***Short Research Article***

# Acute hookworm infection mimicking plasmodium infection

**Abstract:**

This case report is presented of a patient with hookworm infection diagnose from a vomitus containing an adult worm. It turned out to be unusual in that there are improved sanitation and water supply. Its diagnosis in this 21 century highlights the fact that parasitic infection is an aetiologic factor and therefore, demands concerted effort to improve living standard at hinterlands.

**Keywords:** Hookworm, Infection, Plasmodium.

## INTRODUCTION

Soil transmitted helminthic infections are among the most common and neglected infections worldwide. They are very common in developing and tropical countries especially where general health, nutrition, housing and public health services are poor, and more so, one of the most prevalent human parasitic infections afflicting rural dwellers living in poor sanitation environment. Majority of the cases are found in poor resource countries of sub-Saharan Africa. Epidemiological surveys revealed that sanitation in the developing world has tended to lag behind water supply (WHO/Unicef, 2000), but the adoption of sanitation goal at the Johannesburg Summit on Sustainable Development has rekindled interest in the sector. Most of the evidence base behind the advocacy of sanitation is based on studies of diarrheal disease, mainly in rural settings, and focused on individual household's ownership of facilities, rather than access by the community as a whole (Asaolu *et al*, 2002; Cairncross and Kolsky, 1997; Esrey *et al*, 1991).

There has also been an increased awareness of the public health importance of intestinal nematode infections, but much of the interest has been focused on chemotherapy as a means of

control (Savioli *et al*, 2002). Improved excreta disposal offers a more sustainable method of control, among many other benefits (Unicef, 1999).

Children of pre-school and school age (0-15 years) are the groups at risk of getting infected. Stunting of growth, iron deficiency anemia and dysentery are the most common features of helminthic infection. There is dearth of basic social and health facilities in hinterlands of Nigeria which promote the prevalence of these parasites. Periodic mass deworming of school children by Non-Governmental Organizations of worm control in the country does not have wide coverage.

We present the result of a case study of 2 year old child who was admitted in a district hospital for severe pyrexia and gastroenteritis.

**Source**: Parasitic Research Laboratory, EBSU (2019)

## Case report

A 2-year old boy who was living in hinterland developed epigastric discomfort, lower abdominal tenderness, fever, vomiting and sudden onset of profuse watery diarrhea (8-12 watery stools in 24h) that contained neither blood nor parasite but only mucus. On arrival in the hospital, he was seen by a Medical Officer who diagnosed provisionally: gastroenteritis and severe malaria, and was admitted in children ward. Subsequently, he was placed on the following empiric medications: Inj. artesunate 40mg, tab coartem 20/120mg, IVF of 5% dextrose saline, Inj. Vit. B comlex and syrup metronidazole.

After 2d of receiving treatments, there was no relief. However, the patient was not sent for any investigations because of poor infrastructures and lack of skilled laboratory staff. On the $4^{th}$ day of treatment failure, larva of hookworm was seen in vomitus and treatment with single dose of 5mg albendazole resulted in rapid and complete resolution of symptoms.

**Discussion**

This case highlights 2 main hypotheses: first, the intermittent deworming coverage carried out by NGOs is inadequate and should be extended to households to capture pre-school children.

Second, the presenting symptom between worm infection and other parasitic infections (malaria) is intriguing. One important feature characterized by acute hookworm infection is the paradigm shift to the treatment of all pediatric febrile illness with antimalarial in sub-Saharan African countries where malaria infection is holoendemic. The diarrhea was abrupt in onset, watery and was associated with epigastric pain as was earlier described (Ogilvia *et al*, 1978; Miller, 1979; Cline *et al*, 1984). The onset of diarrhea with acute infection is thought to be triggered by the arrival of adult worms on the small intestinal mucosa where they stimulate a marked inflammatory response. The fever experienced by the patient was probably as a result of extra-intestinal phase of the hookworm life cycle. The observation here suggests that vigorous immune responses may explain the gastrointestinal symptoms seen in primary acute infections. Although, the patient was not subjected to any laboratory investigations, previous studies showed that hookworm ova do not become detectable until 6-8 weeks of infection (Miller, 1979). This delay of laboratory positive outcomes exacerbate the pathology of hookworm infection especially in non-immune patients.

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