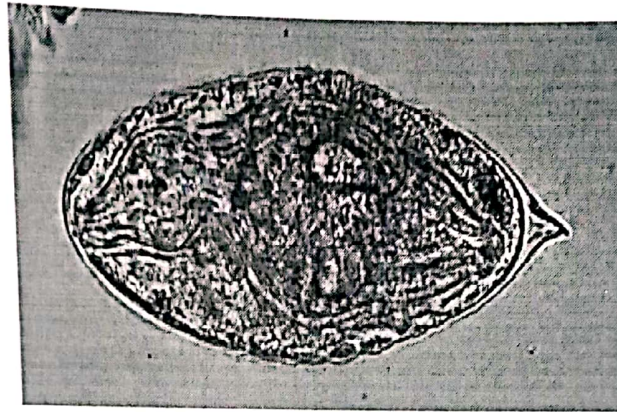
1. Name the parasite and the disease.
2. What is the other name of this parasite?
3. Is it a cestode or nematode?
4. Name the other species and the disease caused by it.
5. What is cysticercosis and its complications?
6. Draw the life cycle.

1. *Taenia solium*/ cysticercosis
2. Pork tapeworm
3. Cestode
4. *Taenia saginata*/ Taeniasis
5. Cysticercosis occurs due to ingestion of worm eggs in food or water contaminated with human feces. Eggs hatch in small intestine, oncospheres burrow through wall into a blood vessel. Disseminate to organs (eyes & brain & encyst to form cysticerci). Each cysticercus contains larva. Cysticerci (enlarge in brain, causing space-occupying lesion). No inflammation by living cysticerci. Dead cysticerci release substances provoking inflammatory response. Later cysticerci calcify.



## SGD

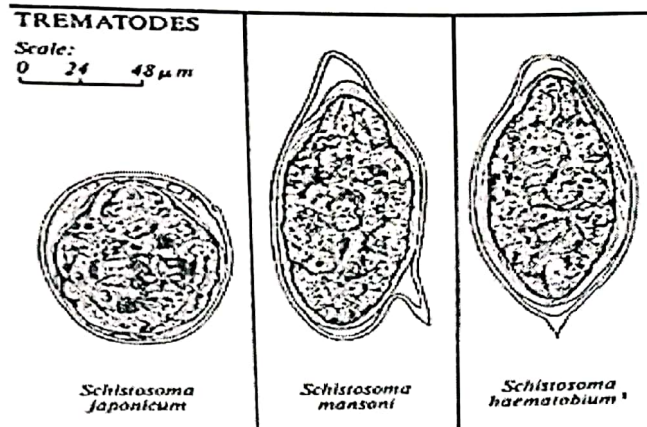
The patient is presented in outdoor with symptoms of urinary tract infection. His culture and sensitivity are negative for bacterial infection. He has only the history of developing skin itching after taking bath in a pond of his village. In urine examination, eggs were found that had characteristic spine shown in the figure.



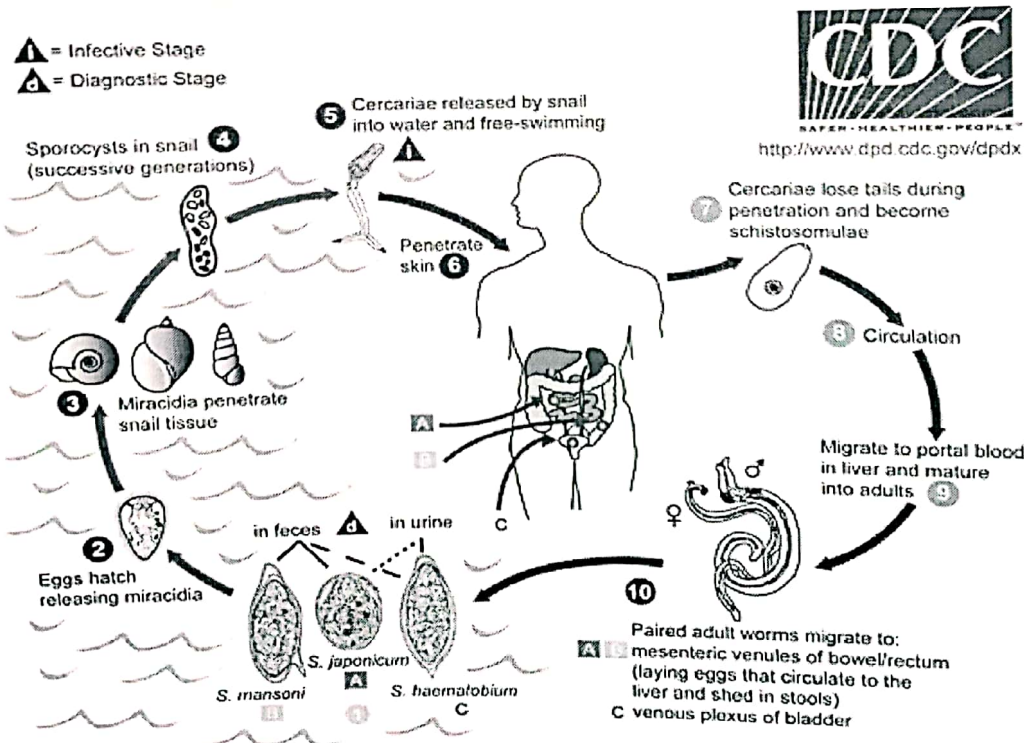
1. What is the causative agent of this infection?
2. Name the cancer associated with this parasite.
3. Name the three species of this parasite and their site of infection.
4. What is this itch called that develops after taking bath in some pond or pool?
5. Draw the eggs of this parasite.
6. Draw the life cycle of parasite.

