Filariasis blood survey in Kelantan

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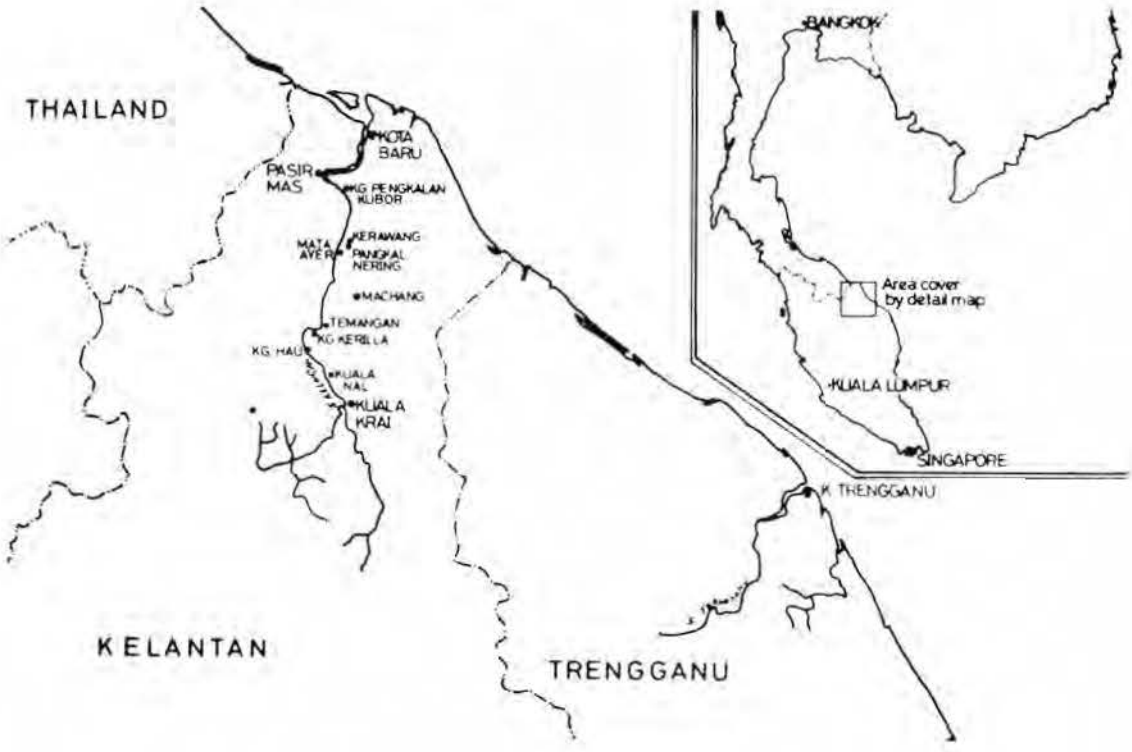
IN WEST MALAYSIA endemic filariasis is closely associated with riverine areas, such as the environs of the Pahang, Rompin, Perak and Bernam Rivers, and with certain open rice growing regions as in Kedah, Province Wellesley, and Lower Perak. The primary parasite is **Brugia malayi,** in its periodic and sub-periodic forms, while the less common **Wuchereria bancrofti** is found in scattered rural foci, usually coexisting with **B. malayi.** (Wilson 1961, Ramachandran 1970).

No published information is available on either the presence or absence of filariasis in the heavily populated regions of Kelantan, which are both riverine and produce paddy. There is, however, filariasis all around these regions. Appreciable prevalences (15-20%) of **B. malayi** have been reported among Orang Asli (Aborigines) in the interior areas of Ulu Trengganu — Fort Chabai, Fort Betis, and the Nenggiri River and Perias River areas. (Wharton et al 1963; Onyah 1967). Both Malayan and bancroftian filariasis have been found south of Kelantan in a riverine-paddy growing area of Trengganu (Ramachandran et al 1970). To the north, **B. malayi** focally affects much of southern Thailand, including Narathiwas Province, adjacent to the Kelantan border (Harinasuta et al 1970; Guptavanij et al 1971 a, b). Therefore in April-May 1972, a team from the Filariasis Research Division, Institute for Medical Research, Kuala Lumpur, with the assistance of the Health Department of Kelantan, undertook a filariasis blood survey in several regions along the Kelantan River.

Study area and population

After examining records of filariasis-like cases collected by the Chief Medical and Health Officer, Kota Bharu, numerous inquiries were made with



local medical officers, public health inspectors, hospital assistants, kampong headmen and local people in four districts, seeking information on the occurrence of elephantiasis and suggestive symptoms, such as inguinal lymphadenitis, lymphangitis and hydrocele. On the basis of these preliminary investigations and of inspections of the terrain, four areas in three districts bordering on the south side of the Kelantan River were selected as reasonably likely to have filariasis. There were Kg. Pengkalan Kubor near Salor in Kota Bharu district, Kgs. Kerawang, Pangkal Nering and Mata Ayer near Pulai Chandong in Machang district, Kgs. Kerilla and Hau near Temangan also in Machang district, and Kg. Kuala Nal near Kuala Kerai in Ulu Kelantan (see map).

