

Onchocerciasis

Onchocerciasis is a disease caused by *Onchocerca volvulus*, which belongs to *filaria*. The carrier of the infection is the flycatcher, which is also an intermediate host. The definitive host and reservoir of infection is human. The disease occurs in tropical Africa (99%) and in Central America around flowing rivers. In the endemic area, **18 million people** are infected, of which 4 million have skin manifestations and 2 million have severe eye damage or are blind. About 270,000 people go blind each year as a result of onchocerciasis.

Lifecycle

The fly does not stab the skin, but it gnaws - it creates a pond from which it licks blood. During the feeding of the flycatcher, the larvae get into the human subcutaneous tissue. In the subcutaneous tissue, the larvae grow into adulthood and copulate. Adults form a collagen envelope around them, which prominently penetrates the skin (so-called **onchocercoma**). Adults live 15-18 years and the female can produce live larvae (microfilariae) for up to 10 years. Microfilariae live for up to 2 years and occur in the subcutaneous tissue or lymph nodes. However, they can also get into the skin and eye (so-called **river blindness**).

Clinical symptoms

Onchocercosis has an incubation period of about 8 months. Clinical signs are not very significant in the beginning.

Onchodermatitis

It is caused by the **dermatotoxic effect** of parasite metabolites. Microfilariae occur in the skin and lymph nodes, producing **allergenic metabolites**. Metabolites cause **inflammation**, **pruritus** and **secondary infections** at the site of action. In the acute phase, dermatitis manifests as small itchy papules, vesicles to pustules on the trunk and upper limbs. The chronic phase is associated with depigmentation (so-called *leopard skin*) and skin lichenification - so-called *tissue paper skin* or *lizard skin*. Skin depigmentations ("leopard skin") are typical in East Africa.

Onchocercoma

Onchocercoma formation begins after dermatitis. After the larvae mature in the subcutaneous tissue, we find **non-migrating nodules**, that grow for 3-4 years up to a size of 8 cm in diameter. Onchocercomas contain **tens to hundreds of adults** worms in a fibrous sheath surrounded by fluid and leukocytes. **They are painless** and located at pressure points above the bony protrusions above the spine, sacrum, elbows and knees.

Onchocerciasis - River blindness

In the eye, inflammatory changes take place around the microfilariae. Initially, the infection manifests as **photophobia**, **tearing**, **eyelid swelling** a **blepharospasm**. This is followed by damage to the cornea and retina, which can result in optic nerve atrophy - so called river blindness.

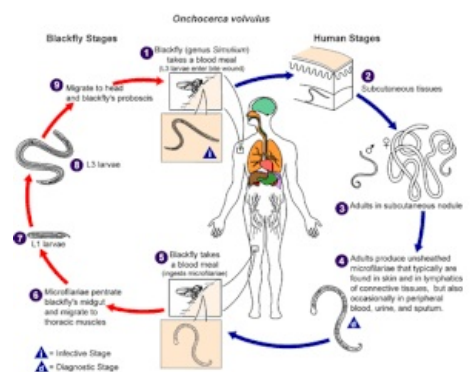
Diagnostics

- The larvae are not in the blood, but in the subcutaneous tissue, so a skin biopsy is performed - the so-called **skin snip test**. The sample is taken from the place of the most probable occurrence:
 - Africa and South America - buttocks, hip, calf
 - Mexico, Guatemala - back, torso
 - Yemen - lower limbs
- Sample processing for microscopy: incubation at 37 °C in saline solution
- Microscopic detection of larvae

Therapy



Onchocerca volvulus



Onchocerca volvulus LifeCycle



River blindness



Onchocerciasis world map - DALY - WHO2002

- The drug of choice is **ivermectin**. Treatment should be repeated every 6-12 months for 15-20 years (lifetime of adult worms). An alternative is diethylcarbamazine.
- Surgical removal of nodules.

Source

- ws:Onchocerkóza

References

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