Filariasis in The Villages Around Lucknow

By

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Introduction :

The lymphatic filariasis in man is caused by Wuchereria bancrofti, Brugia malayi and Brugia timori (Duke, 1981). It manifests into a spectrum of acute and chronic clinical features (Nelson, 1979; Ottesson, 1980 & Dasgupta, 1984) as a result of continuous exposure and a long association with the parasite. Of the exposed population, a small proportion of subjects shows clinical features of lymphatic obstruction, but a large proportion of subjects remains clinically silent with circulating larva (microfilaria) in their blood. A considerable number of subjects remain positive for clinical symptoms, as well as, for microfilariae (mf) in blood. This leads to three main groups in the community, i.e subjects with symptomatic filariasis, asymptomatic microfilaraemia. and symptomatic microfilariaemia. For a subject to be infective for others, depends upon the frequency of microfilaria per unit blood. The present study was aimed at finding out the prevalence of filarial infection in random population, clinical presentation of disease and the frequency of mf per unit volume of blood in a rural population.

Material and Methods :

The present study was carried out in the villages around Experimental Teaching Health Sub-Centres Mati and Banthra under the Upgraded Department of Social and Preventive Medicine, K. G. Medical College, Lucknow. This area is endemic for nocturnally periodic W. bancrafti. All the age groups and both sexes were included in the study. Subjects were screened for mf in nocturnal blood by the standard 20mm^3 thick smear technique between 20.00 and 22.00 hours. The smears were dehaemoglobinized, fixed in menthol, stained with 5% giemsa and examined for microfilariae.

A thorough clinical examination of all the subjects was carried out in order to detect any features of disease viz. filarial leg, scrotal filariasis, epididymoorchitis, lymphadenitis, filarial hand and breast. Microfilaria (mf) frequency per unit blood (20mm^3) was also found out.

Observations :

Out of total 945 individuals surveyed, 13.7% were asymptomatic mf carriers (1 or more mf per 20 mm^3 of blood) and 9.8% were having filarial diseases without mf in peripheral blood. Only 1.8% of individuals surveyed presented with disease, as well as, mf in their peripheral blood. An increasing trend in infection and disease rate was observed with rise in age. This however. declined in those 55 years and above. This difference in the prevalence of infection and disease, in different age groups was statistically significant.

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Table I : Prevalence of filariasis by age

Age	No. examined	Infection		Disease		Infection +disease		Total endemicity (infection &/or +disease)	
		No.	%	No.	%	No.	%	No.	%
< 5	27	1	3.7	Nil	0.0	Nil	0.0	1	3.7
5—14	243	27	11.1	5	1.8	1	0.4	33	13.6
15—24	232	34	14.6	26	11.2	2	0.9	62	26·7
25—44	279	45	16.1	35	12.5	7	2.5	87	31.2
45—54	84	16	19.0	17	20.2	4	4.8	37	44.0
55+	80	7	8.7	10	12.5	3	3.7	20	25.0
Total	945	130	13·7	93	9·8	17	1·8	240	25.4

Test of significance :

(For the purpose of calculating X^2 value, the catagories <5 & 5—14 have been pooled together).

Infection by age : $X^2=18.09$, d.f. $=4$, $p<.005$

Disease by age : $X^2=47.96$, d.f. $=4$, $p<.001$

Total endemicity 1y age : $X^2=43.9$, d.f. $=4$, $p<.001$

The prevalence of disease was significantly higher in males (11.2%) than females (7.2%). The prevalence of infection was higher in females (14.8%) than in males (13.2%) but it was insignificant. The subjects with infection and disease both, were 2.2% among males against 0.9% in females (Table II).

Table II : Prevalence of filariasis by sex

Sex	No. examined	Infection		Disease		Infection +disease		Total endemicity (infection &/or disease)	
		No.	%	No.	%	No.	%	No	%
Male	627	83	13.2	70	11.2	14	2.2	167	26.6
Female	318	47	14.8	23	7.2	3	0.9	73	22.9
Total	945	130	13-7	93	9.8	17	1.8	240	25.4

Test of significance :

Infection by sex : $x^2=.03$, d.f.=1, $p>.50$
Disease by sex : $x^2=5.29$, d.f.=1, $p<.05$
Total endemicity by sex : $x^2=1.50$, d.f.=1, $p>.10$

Filarial leg (60.9%) was the commonest presentation of the disease, followed by serotal filariasis (22.8%), epididymoorchitis (9.1%), inguinal lymphadenitis (3.6%), filarial hand (2.7%) and filarial breast (0.9) (Table III).

