

LYMPHOGRAPHIC ABNORMALITIES IN PATIENTS WITH BRUGIA MALAYI FILARIASIS AND "IDIOPATHIC TROPICAL EOSINOPHILIA"

TJ Tan, E Kosin, TH Tan

St. Elisabeth Hospital, Medan, Indonesia

ABSTRACT

*Peripheral lymphography was carried out in 17 patients with elephantiasis and microfilaremia (*Brugia malayi*) and the findings compared to ten patients with "idiopathic tropical eosinophilia." There were extensive changes in peripheral lymphatic and regional nodal architecture in each group suggesting that "occult filariasis" is the cause of idiopathic tropical eosinophilia.*

Studies on filariasis caused by microfilariae *Brugia malayi* remain meager and sporadic, while the basis for idiopathic tropical eosinophilia is still obscure. Because both conditions are common in the swampy regions of Medan, Indonesia, we conducted an extensive nocturnal blood survey for infection with *B. malayi* and for peripheral blood eosinophilia. In selected patients dorsal pedal lymphography was performed. Findings not only substantiated extensive lymphatic and lymph nodal archi-

tectural disruption with lymphedema from filariasis, but also disclosed similar lymphatic changes in patients with tropical eosinophilia without microfilaremia or elephantiasis.

MATERIALS AND METHODS

On a rubber plantation on the seacoast of Medan, 679 patients were screened for *B. malayi* infection by an evening blood survey (20 ml) (Table 1). Microfilariae (*B. malayi*) were detected in 51 individuals (Table 2) in various stages of lymphedema and elephantiasis (Fig. 1). In 27 of these patients dorsal pedal lymphangiograms were done including 13 men with microfilaremia and early elephantiasis, 4 men without microfilaremia but with severe elephantiasis for more than ten years (Fig. 2) and 10 patients (2 males and 8 females) with "tropical eosinophilia" but without microfilaremia or elephantiasis.

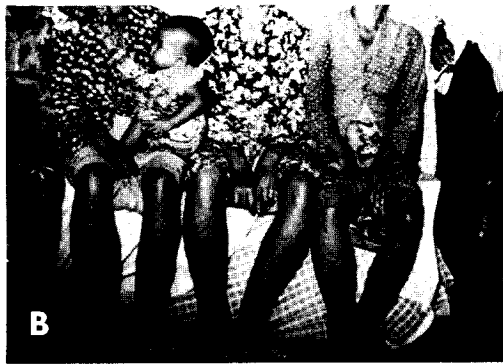


Fig. 1: Men (A) and women (B) with lymphostasis from *B. malayi* infection.

Table 1:
Blood Survey for *Microfilaria B. malayi*

Age	Male	Filariasis	Female	Filariasis
0- 5	56	3	71	1
6-10	68	5	82	7
11-15	51	3	50	2
16-20	21	2	27	0
21-25	19	1	24	1
26-30	16	1	30	2
31-35	28	7	26	0
36-40	19	2	18	1
41-45	16	5	11	0
46-50	12	1	8	1
51-55	7	0	5	0
56-60	10	4	1	1
61-	2	1	1	0
Total	325	35	354	16

Table 2:
Nocturnal subperiodic strain of *B. malayi*

Hour	8	10	12	14	16	18	20	22	24	2	4	6
1. P. male 19 y.	11	6	10	6	12	13	24	30	36	20	17	29
2. S. male 40	5	3	2	4	2	3	5	10	16	14	15	5
3. Sj. male 42	12	8	4	12	22	38	105	113	118	88	74	63
4. W. male 38	3	1	1	1	1	2	7	6	5	6	9	6
5. B. male 51	16	9	6	10	6	10	12	15	18	18	16	16



Fig. 2: Chronic elephantiasis (*B. malayi*).

RESULTS

In patients with positive microfilariae *B. malayi* infection, leg lymphographic abnormalities were consistently found especially below the knee (Fig. 3,4). There were lymphatic "breakoffs," collateralization and occasional dermal backflow. Some lymphatics were small, irregular whereas others were thick, tortuous and varicose with contrast extravasation. The thoracic duct and lumbar lymphatics were normal. On delayed films (48 hours later) the storage architecture of lymph nodes resembled "lymphadenitis" commonly with perinodal contrast extravasation. In four patients lymphography of the right arm (but not the left) showed similar changes despite lack of swelling or elephantiasis.

