

LETTER TO THE EDITOR

Glossina Spp: An Auxiliary/Accidental Vector for *Mansonella perstans* in Eastern Province of Zambia?

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DEAR EDITOR,

We conducted a cross-sectional parasitological survey for Human African Trypanosomiasis (HAT) among the inhabitants of 12 villages in Chama District, Luangwa valley, in the Eastern Province of Zambia from 21st August to 4th September 2010. These villages have had a history of being the origin of HAT cases occasionally diagnosed and treated at Chama District hospital. Historically Luangwa valley has been known to be a significant focus for sleeping sickness transmission in Zambia [1]. HAT in Zambia is caused by the haemoflagellate *Trypanosoma brucei rhodesiense*.

The names of the villages that we surveyed were Bambanda (coordinates: S11 12.657 E33 22.988), Chavunikila (coordinates: S10 47.760 E33 24.836), Chifunda (coordinates: S11 52.488 E32 34.532), Kanyerele (coordinates: S10 44.757 E33 28.902), Luelo (coordinates: S11 52.076 E32 34.126), Mapamba (coordinates: S12 07.301 E32 26.325), Mundalanga (coordinates: S11 16.371 E33 06.857), Munyolobanda (coordinates: S10 46.081 E33 27.012), Nchuka (coordinates: S10 49.687 E33 21.404), Zarro Camp (coordinates: S11 11.396 E33 27.601), ZAWA Sanctuary Camp (coordinates: S11 09.827 E33 24.315), and Zebe Camp (coordinates: S11 48.411 E32 37.871).

We screened 616 subjects, male and female, aged between 5 years and 80 years, with mean age of 22.0 years (Standard Deviation of 14.7), after obtaining written informed consent from each subject. Both Giemsa Thick smear microscopy and Microhaematocrit centrifugation, also known as Woo's method [2] were simultaneously used to examine for human trypanosomes and other haemoparasites. Blood was drawn from each subject from finger prick using a lancet and collected in heparinised capillary tube. None of the subjects were found to have human trypanosomes by either of the diagnostic methods. However, five subjects, aged 10, 30, 32, 40, and 60 years were found to have microfilariae for *Mansonella perstans*. The microfilariae were seen both as motile organisms using the Woo's method and as stained unshathed microfilariae on Giemsa Thick Smear method.

Individuals with *M.perstans* infection are usually asymptomatic though symptoms and signs such as angioedema Calabar-like swellings, pruritus, fever, headache, arthralgia, high eosinophilia and abdominal pain have been reported [3-5]. In our study, two subjects complained of cough and two others complained of general body pains and headache. The fifth subject had no symptoms at all.

M.perstans is a tissue filarial nematode widespread in many parts of Sub-Saharan Africa, parts of Central and Southern America, and the Caribbean [6,7]. Transmission of *M.perstans* to humans, the only known host for this parasite, is by the bite of infected biting midges called *Culicoides spp* [5]. We asked the local inhabitants whether they knew of a flying insect that was a biting nuisance apart from tsetse fly in the surveyed villages. The response was that no such insects are known to be a biting nuisance in Chama District. The only insect which is known to be a biting nuisance in the surveyed villages is the tsetse fly, belonging to the genus *Glossina spp*. *Glossina spp* is the vector for *T. b. rhodesiense* in HAT and *Trypanosoma vivax*, *Trypanosoma congolense*, and *Trypanosoma brucei brucei* in animal trypanosomiasis, also known as nagana, in Zambia. The species of *Glossina* found in this part of Zambia are *Glossina morsitans centralis*, *Glossina pallidipes*, and *Glossina brevipalpis*. The typical habitat of *Glossina morsitans spp* is open woodland and woodland savanna with plenty of game animals living in the area. These conditions are prevailing in Chama District.

We, therefore, hypothesise that *Glossina spp* is either an auxiliary or accidental vector for *M.perstans*, in addition to *Culicoides spp*, in this part of Zambia. We have electronically searched literature for similar claims in the past but found none. The next step to verify our claim would be to sample a large number of *Glossina spp* insects in Chama District and dissect them for the presence of microfilariae for *M.perstans*. If indeed *Glossina spp* is a vector for *M.perstans*, vector control for tsetse fly in trypanosomiasis control programmes such as chemical application, traps and targets, and sterile insect technology would also be effective in controlling *M.perstans* infection in Zambia.

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CONFLICT OF INTEREST

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