

Suspected Case of Transplacental Transmission of *Wuchereria bancrofti* Microfilariae

JCAnosike,* COE Onwuliri,* OC Abanobi **

Abstrak

Transmisi mikrofilaria *Wuchereria bancrofti* melalui plasenta ditemukan pada bayi laki-laki berumur 36 hari di daerah endemik Bauchi State, Nigeria. Diagnosis didasarkan pada anamnesis jalannya penyakit, gejala klinik, umur pasien dan terdapatnya mikrofilaria bersarung dari *Wuchereria bancrofti* bentuk periodisitas malam hari di dalam sediaan darah perifer. Sediaan darah malam dari ibu pasien menampakkan pula mikrofilaria *Wuchereria bancrofti*, di samping elefantiasis unilateral tungkainya. Dibicarakan implikasi dari observasi ini.

Abstract

A case of transplacental transmission of *Wuchereria bancrofti* microfilariae has been reported in endemic area of Bauchi State, Nigeria. The diagnosis was based on the history of illness, clinical symptoms, age of the child and presence of sheathed microfilariae of nocturnal periodic form of *W. bancrofti* in the peripheral blood films. Also the night blood sample collected from the child's mother revealed microfilaria of *W. bancrofti* in addition to the unilateral elephantiasis of the hindlimb. The implication of this observation is stressed.

Keywords: *Wuchereria bancrofti*, Microfilariae, Transplacental transmission, Nematoda.

Transmission of most parasitic nematodes particularly the filariid worms from one host to another usually involves an intermediate host or a vector. Normally, microfilariae are the smallest form in the life-cycle of filariid nematodes. They are usually found either in the extracellular fluids or blood after being released by the adult female worms. Normal hosts are usually infected with the third-stage larvae by the bites of the appropriate vector. However, a few reports have subscribed to the possibility of the transmission of filarial infection from infected mothers to offsprings. Studies have shown that transplacental or rather congenital nematode infections occur commonly in animals^{1,2} and have been reported sporadically in man.^{3,4,5}

We report here, part of the results of a three-year field studies on the epidemiology of human filariasis carried out in 47 randomly selected communities in northern Nigeria. The present study was conducted at Tabula - one of the communities surveyed in the North-Western zone of Bauchi State, Nigeria between July

1990 and March 1992. During this investigation, subjects were examined physically for clinical manifestations. Also, finger pricking for day and night blood specimens as well as skin-snip methods were adopted. A thirty-six days old male child delivered by a 37 year-old Fa'awa woman was examined. As complained by the mother, the child had recurrent nausea, acute fever and non-localized body rash 24 days after birth. Three bloodless skin snips collected from the iliac crest, buttocks and shoulders using a Holthtype corneoscleral punch (2 mm, E280 STORZ Ltd Japan) were negative for filarial parasites. Adopting finger prick method using disposable sterile blood lancets two thick blood films, about 20 mm³ each were collected at night (2400 hours) and during the day (1300 hours). They were placed on two clean glass slides and studied for blood parasites.

While the day blood specimens were negative for parasites, the night blood film was positive for sheathed *W. bancrofti* microfilariae (3 mf/20 mm³ of

* Applied Entomology and Parasitology Research Laboratory Unit, Department of Zoology, University of Jos, Jos Plateau State, Nigeria

** River Blindness Foundation, IMO/ABIA States Project, Aladinma, Owerri

blood). On re-examination fourteen days later, the child was still microfilaraemic for *W. bancrofti*. However, the child was not treated with mectizan due to his age and body weight, which was less than 15 kg. The child's mother was also examined. She had general body pruritic rash in addition to a two-year old unilateral elephantiasis of the hindlimb. Also, night blood sample collected from the mother using finger pricking technique revealed characteristic microfilariae of *W. bancrofti* (123 mf/20mm³ of peripheral blood). Skin-dwelling microfilariae of neither *O. volvulus* nor *Mansonella streptocerca* were detected on her skin-snips.

The present observation is indeed remarkable. Earlier investigators in parts of Bauchi state did not report this phenomenon though fever and pruritis were very common amongst infected subjects.⁶ As could be deduced from the present observation, the high microfilarial density of the mother is an indication that infection status of a mother during pregnancy is a contributing factor influencing transplacental transmission of *W. bancrofti*. However, it is not yet understood why most pregnant mothers in filariasis hyperendemic foci with very high microfilarial load do not express transplacental transmission. For the majority of helminths that exhibit this phenomenon, it represents only one of several possibilities necessary for transmission invariably, it depends upon the sex and physiological state of the host.⁷ However, the underlying physiological mechanism merits further study. Essentially, there appears to be a time window in which transmission to the young occurs particularly in pregnant or lactating mammals where the normal somatic migration is almost completely routed to either the uterus or mammary glands.

The significance of this finding is two fold. Firstly, although transplacental migration of microfilariae of filariid nematodes is rare, field investigators or epidemiologists should not overlook the possibility of this phenomenon in endemic areas of human filariasis. Finally infants less than a year old should not be

excluded in large scale filariasis surveys as it is the case in most endemic areas such as Nigeria. In this regard, modalities involving dose-ranging criteria for chemotherapy using mectizan to include children below 15 kg body weight or those less than 5 years of age should be worked out.

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