**Key:**

1. *Schistosoma haematobium*
2. Bladder carcinoma
3. Blood Trematodes/flukes: *Schistosoma* species:  
 In vesical venous plexus: *S. haematobium*  
 In rectal & portal venous plexus: *S. mansoni* & *S. japonicum*.
4. Swimmers itch
- 5.

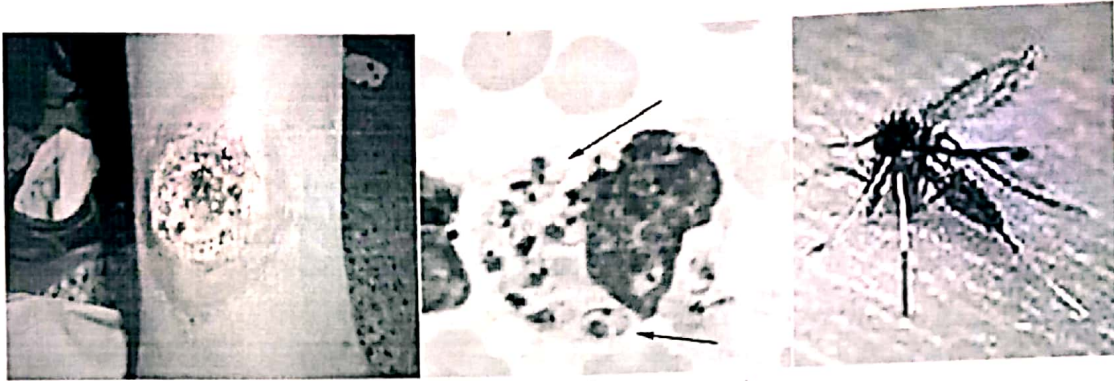


6.



## SGD: Leishmania

This lesion appears on face and extremities weeks to months after bite of the fly shown above in the resident of a tropical country resident adult male. The blood picture shows ingested bodies (marked with arrow heads) in the leucocytes.



1. What is the name of this parasite? *Leishmania*
2. Name the vector of the parasite. → *Sandfly.*
3. Which form of this parasite is present in the leukocyte of human being? → *amastigote form.*
4. LD bodies is the abbreviation of .....? → *Leishman - Donovan Bodies)*
5. Which form of parasite is present in sandfly? → *(LD) Bodies*  
→ *Promastigote form.*
6. Name the three species of this parasite.
7. Discuss the laboratory diagnosis of this parasite.
8. Draw the life cycle of this parasite.

**KEY:**



1. Leishmania
2. Sandfly
3. Amastigote Form
4. Leishman-Donovan (LD) Bodies
5. Promastigote form
6. **Cutaneous Leishmania:** Leishmania Tropica (oriental sore)/ Leishmania Mexicana (bay sore)

- **Mucocutaneous Leishmania:** Leishmania Brasiliense (espundia)
- **Kalazar/Visceral Leishmania:** Leishmania Donovanii (Kalazar)

7. **Visceral Leishmaniasis: Diagnosis**

**Microscopy:** Detection of LD bodies in bone marrow, spleen, lymph node biopsy. *or touch preparation*

**Culture:** Of organisms on NNN (Novy McNeal & Nicole) medium.

**Serology:** Indirect immunofluorescence test positive in most patients. Raised IgG levels.

**Antigen Detection:** Leishmanin test: Negative during active disease.

Positive in recovered patients.

8.

