

## FIRST REPORT OF HUMAN CESTODIASIS IN EQUATORIAL GUINEA

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**ABSTRACT:** Despite the cosmopolitan character of cestodes and their important presence on the African continent, no cases of human parasitation by species belonging to this important group of helminths have been documented in Equatorial Guinea to date. The present study describes a case of superparasitation in a woman from Equatorial Guinea, in which one of the parasites involved was the Anoplocephalid cestode, *Bertiella studeri*. The diagnosis was based on a series of gravid proglottids expelled in the stools, followed by a study of the extracted eggs. The lack of epidemiological studies of cestodes, the fact that imaginal cestodiasis is often asymptomatic, and the habit of defaecating in latrines probably account for the absence of previous reports of human cestodiasis in this country.

**KEY WORDS:** Human cestodiasis, *Bertiella studeri*, Equatorial Guinea.

### INTRODUCTION

Human cestodiasis represents a medically important group of parasitic zoonoses. Although parasitation by certain larval forms of cestodes (i.e., larval cestodiasis) is a cause of serious human illness, e.g., cysticercosis and hydatidosis, parasitation by the adult form (imaginal cestodiasis) tends to evolve subclinically and has a benign prognosis.

Tapeworms are cosmopolitan in distribution. Their geographical range is generally delimited by sociocultural determinants, and much less by biological factors (ARAMBULO, 1982). Although human tapeworms are common in Africa, it is uncertain how many millions of human infections occur on this continent. In this sense, data have been published on human parasitation by cestodes corresponding to different African countries (WHO, 1979). Many of these cases are related to the scarcity of fuel (wood or oil for cooking fires) which leads to the consumption of raw or little cooked food and to the ingestion of infesting metacestodes.

Although the existence of human cestodiasis is known in Equatorial Guinea, an exhaustive review of the literature over the past 25 years failed to yield a single documented case of human parasitation by cestodes in this African country. The lack of epidemiological data in this sense is interpreted as a consequence of the need to channel limited available resources towards other parasitoses in the country that are undoubtedly of greater clinical importance, such as malaria, trypanosomiasis, schistosomiasis and onchocercosis.

### CASE REPORT

The present case has recently been described by GALAN-PUCHADES *et al.* (1997). It corresponds to a 50-

year-old woman of Bantu origin belonging to the Ndowe group and resident in the village of Mari, 40 km North of the capital Bata, on the coast of Equatorial Guinea. The patient presented superparasitation (i.e., the presence of several parasite species in one same host) by *Entamoeba coli* and *Trichuris trichiura*, and moreover referred discomfort compatible with malaria and parasitation by blood filariasis.

The casual discovery in stools of a number of whitish structures led the patient to collect a number of them. Once in the laboratory, and following microscopic examination, the structures in question were found to correspond to a series of 10 gravid cestode proglottids, with a maximum width of 11 mm and a length of 8 mm. Eggs were observed under the binocular lens on manually rupturing one of the proglottids (Fig. 1A). These were spherical and 42,7-57,0/42,7-57,0  $\mu$ m (mean 51,1/48,7  $\mu$ m)

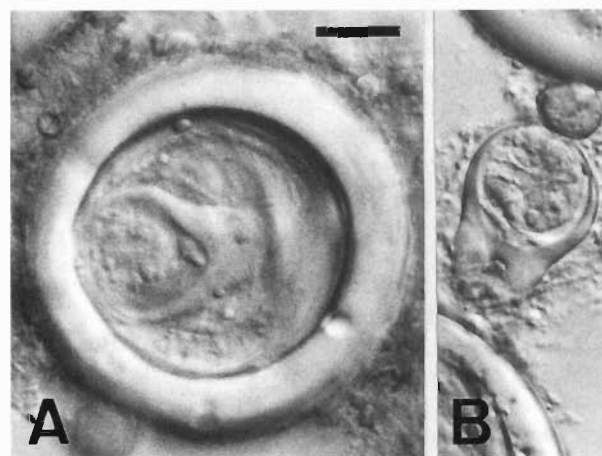


Fig. 1.- Human *Bertiella studeri*: A) egg from expelled gravid proglottids; B) detail of a pyriform apparatus. Scale bar: 10  $\mu$ m.

