

CASE REPORT

THE FIRST HUMAN INFECTION WITH *BERTIELLA STUDERI* IN VIETNAM

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Abstract. This is the first case report of *Bertiella studeri* infection in Vietnam. The patient was a 4 year old boy in Cai Lay district of Tien Giang Province, noting some proglottids in his feces. The time and mode of infection were unknown, but anorexia, weight loss, and intermittent diarrhea were noted. Niclosamide (Yomesan) 1 gram was prescribed, and then albendazole (Zentel) 400mg daily for 3 days. Proglottids were found in the feces three months after the first treatment, and 1 month after the second course.

INTRODUCTION

Bertiella sp includes various species of worm in the family of Anoplocephalidae, of which, *Bertiella studeri* and *Bertiella mucronata* are found in man. The life cycle of this family involves two different hosts; the definitive host is the monkey, and the intermediate is the mite. The mature worm lives in monkey intestines, and proglottids are disposed through the feces. The mite is infected when eating the eggs, which then develop into cysticercoids. Men are accidental hosts due to the ingestion of infected mites. Infected cases have been reported from countries in Asia, Africa, and South America, such as India, the Philippines, Indonesia, Malaysia, Thailand, Mauritius, Kenya, Cuba, and Paraguay (Adams and Webb, 1933; Adams, 1935; D'Lessandro *et al*, 1963). *B. studeri* is prevalent among children, while *B. mucronata* is common among adults. This paper presents the first case of *B. studeri* detected in Vietnam.

CASE REPORT

The patient was a 4 year old boy, living in Cai Lay township of Tien Giang Province. On August 8, 2000, his parents presented the doctors some proglottids found in his feces. The proglottids were

light yellowish, with a width longer than the length. Some were separated like rice grains, while some were linked into chains of various lengths.

From the previous year, the patient had had anorexia, abdominal pain sometimes, and intermittent diarrhea. In early April of 2001, the family noted strange white pieces of different lengths in his feces. On April 4, the boy was brought to the Children's Hospital Number 1 in Ho Chi Minh City, where he was diagnosed as taeniasis and treated with 2 tablets of Yomesan (niclosamide). Three months later, the proglottids reappeared in his feces, and he was brought to Cho Ray Hospital. On July 3, the second treatment was offered with Zentel 2 tablets daily for 3 days. One month after the second course of treatment, proglottids were again detected in the boy's feces, and that was the reason for his parents' visit to us.

At the time of the visit, the boy was conscious, but looked thin and less developed for his age. A white blood cell count showed 7,010 leukocytes, with 37.3% neutrophils, 50.4% lymphocytes, 5.1% eosinophils, 0.9% basophils, and 6.3% monocytes. The stool was yellow, pasty, without mucus or blood, but numerous *Giardia lamblia* cysts appeared on microscopic examination. Flagentyl was prescribed for the treatment of *G. lamblia*, but the patient did not come one week later for follow-up.

Description of the parasite

The patient's parents gave us the proglottids

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obtained 2 different times, 225 proglottids the first time and 343 proglottids the second time. They were light yellowish, separated or linked together in chains of different lengths, all still alive with slow movement at the time of the visit (Fig 1). On acid carmine stain, we noted that most of the proglottids were gravid, with some mature, but the genital organs were clearly seen in only one mature proglottid. All proglottids were wider than long, with one set of reproductive organs in each segment.

In mature proglottids, the testes were distributed in the anterior part of the segment, almost the whole width of the proglottid. Between the longitudinal excretory canals, the number of testes appeared to be around 200 to 216. The cirrus sac was a strong muscular organ, cylindrical or spindle-shape containing a narrow canal cirrus. The female genital complex was poral and the apertures were alternately at one or two-segment intervals at the margins. The ovary was seen as a mass of clavate lobes and situated on the poral half of the proglottid. The C-shaped vitelline gland was situated posterior to the ovary and was seen embracing the central shell gland. The funnel shape vagina was found to be weakly developed. The uterus was a single transverse tube with anterior and posterior evaginations (Fig 2).

In the gravid proglottids, the tube-like uterus lied transversally, and ramifies into round pockets in the front and back of the proglottids. The pockets were full with eggs. The vagina and the cirrus sac were still seen but the ovary, the shell gland and the vitelline gland were disintegrated (Fig 3).

