

# Filaria

**Filaria** or **Hairworms** belong to the group of *Nematoda* (nematodes). They are worms that live in the lymphatic channels, in the under the skin or some even in the eye of a person. They are found in the tropics and subtropics. Hair mites cause the disease **filariasis**. The main representatives include: *Wuchereria bancrofti*, *Brugia malayi*, *Brugia timori*, *Loa loa*, *Onchocerca volvulus*.

After fertilization, the females give birth to live larvae - **microfilariae** which circulate in the blood stream of the host and are then sucked up by an insect vector, where they complete their cycle. They develop into an invasive stage in insects and are transferred to the next host where they mature. The vector of disease is therefore a stinging insect that injects an infectious larva - microfilaria - into the host. Man is the definitive host.

## Wuchereria bancrofti

**Wuchereria bancrofti** is a worm found in the tropics and subtropics of the Southern Hemisphere. Its intermediate host and at the same time the vector of infection is the mosquito. The definitive host is man. Transmission to humans is caused by a mosquito bite.

It causes the disease *wuchereriosis*, which in severe cases can end up with *elephantiasis*, which is a disease accompanied by massive lymphedema.

A person is bitten by a mosquito and the parasite is transmitted. Microfilaria burrow into the capillaries and migrate to the lymphatic system, where they mature and copulate. The females then give birth to live larvae - microfilariae (most of them are at night). The larvae then travel through the blood and can be sucked in by another mosquito.

Adult hairworms most often parasitize in the lymphatic system and can clog lymphatic vessels for several years, which subsequently leads to lymph stagnation and the formation of *lymphatic varices* and a lymphatic vessel may even burst.

The main symptoms of wuchereriosis include abdominal pain, swelling, vomiting, anemia and in more severe stages, when the lymphatic vessels burst, chyluria (the presence of lymph in the urine) may also occur.

A more serious form is **elephantiasis**, when the flow of lymph is blocked and the given part of the body increases as a result - the lower limbs, scrotum and vulva are most often affected.

The diagnosis uses direct microscopic evidence of microfilariae from the blood or punctate from the nodes of the patient.



Wuchereria bancrofti

The disease is treated with **diethylcarbamazine** or **ivermectin**. Prevention is especially important - elimination of mosquitoes.

## Brugia malayi (Malaysian hairworm)

**Brugia malayi** is very similar to *W. bancrofti* - life cycle, transmission, disease and therapy. It is mainly found in Southeast Asia. The main vector is the mosquito. It causes the disease "brugiosis", which mainly affects the upper and lower limbs and can manifest as elephantiasis. The only source of infection is man. Direct microscopic evidence is used in the diagnosis - larvae are detected in blood taken at night using the thick drop method.

## Loa loa

**Eyeworm** is a parasite found mainly in Central Africa. Its intermediate host is a bug and its definitive host is man. A person becomes infected when bitten by an insect. The larvae of the vlasovka reach the subcutaneous tissue or the eye conjunctiva through the blood, where they mature and reproduce. The females then give birth to larvae (microfilariae), which then circulate in the blood and can be sucked in by a stinging fly.

The disease caused by eye lice is called *loalosis* and is divided into subcutaneous and ocular types. **Subcutaneous loalosis** is manifested by the parasites forming lumps in the subcutaneous tissue. edema occurs around these bumps, as a result of an allergic reaction to irritation by the parasite. If the infection is localized only in the subcutaneous tissue, the disease is not very dangerous. However, if the hair gets into the eye, **ocular loalosis** occurs - it is more serious but at the same time rarer. In this case, the adult hair follicle is located in the conjunctival sac. The patient usually suffers from severe inflammation of the conjunctiva and may experience impaired vision and in the worst case it leads to blindness.

Direct microscopic detection of microfilariae in the patient's blood is used in the diagnosis of eye lobules. In therapy, surgical removal of the parasite from the eye is the most important, and *diethylcarbamazine* is used as a medication.

# Onchocerca volvulus

**Skinworm** is a parasite that occurs mainly around large rivers in Africa and in South and Central America. Its definitive host is man and the intermediate host is the fly.

Transmission is given by the bite of a person by a fly. After penetrating the host's body, the infective larvae mature and multiply in subcutaneous nodules. The females give birth to microfilariae, which burrow into the area around the bump and from there they can be re-sucked by the fly. Cutaneous ringworm causes the disease *onchocerciasis*, which is manifested by bumps in the subcutaneous tissue where adults live parasite. Dermatitis around the nodule leads to depigmentation of the skin, which is then referred to as Brugia malayiBrugia malayileopard skin. *In the event of penetration of a hair follicle into the eye, there is a risk of inflammation and damage to the cornea, conjunctiva and retina.*

Diagnostics uses direct microscopic examination of the larvae in the nodule. Therapy is based on the administration of **diethylcarbamazine** or **ivermectin** and surgical removal of the nodule may also occur.

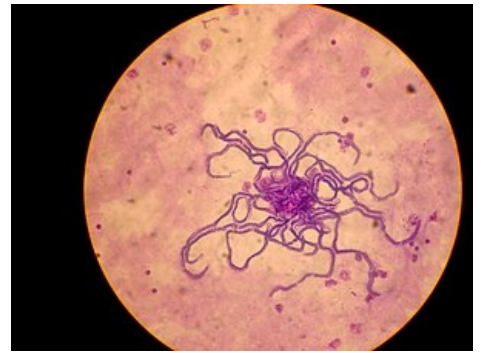
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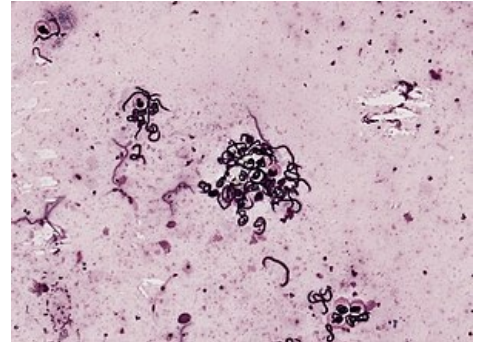
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### References

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Loa Loa



Onchocerca volvulus