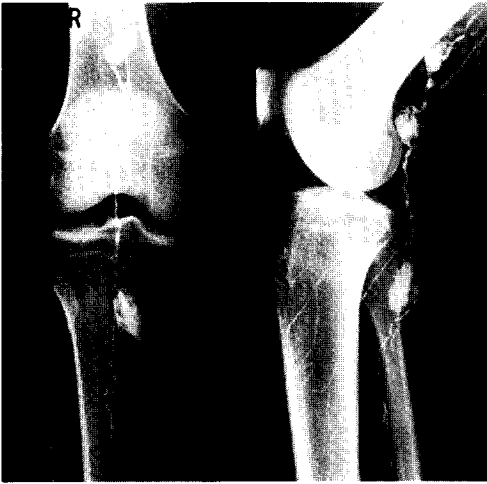


Fig. 3: Lymphography in a 20-year-old man with filariasis (*B. malayi*) demonstrated extensive lymph vessel and nodal changes. Note irregular, tortuous, "disrupted" channels with enlarged popliteal nodes.

In patients with tropical eosinophilia but without leg swelling or microfilaremia, lymphography revealed similar changes to patients with filariasis (Fig. 5,6).

DISCUSSION

In patients with *B. malayi* infection we found similar lymphographic derangements to those described by Gooneratne (1) in

cats infected with *Brugia pahangi*. The latter animal filaria was originally discovered in the Malaysian state of Pahangi and subsequently found in cats in Medan, Indonesia.

In our patients infected with *B. malayi*, elephantiasis was limited to below the knee. The scrotum was not affected and chyluria was absent. In the early stages, the skin and subcutaneous tissue of the feet were fibrotic and elephantine changes progressed from the distal portion of the leg. These changes were in contrast to infection with *Wuchereria bancrofti*, where patients characteristically have elephantiasis of the entire leg and scrotum, occasionally accompanied by chyluria (2). Of interest is the involvement of the dominant arm (right-handed) in a few patients with *B. malayi* infection. Whether selective arm involvement relates to greater usage and muscular activity is unknown.

It is noteworthy that in patients with tropical eosinophilia of unknown cause, lymphography of the legs revealed lymphatic and nodal changes similar to that of patients with *B. malayi* infection. Although these patients with "tropical eosinophilia" were without microfilaremia or elephantiasis, the changes on lymphography suggest

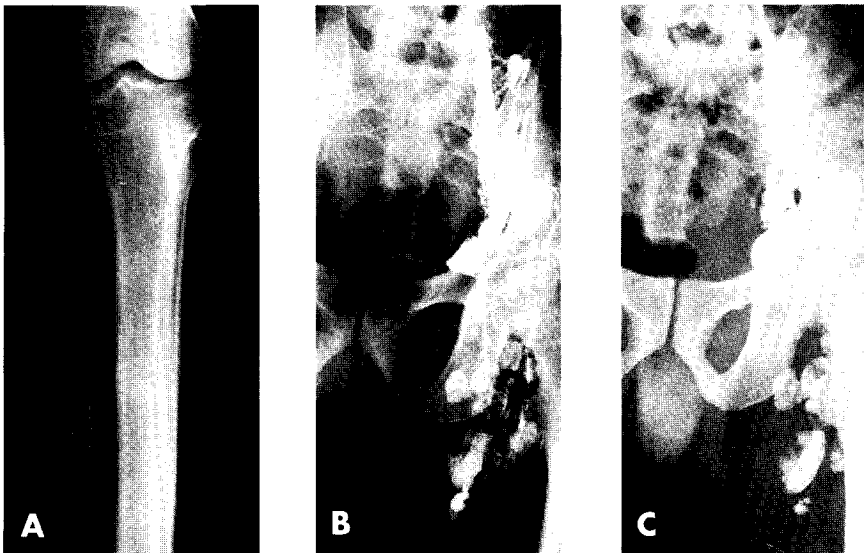


Fig. 4: Lymphography in 38-year-old man with filariasis (*B. malayi*) with striking abnormalities in lymph collectors and large regional succulent nodes.

Early or "filling" phase (a, b); delayed or "remaining" phase (c).



Fig. 5: Striking regional lymphatic abnormalities in 54-year-old woman with tropical eosinophilia but without microfilaremia or elephantiasis. Note, varicose lymphatics with succulent inguinal femoral

nodes and extensive contrast extravasation into the thigh. A (early or "filling" phase); B (delayed or "remaining" phase).

that they are nonetheless infected with filariae (occult filariasis) and that this infection was the basis of peripheral eosinophilia. Lack of elephantiasis in the latter group of patients despite lymphographic abnormalities also suggests that damaged peripheral lymphatics and regional nodes are not the sole factors in the pathogenesis of this disorder of skin and subcutaneous tissue.

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Fig. 6: Similar findings to Fig. 5 in another patient with tropical eosinophilic without microfilaremia. A



nodes and extensive contrast extravasation into the thigh. A (early or "filling" phase); B (delayed or "remaining" phase).

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("filling" phase); B ("remaining" phase).