

Human cases of Filarial Infection in West Malaysia

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A GREAT DEAL has been written about the pathogenesis of filariasis of the adult worm in humans and experimental animals. For the most part, very little attention has been directed towards the fate of microfilariae, and few cases are reported of specific lesions caused by microfilariae in man.

Manson regarded the microfilariae of *Wuchereria bancrofti* and *Wuchereria malayi* as particularly harmless. These were found in the lymphoid tissue close to the parent worm and in the capillaries of the lungs, spleen, kidneys, and other internal organs where in some cases they were surrounded by a fringe of eosinophil leucocytes.

Danaraj et al (1966) have described the pathology of the eosinophilic lung. From the study of 2,000 serial sections of lung tissue from five cases, it was found that dead and degenerating microfilariae were found in both exudative and granulomatous lesions in all but one case. In some of the cases, microfilariae were found to be surrounded by eosinophils separated from a ring of histiocytes by amorphous eosinophilic material.

Nelson (1966), in a detailed review of the pathology of filarial infections, states that the skin microfilariae can be definitely pathogenic, e.g. in onchocerciasis it is the microfilariae which are responsible for the pathological lesions in the skin and eyes. The severity of the lesion is proportional to the density of

infection, and this only when the microfilariae are dead. However, it is not unusual to see microfilariae in the conjunctiva or even in the anterior chamber of the eyes of persons with no ocular lesions.

* Sapico et al (1967) have described a case of filariasis presenting with gross haematuria. Microfilariae of *Wuchereria bancrofti* were present in the urinary sediment.

A new disease entity, described as endomyocardial fibrosis associated with filariasis, was described in humans by Ive et al (1967) in the provinces of Western Nigeria and also from the Mid-West and the Eastern Region. The lesion consists of scarring of the apex of the heart and inflow tract of the ventricles destroying the normal endocardium, and extending into the myocardium. Either ventricle or both ventricles may be affected simultaneously. The fibrosis interferes with myocardial contractility, and with the expansion of the ventricle during diastole. Microfilariae were present in the blood stream in a high percentage of these cases.

Filariasis in Malaya

Daniels (1908) was the first to notice the presence of filariasis in Malaya when he examined a number of blood films from patients at the General Hospital, Kuala Lumpur and found that three of these were positive. Very few cases of filariasis were seen in hos-

FILARIAL INFECTION IN HUMANS IN WEST MALAYSIA

DISTRIBUTION OF FILARIASIS IN MALAYA.



Fig 1
Endemic areas of filariasis in Malaya 1968.

pitals and it was therefore thought that the disease was brought into the country by Indian and Chinese immigrants. Very little attention was paid to the disease in West Malaysia until 25 years later when, in 1934, Strahan and Norris found that the disease was endemic in the rural population living in the coastal rice fields of Province Wellesley. The population in these areas were mainly composed of Malays and the parasite was identified as *Brugia malayi* (fig. 1). From this diagram, it will be noted that the endemic areas of filariasis are along the riverine areas of the country which provide a suitable breeding place for the vectors of the disease.

Two species of parasites are responsible for the causation of filariasis in West Malaysia, i.e. *Brugia malayi* and *Wuchereria bancrofti*.

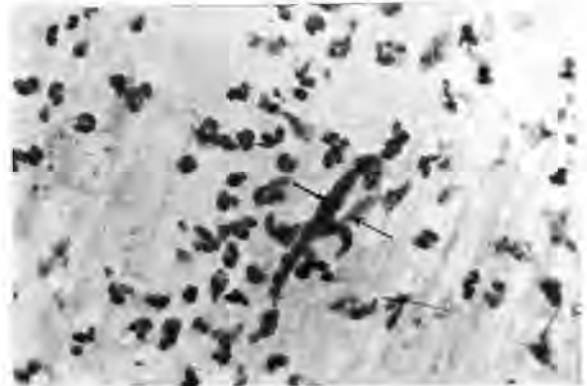


Fig 2
Fragments of microfilaria amidst granulomatous lesion.

1. *Brugia malayi* causes disease among the rural folk of West Malaysia. Two forms of *Brugia malayi* have been recognised in man.

- (a) The nocturnally periodic form of *Brugia malayi*. The mosquito vectors of this species are the *Anopheles* and *Mansonia* spp. which are found in the coastal rice fields and some of the inland hilly districts of the country.
- (b) The nocturnally sub-periodic form of *B. malayi*. The vectors of this species all belong to the subgenus *Mansonioides*, and are found along the lower reaches of the larger rivers in many square miles of freshwater swamp forests.

