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CORRESPONDENCE

Late Seroconversion of Acute Schistosomiasis

To the Editor-in-Chief:

We read with great interest the article by Martínez-Calle and colleagues[1] and, being involved in ongoing research strictly related to this topic, we would like to bring some additional comments to the readers' attention.

We agree that diagnosis of acute schistosomiasis is not straightforward at first presentation, especially in paucisymptomatic cases, and the authors should be congratulated for their obstinacy in seeking diagnosis in this challenging case.[2,3] In a case series of patients presenting with fever, diagnosis of schistosomiasis could not be established at first contact in about one third of the cases,[4] even when using a combination of parasite examination and two different serological tests [enzyme linked immunosorbent assay (ELISA) and indirect hemagglutination (IHA)]. It must be borne in mind that the high sensitivity of serology (88%) reported by the authors was concerned with chronic infection cases, which is another clinical context.[5] In the previous series, we too observed one microscopically confirmed case without seroconversion within 6 months of exposure.[4]

However, we think that, besides early exposure to artemisinin, alternative explanations should be explored.

Recently, we presented a cluster of nine patients with schistosomiasis after a short exposure to fresh water in the same region (Dogon Valley of Mali), of which only three were seropositive at initial screening.[6,7] Late seroconversion (after 3–5 months) occurred in three cases. One additional patient tested repeatedly negative with ELISA and IHA during a 12-month follow-up, despite high eosinophil count (3940 cells/mm^3) and although stool eggs were already detectable 4 months after exposure. The eggs morphologically resembled those of *Schistosoma haematobium*, but showed characteristics suggestive of hybrid eggs, which was confirmed to be a *S. haematobium–S. bovis* hybrid by sequence analysis.[8] The existence of hybrids might play a role in the suboptimal accuracy of serological tests. It would be interesting to obtain such molecular testing in the presented case as well to somehow document the expansion of this new hybrid strain.

Martínez-Calle and colleagues presumably linked the late seroconversion to artesunate intake during the travel (for a febrile illness), which may have influenced the clinical presentation and laboratory results. However, despite the known partial protective effect of artemisinin, infection did occur in this case and eggs were found, but this is not the case in the majority of infected travelers. Also rectal snip was not performed although it has a higher sensitivity for egg detection (even for *S. haematobium*) and it is less invasive than cystoscopy.[9] Whether a rather low—although here detectable—worm load influences serological results remains speculative in *Schistosoma* infection.

From our experience, it is very difficult to demonstrate the protective effect of antimalarial drugs on *Schistosoma* infection in travelers. We had some indirect evidence by the absence of demonstrated infection in seven heavily exposed Belgian soldiers deployed to the Maniema province of the Democratic Republic of the Congo, who received artemisinin prophylactic treatment.[10] Also we observed a quite low rate of *Schistosoma mansoni* infection (25%) in another exposed Belgian military cohort among soldiers who were taking mefloquine chemoprophylaxis.[11,12] However, a potential protective effect of artemisinin or mefloquine could not be proven in both cohorts because the study was not designed for this purpose.

Finally, recently developed real-time polymerase chain reactions (PCRs) for detection of *S. mansoni* and *S. haematobium* in serum are very promising for the early diagnosis of acute schistosomiasis[13–16] and research is ongoing. However, because of the sporadic or clustered pattern of this infection, a large collaborative effort involving many travel clinics will be required to address the persisting diagnostic and preventive challenge of acute schistosomiasis in non-immune travelers.

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