

Gastrodiscoides hominis infection in a Nigerian- case report

*H.O. Dada-Adegbola, ** C.O. Falade, * O. A. Oluwatoba, and **O. O. Abiodun

*Department of Medical Microbiology and Parasitology,

**Department of Pharmacology and Therapeutics,

College of Medicine, University of Ibadan.

E-mail:dadaadegbola@yahoo.com

Summary

Gastrodiscoides hominis is a large fluke of pig and human and constitutes an important parasite of human in Assam, Indian, the Philippines and Southeast Asia. This parasite has not been reported in Nigeria and possibly other parts of Africa. This is a case report of a seven year old Nigerian child who presented with features of malnutrition and anaemia and was found to have *Gastrodiscoides hominis* and *Ascaris lumbricoides*. Following clearance of the worms there was tremendous improvement of the health status of the child. The detailed epidemiology of this parasite still remains to be studied in this environment.

Keywords: *Gastrodiscoides hominis*, anaemia, malnutrition, Nigeria.

Résumé

Le gastrodiscoidé *Gastrodiscoides hominis* est une douve du cochon et d'homme très grand et il constitue un parasite de l'homme en Assam, Inde, dans les îles Philippines et en Asie du sud-est très considérable. Le cas de ce parasite n'est pas encore rapporté au Nigeria et peut être dans d'autres parties de l'Afrique.

Il s'agit d'un rapport d'un cas d'un enfant Nigerian âgé de sept ans qui s'est présenté avec des traits de la sous-alimentation et de l'anémie également atteints des *Gastrodiscoides hominis* et *Ascaris lumbricoides*. À la suite de la clairance des vers on a remarqué une énorme amélioration dans le statut de la santé de cet enfant. L'épidémiologie détaillée de ce parasite demeure encore à étudier dans ce milieu.

Introduction

Infection by *Gastrodiscoides hominis*, a large fluke of pig and human is acquired by ingestion of contaminated vegetable. The complete life cycle of this worm is unknown but is believed to be similar to that of other Trematodes (Flukes)¹. Man acquires infection by eating uncooked or undercooked aquatic plants and fish and in India, the planorbid snail *Helicorbis coenosus* serves as an experimental host¹.

It is an important parasite of humans in Assam, India, Southeast Asia, and the Philippines, inhabiting the lower small intestine and the upper colon. Rodents and primates are reservoirs. Mammals are the definitive hosts and in India the pig is thought to be a common reservoir while *Helicorbis coenosus* is a potential natural interme-

diate host¹.

In Africa, and especially Nigeria, no report of this infection has been made to our knowledge. Below is a case report of this infection from Nigeria.

Case report

T.O a seven and a half year old girl, presented with recurrent history of abdominal discomfort, occasional frequent loose stool that was mucoid but not obviously blood stained. She could not give an adequate account of the duration. Immunization history revealed that she completed the Expanded Programme on Immunization (EPI) schedule. Past medical history revealed no significant abnormality.

She lives with her low socio-economic class grandparents in a village in Southern Nigeria since age 1 year when she lost her mother. Their diet consists mainly of carbohydrates and vegetables. She occasionally takes snail and fish, but not pork.

Ethical approval for the community study was given by the UI/UCH institutional review board and the grandparent of this child gave informed consent.

On examination, she was found to be small for her age as shown by her weight of 13kg and height of 96cm and a mid upper arm circumference (MUAC) of 14cm, a MUAC of 16.5cm is considered as a constant standard for children 1-6years² and the expected height for her age is 119cm. She had fluffy-hair which suggests chronic malnutrition. She was moderately pale, had a diffuse generalized lymphadenopathy and mild hepatosplenomegaly.

A working diagnosis of marasmus and anaemia were made.

Laboratory investigations showed ova of *Ascaris lumbricoides* with a total count of 13,752 ova-per gramme of stool using Kato Katz method[®]. The ova of *Gastrodiscoides hominis*, found were more numerous than that of *Ascaris lumbricoides*. No cyst or trophozoite of amoeba was found in her stool. Malaria parasite was not detected in her weekly blood film throughout the period of follow up. Haematological investigations showed haematocrit (PCV) of 22% (Normal value is 36-44%), red blood cell (RBC) morphology showed microcytosis and hypochromia. The haemoglobin concentration was 7.1g/100ml (Normal value is 13-14g/100ml). The total white blood cells (WBC) count was 9,500/cmm. Differential white blood cell count revealed a Neutrophil count of 60% and lymphocytes of 32%. There was an eosinophilia of 8% (Normal count is 0-6%) with absolute eosinophil count of 815 and

*Correspondence

platelets count was 112,000/cmm (Normal value is 150-450x10³/cmm).

Blood chemistry analysis of the electrolyte, urea and creatinine were essentially normal.

