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CASE PAPER

**GASTRODISCOIDES HOMINIS INFESTATION ON VEGETABLES (CABBAGES)
SOLD IN EKPOMA MARKETS, EDO STATE, SOUTHERN NIGERIA- A CASE
REPORT**

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ABSTRACT

In an experiment to determine the human parasites present in fruits and vegetables sold in markets within Ekpoma, in Esan west Local Government Area of Edo state, an ova of *Gastrodiscoides hominis* was observed. The study involved a total of two hundred and fifty (250) samples of seven different vegetables -cabbage, carrot, spinach, pumpkin, cucumber, tomatoes, and waterleaf, and two fruits -pineapple and garden egg. Using the flotation and sedimentation techniques, trophozoites, cysts, larvae, and ova of intestinal protozoa, cestodes and nematodes in the vegetables and fruits were recovered. Although 106 (42.4%) of the samples were positive for different species of parasites indicating a high prevalence of vegetable and fruit infestation, one interesting observation however, was the incidence of *Gastrodiscoides hominis* in cabbage (0.9%). Judging by the public health importance of *Gastrodiscoides hominis*, there is therefore, an urgent need for control measures especially in this area of study.

Keywords: *Gastrodiscoides hominis*, Vegetables, Fruits, Parasite.

INTRODUCTION

Gastrodiscoides hominis (*G.hominis*), a parasite that causes the disease called *Gastrodiscoidiasis* (Mulier and Wakein, 2001; Liu, 2012) and discovered by Lewis and McConnell in 1876 from the caecum of an Indian patient suffering from diarrhea infection (Khalih, 1923), is a large fluke of pig, rabbits and humans, that is acquired by the ingestion of contaminated vegetables. According to Murty and Reddy (1980), *G. hominis* can infest vegetation due to its slimy nature and this potentiates its health hazard on humans.

In addition, *G. hominis* infests the colon of pigs, rhesus monkeys, orangutah fish, field rats, and napa mouse deer (Mulier and Wakein, 2001; Liu, 2012). In humans, the worms of *G. hominis* attaches onto the walls of the caecum (Dada et al., 2004), while Baker (2008) reports that humans are infected by the ingestion of its metacercaria, either by eating the infected fish or contaminated vegetables.

The disease, *Gastrodiscoidiasis*, is usually asymptomatic and affects the small intestine of animals, but when it occurs in humans, it can cause serious health problems and even mortality. It is known to cause diarrhoea, fever, and an increased mucous production, while in severe cases, whereby large amount of eggs are present, tissue reactions can occur in the heart and even death could occur if left neglected (Mascosma et al, 2006; Liu, 2012).

Epidemiological studies on *G. hominis*, has shown that rodents and primates are the reservoir hosts, while mammals have been identified as the definitive hosts. In fact, pigs are thought to be the common reservoir in India, while

Helicorbischoenosuis is a natural intermediate host (Dutt and Srivastava, 1996). Humans however, are considered as accidental hosts because the parasite can survive without humans (Mulier and wakein, 2001 and Liu, 2012).

Of interest, is the fact that infections have continued to prevail because of low living standards, poor environmental sanitation, and ignorance of simple health promoting behaviours (Nwosu, 1981; Udonis, 1984). Recently, the Scientific Status Summary, which was prepared for the Institute of Food Technologists and Expert Panel on Food Safety and Nutrition, highlighted the sources and incidence of human infections by food borne parasites (Palmer *et al.*, 2002). This no doubt emphasizes the need to address the growing concerns about parasites infestation and its public health implications.

Based the statement earlier credited to Dutt and Srivastava (1996), that the life cycle of *G. hominis* in vegetables and fruits has not been demonstrated, this case report therefore, presents an incidence of *G. hominis* infestation on cabbage sold in Ekpoma, Edo State, Nigeria.

CASE REPORT

In a research work to determine the parasites present in fruits and vegetable sold in markets at Ekpoma, Edo state, Nigeria, a total of two hundred and fifty (250) samples of seven different vegetable types (cabbage, carrot, spinach, pumpkin, cucumber, tomatoes and waterleaf) and two fruits (pineapple and garden egg) were investigated in the Research and Diagnostic Laboratories of the College of Medicine, Ambrose Alli University, Ekpoma, Nigeria.

The method applied was flotation and sedimentation techniques described by Damen *et al.*, (2007) and the deposits were examined using x10 and x40 objectives of a binocular microscope with in-built digital camera.

Interestingly, the egg of *G. hominis* and other parasites of human importance amongst which is *Faciola species*, were recovered on cabbage. Although *Faciola species* has been reported on different types of fruits and vegetables, *G. hominis* however, has rarely been reported on any fruit or vegetable.



Plate A: Ova of *Gastrodiscoides hominis* with iodine solution X40 Objective.

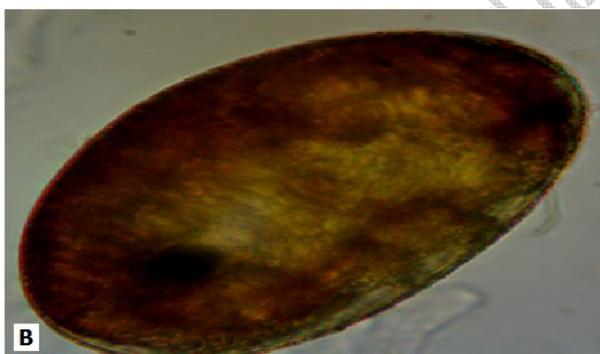


Plate B: Ova of *Gastrodiscoides hominis* without iodine solution X40 Objective.

DISCUSSION

According to the report by Palmer *et al.* (2002), *G. hominis* has been noted as a great risk parasitic contaminant that has potentials to pose greater health problems in the nearest future. In that report, the main source of transmission was not known and researchers were encouraged to embark on studies that could reveal the definite mode of *G. hominis* transmission. Unfortunately, reports from various studies in this regard till date, appears to have remained hypothetical statements, although the studies like those by Dada-Adegbola *et al.* (2004), Baker (2008), and Chai *et al.* (2009), are highly commendable.

Nevertheless, the finding from this study provides an insight on the possible routes of *G. hominis* transmission, since contamination from water vegetation and fish remains viable. It also confirms the existence of *G. hominis* in Nigeria, and on a frequently consumed vegetable. Such an infestation by *G. hominis*, portends serious public health risks since cabbage is a mass-consumer choice vegetable, and most importantly, the fact that fruit and vegetable consumption is frequently recommended based on their health benefits.

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AUTHOR(S) CONTRIBUTION

Uzairue L.I designed and conducted this study with assistance (technical and financial) from Ugbor C.I., Ezeah G.A.C., Eze N.O. Nwadike I.G. All authors contributed to the completion of this study and were actively involved in the presentation of this manuscript.