2. *Wuchereria bancrofti*: Surveys carried out by the Institute for Medical Research have revealed that various small endemic foci exist in different parts of Malaya (fig. 1). Wharton (1960) showed that there were two strains of the parasite. The one found in rural areas developed very poorly in *Culex fatigans*, but thrived well in the *Anopheles* species. *Culex fatigans* is the common vector of *W. bancrofti* in other parts of the world. The second which was found in urban areas developed well in *Culex fatigans*. As a result of these findings, two strains of *Wuchereria bancrofti* have been described, viz the "urban" strain and the "rural" strain. The "urban" strain has become very difficult to find recently.

The prevalence rate of the disease varies from 2% – 18% in different parts of West Malaysia.

Case History 1. S.M.D., a female Malay aged 56 years from Bagan Datoh, Telok Anson, West Malaysia, was admitted to the district hospital with a swelling of the abdomen. A provisional diagnosis of a uterine tumour

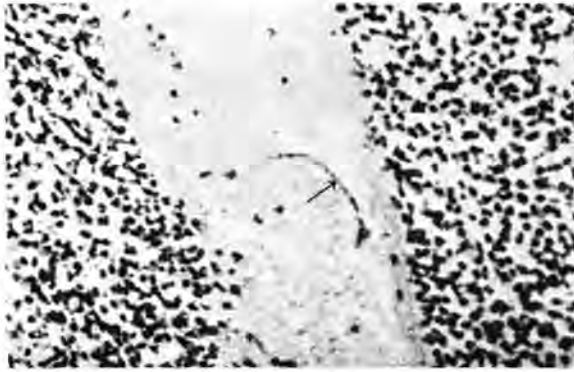


Fig 3
Fragment of microfilaria within blood vessel.

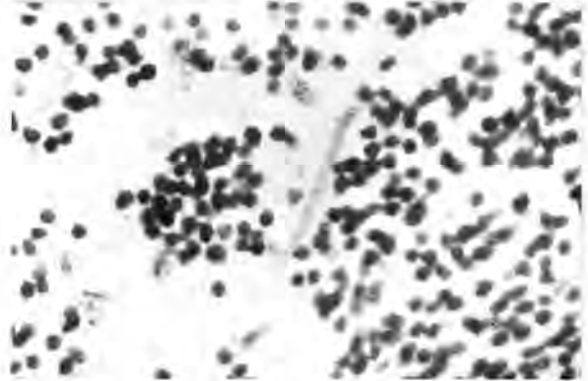


Fig 4
Microfilaria lying in sinus of lymph node.

was made and a total hysterectomy was carried out.

There was a growth in the uterus, the cut surface of which had a whitish appearance. Parts of the tumour mass showed areas of necrosis. Several sections were examined. These showed an extensive granuloma with abscess formation. Most of the inflammatory cells were polymorphonuclears with very few eosinophils. The inflammation had destroyed the muscle in the centre of the lesion while in the periphery it had infiltrated in between the muscle fibres. Fragments of microfilariae were present in the granuloma (fig. 2) and within the blood vessels (fig. 3), and appeared to be responsible for this intensive inflammatory reaction. The nuclei of the microfilariae were well stained and there was no evidence of the presence of microfilarial sheaths being the cause of the inflammatory response. It was clear from the sections studied that living microfilariae were responsible for this lesion and this was not an allergic reaction due to the presence of dead microfilariae or their sheath.

In a survey carried out in this area where the patient lived, it was found that her son had elephantiasis. The mother was admitted to hospital and a 2-hourly blood sample was collected for a period of 24 hours, with the intention of identifying the species of microfilaria but the blood films were found to be negative.

Case History 2. A male Malay, aged 19 years, and a

member of the Armed Forces, was seen at the out-patient department of the District Hospital, Taiping with an enlarged cervical lymph node. Histological sections of the lymph node showed the presence of microfilaria lying freely in the sinus without any significant cellular reaction. (fig. 4) The patient showed no other signs of ill-health.

Summary

Human filariasis is endemic in several parts of West Malaysia. Although it does not appear to cause acute debilitating disease, it is a definite cause of chronic illness in areas where it is endemic. Two cases of human filariasis, with different clinical presentations, are described.

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