

## RESEARCH NOTE

### POTENTIAL TRANSMISSION OF BANCROFTIAN FILARIASIS IN URBAN THAILAND

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Nocturnally subperiodic filariasis caused by *Wuchereria bancrofti* is endemic in the rural areas of western Thailand (Filariasis Division, 1995). The prevalence of microfilaria (mf) rates by the use of thick blood films in these provinces ranged from 0.1% to 2.2% in 1994 (Filariasis Division, 1995). *Aedes* mosquitos, particularly the *Aedes niveus* group, are the major vectors for disease transmission. We report here the possible transmission of Bancroftian filariasis related to the influx of Myanmar immigrants in urban areas of Thailand where efficient vectors exist.

Because of low income in Myanmar and rapid extension of industrialization in Thailand, a number of Myanmar people have illegally migrated to work in many urban and periurban areas of Thailand, including the municipality of Mae Sot District, Tak Province. The district is located 500 km northwest of Bangkok, close to the Thai-Myanmar border. Low rates of subperiodic Bancroftian filariasis are confined only to a few hilltribe villages in the district. Bancroftian filariasis has never been reported from the urban area. In October 1994, a pilot survey using thick blood films of 515 Myanmar workers in 3 factories in the district revealed a mf rate of 4.1%. The nocturnally periodic form of *W. bancrofti* mf in these infected migrants was similar to that reported in Myanmar (WHO, 1992). To reduce the spread of infection, active case finding was carried out between March and April 1995 among the Myanmar workers and their families in the municipal area and factories nearby. Thick blood films were prepared from about 60 mm<sup>3</sup> of finger-prick blood samples obtained between 20.00 and 24.00 hours. The films were stained with Giemsa's stain and examined for mf by micro-

scope. Persons with lymphedema, elephantiasis, and/or hydrocele were reported as having clinical filariasis.

Of the 8,377 Myanmar migrants examined, 209 (2.5%) were found to have *W. bancrofti*. Five had clinical filariasis. The mf counts per 60 mm<sup>3</sup> in these infected persons ranged between 1 and 162, with a median of 5. The infection affected all age groups in the population surveyed (Table 1). The mf prevalence rate was highest in persons between 15 and 24 years old (3.1%), and slightly declined with increasing age. The rate for males (2.6%) was slightly greater than that for females (2.4%). There were significant differences among the mf rates according to the cities or towns where the subjects had lived before migration to Thailand. Persons from Moulmein had the highest mf rate (6.7%), followed by those from Yangon (3.2%). Myanmar migrants from the same city or town were more likely to stay and work together in Thailand. The mf rates were found to decrease with increasing duration of stay in Thailand. However, at least 1.3% of those migrants who stayed > 10 years remained mf-positive. These infected persons reported occasional visits to their town of origin in Myanmar. These epidemiologic findings can help in identifying the population with a higher risk of infection. Diethylcarbamazine was used for treatment of infected persons.

*Culex quinquefasciatus*, the common vector of periodic *W. bancrofti* in Southeast Asian countries, including Myanmar (WHO, 1992), is abundant in the study area. A study on experimental infection indicated the ability of these mosquitos to maintain development of infective larvae after feeding on human carriers of *W. bancrofti* from the area (Kanjaprasit, in press). An environmental survey found inadequate disposal of human waste and wastewater

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Table 1

Prevalence of *W. bancrofti* microfilaremia, by sociodemographic characteristics, in the Myanmar migrants, Mae Sot, Tak Province, 1995.

Characteristics	No. surveyed	No. positive	(%)	p
Total	8,377	209	(2.5)	
Age (years)				
< 15	1,722	23	(1.3)	0.005
15-24	3,349	104	(3.1)	
25-34	1,957	50	(2.6)	
35-44	907	23	(2.5)	
≥ 45	442	9	(2.0)	
Sex				
Male	4,535	117	(2.6)	0.637
Female	3,842	92	(2.4)	
Cities or towns (before migration to Thailand)*				
Moulmein	1,770	118	(6.7)	< 0.001
Rangoon	279	9	(3.2)	
Kawkareik	744	8	(1.1)	
Pa-an	3,552	32	(0.9)	
Hlaingbwe	433	2	(0.5)	
Others	1,089	33	(3.0)	
Duration of stay in Thailand (years)*				
< 1	1,613	80	(5.0)	< 0.001
1-2	2,722	71	(2.6)	
> 2-5	2,062	32	(1.6)	
> 5-10	1,161	15	(1.3)	
> 10	388	5	(1.3)	

\* Those with missing information were excluded from the analysis.

in the place where the migrants stayed, which might increase the vector breeding sites. Improvement in environmental sanitation and reduction of vector breeding places were therefore included in the control measures.

The prevalence of filariasis presented here is likely to be underestimated since the thick blood film for mf detection is somewhat insensitive, particularly for low mf density (Faris *et al*, 1993). In a nonendemic area where the vector exists, the arrival of infected persons can initiate disease transmission. Environmental and demographic changes related to rural-to-urban migration within the country can have a profound effect on transmission of filariasis (Harb *et al*, 1993). This report suggests that migration of infected persons from Myanmar and the existence of efficient vectors may lead to an increased risk of infection in this urban area. Effec-

tive surveillance of the migrants and appropriate control measures are needed to reduce this risk.

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