ONCHOCERCIASIS
Synonym – River Blindness
Presenter – Dr Mansuetus Mboya
Objectives
At the end of the session Participants should be able to:
• Define Onchocerciasis
• Describe the epidemiology of onchocerciasis
• Describe life cycle, transmission and distribution
• Describe clinical features
• Diagnose onchocerciasis
• Identify treatment of onchocerciasis
• Describe prevention and control
Definition

Onchocerciasis is a chronic infection (disease) caused by onchocerca volvulus (tissue nematode) mainly affects the skin and eyes.
Epidemiology

- It is a major cause of blindness in some parts of Tropical Africa
- Very common in Volta river basin in West Africa

- It is estimated that about 17.5 million people Worldwide are infected with onchocerca volvulus

- More than 95% of all cases are in Africa zone that spreads from West to East, this band extends between 15°N and 15° S

- Nigeria accounts for over one third of global prevalence

- NB: In Tanzania the disease is found in Highlands with fast running rivers Mahenge, Mbeya and some foci in Tanga and Kilosa
Vector

- The vector of this disease is small black fly Simulium damnosum.
- Fly lay eggs in fast running rivers or turbulent areas with high oxygen tension.
- Eggs need oxygen for development that’s why the disease is found in running Mountain rivers.
- The vector can fly 40 – 150 Kilometers.
The Life cycle

- Female Simulium fly suck microfilaria from the blood of infected person
- Microfilaria develops into the infective form in the fly (6 – 8 days)
- Infective larvae is injected to a new person in the process of feeding
- The larvae develops into adult worm in the nodules of human lymphatic
- Adult worm produces microfilaria
  - Simulium fly in the course of feeding can suck microfilaria.
- NB: The adult worm can live for 11 – 18 yrs in subcutaneous tissue of skin
  Female worm produces thousands of microfilaria that can live for about 2 yrs.
CLINICAL FEATURES

• Onchocerciasis has three different clinical presentations, but the main clinical manifestations are Dermatitis, Eye lesions and skin nodules.
SKIN LESION - DERMATITIS

- Dermal changes occur due reaction of microfilaria in the epidermis
- The changes vary from few papules to extensive pigmentary and chronic atrophic changes of presbyderma and (premature aged appearance)

- Frequently a combination of atrophy, hypo and hyper pigmentation exist in same person.
- Papules are due to micro abscess formation, which disappear within few days or spread.

- The rashes are confined to one anatomical quarter of the body or to a butterfly distribution on the buttocks itching can be very intense
EYE LESION

• Many changes can occur in both anterior and posterior segments in the eyes of infected individual.

• Anterior segment lesions
  • Punctuate keratitis (snow flake opacities) as a result of acute inflammatory reaction around microfilaria
  • Sclerosing keratitis, extensive scarring of the cornea → Blindness.
  • Microfilaria dying in ciliary body give rise to iridocyclitis and formation of synechia, inflammation of uveal tract also contributes to iridial pathology
Posterior segment lesions

Optic nerve atrophy, choridoretinitis leads to blindness

NB: The main blinding lesions are sclerosing keratitis, iritis, choridoretinitis and optic nerve atrophy.
NODULES

• Nodules are subcutaneous granulomas resulting from the tissue reaction around adult worms.

• They are painless, round or oval, firm, smooth vary in size from few millimeters to several centimeters and often-matted together in clumps.

• In Africa 80% of nodules occur over body prominences of the pelvic girdle iliac crest, coccyx, sacrum and greater trochanter rarely occurs on elbow, shoulder, and scapular skull and over the ribs.
DIAGNOSIS

- Clinical presentation-typical skin changes and subcutaneous nodules
- Skin snip to demonstrate microfilaria-best area iliac crest or below

- Mazzoti test-administration of 50mg Diethylcarbamazine DEC by mouth the death of microfilaria will lead to severe body itching between 20 min to 2hrs later.

- DEC lotion can also be used but causes severe reaction than oral

- Mazzoti patch test with topical application

- Immunodiagnostic e.g. ELISA

- Polymerase Chain Reaction (PCR)
TREATMENT

Drug of choice Mectizan (Ivermectin) single oral dose 150ug/ Kg BW
Nodulectomy especially of head as they increase the risk of blindness
COMPLICATIONS

Blindness

Disfigured skin
PREVENTION AND CONTROL

Mass treatment With Ivermectin
Safe water supply
Health education about the disease prevention