Filariasis

Filariasis is caused by at least three species of nematode parasites (*Wuchereria bancrofti, Brugia malayi, and Brugia timori*) and is transmitted to 5 genera of mosquitoes including *Aedes, Anopheles, Culex, Mansonia,* and *Ochlerotatus.*[1]

Humans serve as the primary reservoir for this parasitic disease, while mosquitoes act as the vector. The mosquito introduces larvae into the bloodstream, where they settle in the lymph nodes and develop into adult worms. These larvae preferentially inhabit the femoral lymph nodes. Through sexual reproduction, the females produce a vast number of microfilariae, which are released into the bloodstream in a daily cycle. Female worms can continue to release eggs for approximately five years, and adult worms may survive for up to nine years. As the population of adult worms increases, the lymphatic system becomes obstructed, impairing lymphatic drainage and heightening the risk of recurrent infections, particularly streptococcal and fungal infections. This acute-on-chronic inflammation results in fibrosis and remodeling of the lymphatic vessels, which exacerbates contractile dysfunction and contributes to the dermal changes characteristic of elephantiasis.[2,3]

Brugia and *Wuchereria* species exhibit morphological similarities and are the primary agents responsible for filariasis. Identification at the genus level can be achieved through analysis of size, composition of the body wall, thickness, and characteristics of the cuticle. The detection of small filarial worms within lymph nodes is indicative of either *Wuchereria* or *Brugia.* Adult worms are generally located in lymph nodes situated in the groin or neck, while microfilariae are predominantly found in peripheral blood. Adult worms typically measure between 45 and 100 micrometers in diameter and are usually observed in cross-sections of lymph nodes. Their characteristics include a "thin, smooth cuticle that is thickened over lateral chords, three or four well-developed, low, broad muscle cells per quadrant, and relatively broad, flat lateral chords."

Microfilariae can be identified through blood smears or other peripheral blood samples stained with Giemsa or hematoxylin and eosin (H&E). It is recommended that blood samples be collected after 8 PM. The size of microfilariae ranges from 200 to 300 micrometers in length and 2 to 8 micrometers in diameter, with identification based on the presence of terminal and subterminal nuclei in the tail region.[4]

References

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