

TREMATODES (FLUKES)

Schistosomiasis

Parasitology :

It belongs to helminthes group of parasites .Human is the definitive host , it is female and male parasite ,infection occur through contaminating water with parasite eggs . There are five species which cause infection to human *Schistosoma* (*S.*)*haematopium* ,*S. mansoni*, *S. japonicum* , *S. mekongi* ,*S. intercalatum* .

Epidemiology :

It is common in Africa , Asia, middle east and south America , it is endemic in south of Iraq . It infect 210 million people worldwide per a year , 12 000 – 200 000 people die from it each year so it's the third serious and economic parasitic disease after malaria and intestinal helminthes , it called neglected tropical disease .

Pathophysiology :

LIFE CYCLE : Human discharge eggs with urine or stool contaminating water where ciliated miracidium will liberated in water to enter snail in the water where it multiply to liberates large number of cercarium where it enter to human through skin or mucus membrane of mouth or nose then it pass as larva through circulation to reach the lung through veins to reach then through circulation to the liver where it mature after 4 -6 weeks it transfer to the pelvis where mature schistosoma lay hundreds of their ova either in the mucosa of urinary bladder or in the pelvic colon mainly or accidentally to the uterine tubes ,cervix ,vagina ,seminal vesicle or rarely to CNS or the schistsoma return to lay eggs again to liver or lungs . *S. haematopium* mainly lay eggs in urinary bladder ,where *S. mansoni* and *S. japonicum* in the colon or the liver .

Pathogenesis : Eggs by its self is non pathological state but it stimulate immune response where it will be surrounded by granulation tissues (macrophage , eosinophils, epitheliod cells and giant cells)so it cause damage to organs so it either the eggs die and calcify which is detected radiologically or in the liver granulation tissue around eggs lead to portal hypertension ,in lungs it lead to pulmonary hypertension in urinary bladder it lead to hydronephrosis ,infection ,calculi and carcinoma of urinary bladder .

Clinical features

When cercaria enter to human it cause papular urticarial rash at penetration site with itching locally . Larval stage presented as fever ,ache ,myalgia ,cough ,body itching associated with hepatomegally ,splenomegally and features of pneumonia and eosinophilia . then when eggs put in mucosa of organs it lead to chronic schistomiasis ,female schistosoma can remain alive for 20 years so it cause ongoing pathology .

- 1- *S. haematopium* : It is common in south Iraq ,mainly affect the urinary bladder it presented as terminal hematuria with features of acute cystitis (urgency ,frequency and dysurea) or presented as bladder neck obstruction ,hydronephrosis if bladder fibrosis obstructing ureter , renal stone features and vesical schistomiasis is associated with sequamous cell carcinoma, if *S. scistosoma* affect the seminal vesical it lead to haemospermia . *S. haematopium* may affect the bowel ,CNS ,skin ,genital tract of the female ...etc .
- 2- *S. mansoni* : Their female lay eggs in large bowel presented as abdominal pain with frequent blood stained stool and mucus and in chronic disease rectal polyp the patient develop , if affect the liver it lead to portal hypertension with massive splenomegally ,may develop fatal heamatemesiis ,progressive ascites ,liver function is preserved initially because the liver is fibrotic not cirrhotic .
- 3- *S. japonicum* , *S. mekongi* and *S. intercalatum* : It is common on yellow river basin it similar to *S. mansoni* feature it infect human in addition to animal cattle and rats and it cause wide spread infection especially the CNS and lay more eggs .

Investigations

General urine exam (GUE) showed RBC and albumin and eggs of shistomiasis with terminal spine for *S. haematopium* and lateral spine for *S. mansoni* and *S. japonicum*. Ultrasound of urinary bladder and kidneys for bladder thickening ,hydronephrosis. cystoscopy showed sandy patch bleeding mucosa and later distortion . Sigmoidoscopy shows inflammation or bleeding ,biopsy of the area looking for ova . Serology for anti-schistosoma Ab. is positive but remain positive after treatment .

Management

Treatment of adult worm will stop progression of egg laying . Praziquantel is the drug of choice for schistomiasis will eradicate adult worms by 80 % and stop egg laying in 90% . Surgical procedure needed vesical fibrosis by plastic surgery , uretric obstruction ,rectal polyp ...etc. with medical treatment .

Prevention

Stop the cycle of schistosoma life by educate the people about the disease and its life cycle and prevent urine and stool reaching fresh water . Eradication of the snail is very difficult .