$\mu\text{m}$  in diameter. Shell thickness was 4.2–11.4  $\mu\text{m}$  (7.0  $\mu\text{m}$ ). The albuminous layer was 34.2–42.7/31.3–38.4  $\mu\text{m}$  (37.6/35.4  $\mu\text{m}$ ) in diameter. Pyriform apparatus was 22.8–25.6/12.8–14.2  $\mu\text{m}$  (24.5/13.8  $\mu\text{m}$ ), divided at the apex, and terminated in two clear arms which continued as filaments (Fig. 1B). The oncosphere was 25.6–34.2/25.6–29.9  $\mu\text{m}$  (29.3/27.9  $\mu\text{m}$ ) in diameter.

## DISCUSSION

The appearance of the expelled proglottids, together with the morphology and measurements of the eggs corresponded to an anoplocephaline tapeworm: *Bertiella stuederi* (Blanchard, 1891). This is a tapeworm of primates whose life cycle involves oribatid mites as intermediate host. The consumption of monkey meat was a common practice in this patient, thus giving an idea of the close contact maintained with the habitual definitive host of the cestode and the feasibility of the accidental ingestion of parasitized acarids. BAER (1940) hypothesized that *B. stuederi* represents a tapeworm infection that initially developed in human primate ancestors and posteriorly evolved with both primates and prehistoric man, only to become a rare and insignificant parasite in present day humans, due to the change in habits and behaviour. In any case, epidemiological studies would be required in African rural areas where contacts occur between humans and monkeys, to determine the true incidence of this at first sight sporadic form of parasitization.

DENEGRI (1985), in an analysis of the literature on human bertiellosis, attributed an Eastern distribution to *B. stuederi* (basically Asia and Africa) in coincidence with the distribution of the corresponding specific nonhuman primate hosts.

GALAN-PUCHADES, FUENTES & MAS-COMA (1997) have documented the cases of human *B. stuederi* parasitosis published in the literature. In this sense, cases have been reported in Africa in a number of countries: Gabon, the Congo Republic, and Kenya. The report from Gabon corresponds to another case of superparasitism in a two-year-old girl who, in addition to the above cestode, presented *Necator americanus*, *Ascaris lumbricoides* and *Schistosoma intercalatum* (RICHARD-LENOBLE *et al.*, 1986); the finding of the cestode was related to the medical examination to which the girl was subjected for gastrointestinal problems caused by the other parasite species involved.

The other two cases, from the Congo Republic and Kenya, were not diagnosed in those countries, but in Canada and Great Britain, respectively, where they were probably imported (JONES, HUNTER & VAN ROOYEN, 1971; THOMPSON, JELLARD & BUCKLEY, 1967).

GALAN-PUCHADES, FUENTES & MAS-COMA (1997) cite a new case of imported *B. stuederi* of probably African origin (Kenya), though diagnosed in Spain.

The usually asymptomatic evolution of imaginal cestodiasis, along with the frequent cases of superparasitism

in endemic areas of Africa probably contribute to mask the presence of these parasites.

Both human Cyclophyllidea cestodes of the genus *Taenia* Linnaeus, 1758, and those belonging to the genus *Dipylidium* Leuckart, 1863, *Bertiella* Stiles et Hassall, 1902, *Inermicapsifer* Janicki, 1910, and *Raillietina* Fuhrmann, 1920, expel proglottids in stools which, together their macroscopic size, facilitates visualization. In principle, this fact would contribute to prevent adult form parasitizations from passing undetected, in contrast to those cestodes that only emit eggs (i.e., members of the genus *Hymenolepis* Weinland, 1858). Due to their microscopic size, the eggs of cestodes and helminths in general are not visible to the naked eye and may easily go unnoticed. However, the common use of latrines implies that even proglottids emission, if only passive (i.e., occurring exclusively in the course of defaecation, as in most cestodes except *T. saginata* Goeze, 1782 and *T. asiatica* Eom et Rim, 1993), may go undetected by the host.

As already commented at the beginning of this paper, the above considerations prevent us from establishing the true incidence of human cestode parasitization in Africa in general, and in Equatorial Guinea in particular.

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