The study sites were in low-lying regions comprising paddy fields interspersed with small wooded areas, many growing rubber. The kampongs were adjacent to or within several miles of the Kelantan River. The entire region is seasonal, being quite dry from February through about September and experiencing monsoon rains from October through January, frequently with local flooding. No swampy areas were found which persisted long into the dry season. Paddy fields are irrigated during that time, however, in the Pengkalan Kubor region. The subjects were all volunteers, ranging from infants to the very old, and represented in most areas a majority of the inhabitants, although accurate census figures were not readily available. Each area was visited several days before the survey by a public health team, headed by Mr. C.R.S. Maniam, Chief Public Health Inspector, Kelantan, who gave a talk and showed lantern slides. The response of the kampong people to the study was generally enthusiatic.

Materials and methods

All specimens were collected after dark commencing at 1915 hours. Measured 20 cmm thick blood films were prepared from finger pricks using a modified Sinton pipette. Films were stained the following morning as per routine with dilute Giemsa (35 drops in 100 cc buffered water, pH 7.2) and later examined thoroughly for microfilariae with 6 x occulars and 10 x objective. Subsequently, the films were examined under oil for malaria

parasites by the Division of Malaria Research, I.M.R., Kuala Lumpur.

Results

Our initial inquiries revealed little if any filariasis-like disease coming to local medical attention, and little or no public awareness of the classical signs and symptoms. There were, however, a few anecdotal reports of the occasional individual past or present with a big leg, or hydrocele.

As shown in the table, among the 1,151 blood smears examined, none were positive for microfilariae.

Three "big legs" were found. However one of these was the result of chronic osteomyelitis with gangrene; one a badly swollen chronically ulcerated limb, not necessarily suggestive of filarial elephantiasis, in a man who had years before come from Pahang, an endemic area; and one was a rather bizarre unilateral multi-cystic lesion of the thigh, also not suggestive of filarial disease.

The malaria findings are listed in the table.

Discussion

Numerous preliminary enquiries in the coastal Bachok district failed to suggest the likelihood of endemic filariasis there. In the other districts investigated, Kota Bharu, Machang and Ulu Kelantan, we selected four riverine, paddy-growing areas as most likely to have filariasis. These areas are scattered over a distance of 40 miles along the south side of the Kelantan River. In all the individual areas we surveyed, none of the local inhabitants examined appeared to have filariasis.

While the existence of filariasis is by no means ruled out by this enquiry and limited "spot" survey, the infection would appear unlikely to be of major public health significance in this area of the state. However, the more remote interior regions of Ulu Kelantan inhabited by Orang Asli apparently are affected as **B. malayi** as noted above. Furthermore, we encountered informal reports of elephantiasis cases among Malays in towns along the railway line interior from Kuala Kerai.

We are presently at a loss to explain this unexpected apparent absence of filariasis in the areas examined. The preliminary nature of the study did not allow entomological observations. Possibly, appropriate vector mosquitoes do not breed locally. Any further studies in the area should include mosquito trapping.

The malaria rates were appreciable only in the area of Kg. Kerilla near Temangan. Four cycles of residual DDT spraying had previously been completed in the study areas as part of the National Malaria Eradication Project.

Summary

In April-May 1972, a "spot" blood survey was conducted in four localities in an area extending 40 miles along the south side of the Kelantan River. In all, 1,151 blood smears were collected; not a single case of filariasis was found. While it does not exclude the occurrence of filariasis in the populated riverine section of Kelantan, this limited study, plus the results of local enquiries, show that filariasis there is not a major public health problem.

Malaria prevalence rates were low in all except one of the four localities. The Malaria Eradication Program had previously conducted four cycles of DDT spraying in the study areas.

Table

Results of Examination of Blood Films from Kelantan for Microfilariae and Malaria Parasites.

Kampong	District	Sub-District	Number Examined	Positive for Microfilariae	Positive for Malaria					Percent
					falcip.	vivax	malariae	S.U.*	Total	
Pengkalan Kubor	Kota Bharu	Selor	143	0	—	2	—	—	2	1.4
Kerawang	Machang	Pulai Chandong	125	0	—	—	—	—	0	0
Pangkal Nering	„	„ „	185	0	2	1	—	—	3	1.6
Mata Ayer	„	„ „	156	0	—	1	—	—	1	0.6
Kerilla	„	Kerilla	193	0	4	6	4	4	18	9.3
Hau	„	„	20	0			1	1	2	10.0
Kuala Nal	Ulu Kelantan	Kuala Kerai	329	0	1	3	1	1	6	1.8
Combined	—	—	1151	NIL	7	13	6	6	32	2.8

* Species undetermined, infection usually of very low density.

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