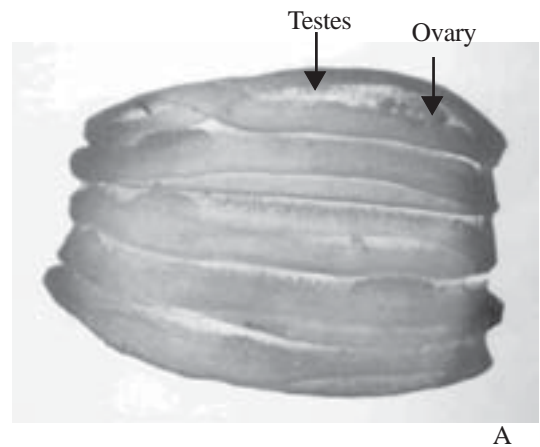
The eggs were collected from the gravid proglottids. Fresh eggs were irregular ovoid (asymmetric fusiform), with the length of 41-50 μm (Fig 4).

Based on the morphologic characteristics described (Stunkard, 1940), the worm was identified as *Bertiella studeri*.

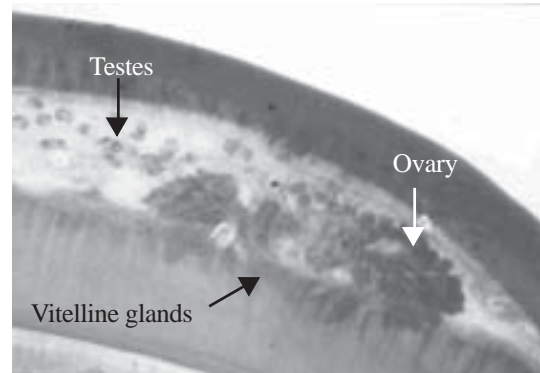
Mature *Bertiella studeri* lives in the intestines of different species of monkey, including *Anthropithecus troglodytes*, *Cercopithecus pygerythus*, *Cercopithecus schmidt*, *Cynomolgus fascicularis* and *Macaca cynomolgus* (Joyeux and Baer, 1929). The larvae are found among mites. The patient in this report lived in a suburb of a province in the Mekong Delta, where the people raise ducks for



Fig 1—*Bertiella studeri*, fresh strobila obtained from patient.



A



B

Fig 2—Mature proglottids of *B. studeri*, showing testes and ovary (2A), C-shaped vitelline glands (2B).

their livelihood; other domestic animals such as dogs and cats were found, but no monkeys. He never traveled and his residence was unchanged. There was not enough information for determination of the source of infection.

Bertiella studeri infection produces no clini-

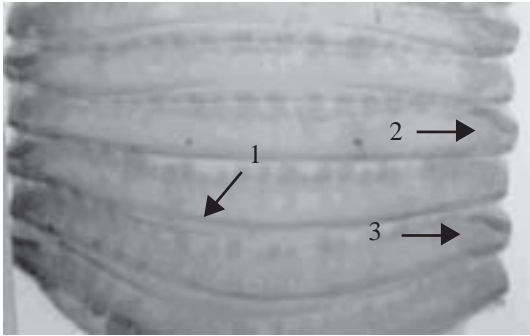


Fig 3—Gravid proglottids of *B. studeri*, showing
 1) tube-like uterus with anterior and posterior packets
 2) funnel shape vagina
 3) strong muscular cirrus.



Fig 4—Egg of *B. studeri* obtained from gravid proglottid.

cal manifestations (Faust *et al*, 1971), but Desowitz *et al* (1961) reported anorexia and weight loss in a 6 year old child. Bhaibulaya (1985) noted several manifestations in a female aged 26 years, such as intermittent diarrhea for 3 months before proglottids appeared in the feces, but the patient's general status was still good without dehydration or malnutrition. Our patient had anorexia, ate less, and had intermittent diarrhea, but these symptoms could have been caused either by this parasite or *Giardia lamblia*.

Bhaibulaya's treatment (1985) was 2g of niclosamide, resulting in no proglottids found in feces 24 hours later. Thompson *et al* (1967) succeeded in curing *Bertiella* infection with niclosamide (Yomesan). Desowitz *et al* (1966) gave

his patient a dose of 1.5g dichlorophen, and found no proglottids in feces after 3 months. Our patient was prescribed with niclosamide 1g, and three months later with albendazole 2 tablets daily for 3 days. The treatment failed, with the evidence of proglottids appearing in the feces 3 months after the first treatment, and one month after the second course. This failure might be due to an insufficient dosage of medicaments.

Evidence of *G. lamblia* cysts, but no *B. studeri* eggs, was found. We decided to provide only treatment for *G. lamblia*, expecting the first follow-up after treatment within one week. Unfortunately, the patient disappeared.

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