A final assessment of Malnutrition with chronic Anaemia secondary to *Ascaris lumbricoides* and *Gastrodiscoides hominis* infection was made. The parasitic infections were treated with a single 500mg oral dose of mebendazole. A repeat stool examination at weekly interval for three weeks revealed a complete clearance of the two parasites. Her haematocrit rose to 29% by Day22 of the administration of antihelminthics, the eosinophilia which persisted during the first week of treatment dropped to normal (1%) by day 22. In addition the full blood count (FBC) result showed significant improvement as follows – Packed Cell Volume 29%, Haemoglobin 9.8g/100ml, Red Blood Cell count-3.5x10⁶/cmm, White Blood Cell 5,100/cmm, and Platelets 256,000/cmm.

Three months follow-up stool examinations did not show any recurrence of both parasites while one year follow up showed recurrence of *Ascaris lumbricoides* for which she had treatment. Other intestinal parasites found in the faeces of 170 children screened in this village include *Ascaris lumbricoides* (64.1 %), Hookworm (27.6%), *Trichuris trichiura* (15.3 %) and *Strongyloides stercoralis* (2.4 %).

Discussion

Gastrodiscoides hominis is an amphistome trematode, which is normally parasitic in the intestine of pig.¹ Human infection with *Gastrodiscoides hominis* is found mainly in India (Ganges river basin) and parts of Bangladesh, Vietnam, and the Philippines.³ Lewis and McConnell in 1876 first discovered *Gastrodiscoides hominis* in the caecum of an Indian patient. Buckley 1939 reported 41.2% positivity in 221 stool examinations for *G. hominis* in a district of Assam and also reported 989 worms in one of the patients that were found in Assam, Indian, Bengal, Malayaska and Vietnam.⁴

To the best of our knowledge this is the first report of *Gastrodiscoides hominis* from Nigeria and Africa. Although, the exact details of the transmission and life cycle of *G. hominis* are not known, it is thought to develop and reproduce in snails and encyst on water vegetation^{1,5}.

Infection is probably by eating water plants or their fruits on which metacercariae have encysted^{4,6}. This is the most likely source of infection in this child because there was no pig in this child's village as earlier noted. Finding this infection in places where pigs are scarce was also noted by Buckley⁴ who reported the highest occurrence so far. In this child, there was severe chronic anaemia, which improved following the clearance of the parasitic infection. The flukes live in the large intestine and eggs are passed in the faeces. Large numbers of flukes can cause inflammation of the wall of the large intestine with mucous diarrhoea⁴ while light infections are usually asymptomatic^{4,6}.

Diagnosis of the infection is by laboratory detection of characteristic ova of *Gastrodiscoides hominis* in the faeces.

Conclusion

Gastrodiscoides hominis infection can occur even in an area where pigs are not domesticated especially in rural areas in some young developing countries.

References

1. Dutt, S.C and Srivastava H.D.: The intermediate host and the cercaria of *Gastrodiscoides hominis*. J. Helminthol. 1996: 40: 45-52.
2. Shakir A. Arm circumference in the surveillance of protein-calorie malnutrition in Baghdad. Am. J. Clin. Nutr. 1975; 28: 661-665.
3. Dutt, S.C and Srivastava H.D. The Life History of *Gastrodiscoides hominis* (Lewis and McConnell, 1876) Leiper, 1913- the Amphistome Parasite of Man and Pig. Journal of Helminthology. 1972: 46; 35-46
4. Buckley J.J.C. Observation on *Gastrodiscoides hominis* and *Fasciolopsis buski* in Assam. Journal of Helminthology. 1939:17; 1-12.
5. Verma A.K. Human and Swine *Gastrodiscoides*. Indian J. Med. Res. 1954: 42; 475-479.
6. Ahluwalia, S.S. *Gastrodiscoides hominis* (Lewis & McConnell 1876) Leiper, 1913-(The Amphistome parasite of man and Pig)". Indian J. Med. Res. 1960: 48: 315-325.

Erratum

1. Ekele BA. "Medical treatment of ectopic pregnancy using parenteral methotrexate: WAJM July – September, 2001, volume 20 No. 3. Pages 181 – 183.
Please note that one of the authors of the above paper – Audu L. R. was omitted in error
2. Saheeb B.D.O "Influence of positions on the incidence and severity of maxillofacial injuries in vehicular crashes": WAJM April – June, 2003, Pages 146 – 149.
Please note for correction the Authors name and title of the paper as stated above.
3. Bello TO and Fadiora SO. "Micro-colon associated with multiple ileal atresia in a newborn infant – Case report and Literature review": WAJM October – December, 2003, Pages 350 – 351.
Please note that the address of the second author is Department of Surgery and not Department of Radiology.