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Dumraon B.Sc. Zoology (Hons) Part
I, Paper I (A) Zoology.

Ques: *Wuchereria bancrofti* Ka life cycle Ka Chitra Varnan Karay.

Ans: Morphology:-

As a diagnostic

Wuchereria bancrofti a human parasitic worm (Filariform) that is the major cause of lymphatic filariasis. It is one of the three parasitic worms, together with ~~the~~ *Brugia malayi* and *B. timori*, that infect the lymphatic system & cause lymphatic filariasis. These filarial worms are species.

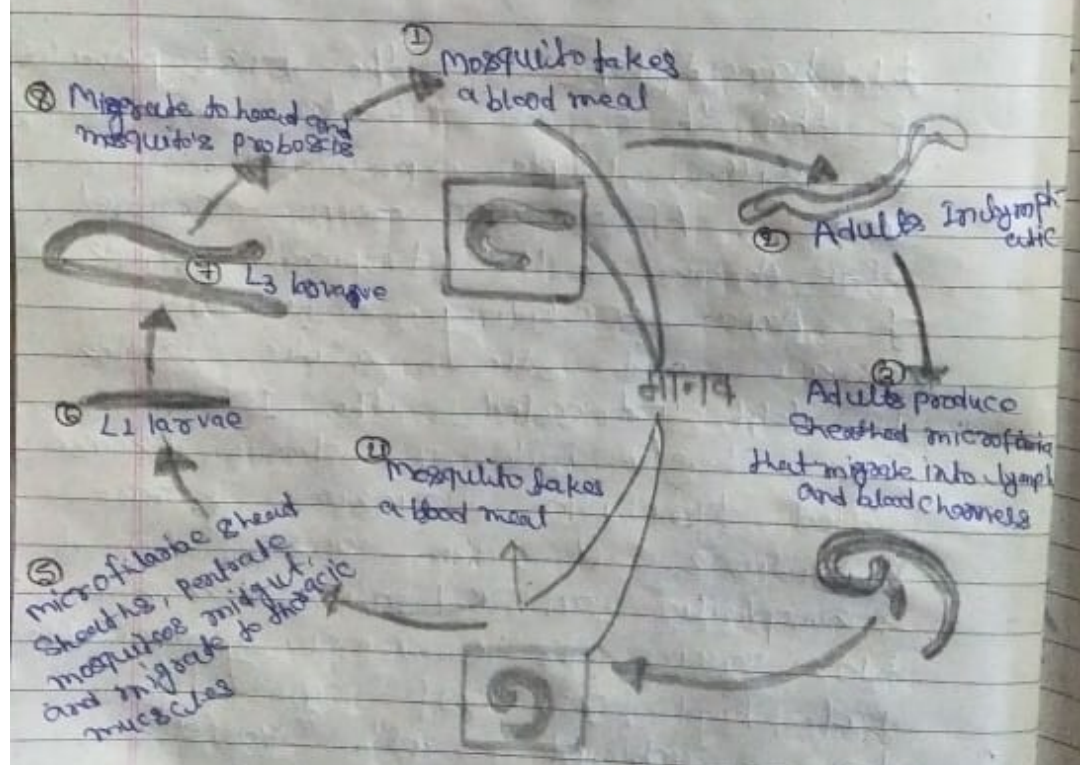
W bancroftii is the most prevalent of the three and affects over 120 million people, primarily in Central Africa and in Central Asia. America, the tropical regions of Asia including Southern China, and the Pacific Islands. If left untreated the infection can develop into a chronic disease called lymphatic filariasis. In rare conditions, it also causes tropical eosinophilia an asthmatic disease. No vaccine is commercially available but high rates of cure have been achieved with various antifilarial regimens and lymphatic filariasis is the target of the WHO Global program to eliminate lymphatic filariasis with the aim to eradicate the disease as a public-health problem by 2020.

Unique diurnal Circulation periodicity:
During the day, they are present in the deep veins and during the night, they migrate to the peripheral circulation. The cause of this periodicity remains unknown, but the advantage of the microfilariae being in the peripheral blood during those hours may ensure the vector, the nighttime mosquito, will have a higher chance of transmitting them elsewhere. Physiological changes also are associated with sleeping. Such as lowered body temperature, oxygen tension, and adrenal activity, and an increased carbon dioxide tension, among other physical alterations, any of which could be the signals for the rhythmic behavior of microfilariae parasites.

If the hosts sleep by day and are awake at night, their periodicity is reversed. In the South Pacific where *W. bancrofti* shows diurnal periodicity, it is known as periodic.

The microfilariae are transferred into a vector, which are most commonly mosquito species of the genera *Culex*, *Anopheles*, *Manzonia*, and *Aedes*. Inside the mosquito the microfilariae mature into motile larvae called juveniles. These migrate to the labium after a period around 10 days when the infected mosquito has its next blood meal. *W. bancrofti* larvae are deposited from the mouthparts onto the skin of the prospective host and migrate through microcracks in the dermis or the tract created by the

→ Life cycle :-



Lifecycle of wuchereria bancrofti

W. bancrofti carries out its life cycle in two hosts. Humans serve as the definitive host and mosquitoes as the intermediate host. The adult parasites reside in the lymphatics of the human host. They are found mostly in the afferent lymphatic channels of the lymph glands in the lower part of the body. The first stage larvae, known as microfilariae, are present in the circulation. The microfilariae have a membrane sheath. This sheath, along with the core in which the worms reside, makes identification of the species of microfilariae. They are found mainly in the peripheral blood and can be found at peak abundance from 10 pm to 4 am. They migrate between the deep and the peripheral circulation exhibiting

proboscis into the blood. Sternum of the new human host. the larvae move through the lymphatic system to regional lymph nodes.

Predominantly in the legs and genital area. the larvae develop into adult worms over the course of a year, and reach sexual maturity in the afferent lymphatic vessels. After mating, the adult female worm can produce thousands of microfilariae that migrate into the blood stream. A mosquito vector can bite the infected human host, ingest the microfilariae, and he thus repeat the life cycle. the organism notably does not multiply within its intermediate host, the mosquito.