Table III : Disease pattern in filariasis

Main presenting feature	No. of case	Percentage
Filarial leg	67	60.9
Scrotal filariasis	25	22.8
Epidedymo-orchitis	10	9.1
Inguinal lymphadenitis	4	3.6
Filarial hand	3	2.7
Filarial breast	1	0.9
Total	100	100.0

In more than half of the mf carriers (56.5%), frequency of mf was only upto 10 in 20 mm³ of blood. Microfilarial frequency of more than 50 per 20 mm³ of blood was seen only in 6.2% of carriers (Table IV).

Table IV : Microfilarial frequency in mf carriers

Mf count/20 mm³ blood	No. of carriers	Percentage
Upto 10	83	56.5
11—50	55	37.3
51—100	7	4.8
100+	2	1.4
Total	147	100.0

Discussion :

The public health importance of filariasis in India is only second to malaria amongst the mosquito borne disease. Uttar Pradesh is one of the heavily infected states of India. Lucknow and its surrounding areas have been reported endemic for filaria by many workers (Srivastava and Prasad, 1969 ; Chandra et al, 1973). In the present study the overall filarial endemicity rate was found to be 25.4% : the infection alone accounted for 13.7%, disease in 9.8% and infection + disease in 1.8%. Srivastava and Prasad (1969) in the villages around Lucknow reported the prevalence of infection and disease to be 11.9% & 3.9% respectively, and endemicity rate to be 15.4%. Chandra et al (1973) observed filarial endemicity to be 17.9% in the same area. This shows that there is no let up in the disease transmission and repeated infections in last two decades In the present study the higher endemicity rate in the villages around Lucknow reflects unchanged climatic conditions, unplanned urbanization, industrialization and formation of irrigation channels etc. in last two decades, adding upto already existing bad drainage system. Raghavan (1976) has also observed that in areas where no organised control measures are undertaken, infection and disease rates have gone up in last 20 years.

In the population studied, a higher infection, disease and endemicity rate was observed in the higher age groups (>14 years). This suggests a continuous transmission of disease in the area resulting into repeated infection, i.e. hyper-filariation and

is thus cumulative with the years of residence in an endemic area (Raghavan, 1976).

A higher disease and endemicity rate in the males observed in the present study is in conformity with the findings of Srivastava & Prasad (1969) and Sharma et al (1986). This higher prevalence in males is attributable to their scanty dressing, making them more prone to mosquito bites.

The commonest presentation of the filarial disease in the present study was filarial leg (60.9%). Srivastava & Prasad (1969) observed hydrocoel being the commonest presentation. Rao et al (1977) found filarial hydrocoel in 54 0% cases of filariasis. The rarest presentation of disease in ferm of filarial breast as observed in the present study has also been reported by Rao et al (1977).

An optimal microfilarial density in the peripheral blood which can infect a mosquito is not yet known. A varying mf density has been reported by various workers. In the present study more than 50% carriers had 1 to 10 mf/20 mm^3 of blood while in 94 0% subject the mf density was below 50/20mm^3 of blood. Chandra et al (1973) found mf density in the range of 1 to 30 in over 60% of their carriers. Misra and Dwivedi (1979) reported mf density of 1 to 10/20 mm^3 of blood in 58.7% and 1 to 50 in 98 8% carriers.

As the Government of India is committed to the goal of Health for All by 2000 A.D., extension of filarial control activities to the rural areas is, therefore, imperative. The stratigies adopted so far, as antilarval measures with chemicals and vector control have not been successful for the population at large, and are operationally laborious and expensive. The latest strategy drawn up by the Government of India in VII plan period is to extend the filariasis control activities to the total rural population at risk, through primary health care. The aim is to reduce the load of filarial disease by involvement of village health guides (VHG) and multipurpose workers (MPW). They would be given DEC for treating acute and chronic clinical cases of filariasis at very peripheral out set. The field trials have shown the feasibility of this approach.

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