Unit V – Problem 10 – Microbiology: Schistosomiasis

- Schistosoma is a trematode (من فصيلة الديدان المثقوبة) which is not hermaphroditic (ليست خنثى) There are two separated sexes with the female lying in a groove in the male.
- **Clinical presentation of schistosomiasis:**
  - **Acute schistosomiasis (Katayama fever):**
    - ✓ Fever.
    - ✓ Headache.
    - ✓ Malaise.
    - ✓ Cough.
  - **Chronic schistosomiasis:**
    - ✓ Hepatosplenomegaly.
    - ✓ Eosinophils.
    - ✓ Bloody diarrhea.
    - ✓ Granulomas/ fibrosis in the liver.
- **What are the most common Schistosoma which cause human infection?**

Species	Global distribution	Mode of transmission	Patient presentation	Diagnosis	Treatment
S. mansoni (intestine)	South America and Africa	Penetration of host skin by infectious larvae (cercariae), which eminate from their intermediate host (freshwater snails)	• Acute: intense pruritis at site of larval penetration (swimmers itch); fever; headache; malaise and cough • Chronic: hepatosplenomegaly; eosinophilia; bloody diarrhea/ urine; granulomas/fibrosis in liver	• S. mansoni and S. japonicum: fecal smear for eggs. • S. hematobium: hematuria and/or eggs in urine.	Praziquantel
S. japonicum (intestine)	Eastern Asia				
S. hematobium (bladder)	Africa				

- **What is unique about S. hematobium?**
  - Schistosoma mansoni and Schistosoma japonicum migrate to the mesenteric venules, but Schistosoma hematobium migrates to the bladder veins. It is associated with an increased incidence of squamous cell carcinoma of the bladder and is endemic in Egypt.
- **Swimmer's itch**: intense pruritis (حكَّة شديدة) caused by a variety of Schistosoma endemic to freshwater snails.
- **How does Schistosoma evade host defenses?**
  - By incorporating host antigens such as MHCs and blood group antigens which will prevent Antigen Presenting Cells (APCs) from migrating to the draining lymph nodes, thus preventing the activation of the immune response.
- **Diagnosis of Schistosoma:**
  - **S. hematobium**: urinalysis (hematuria and/or presence of eggs in the urine).
  - **S. mansoni and S. japonicum**: stool specimens (presence of eggs in stool).
- **Treatment:**
  - Praziquantel which causes rapid influx of calcium inside the schistosoma.