

# HUMAN INFECTION WITH *BERTIELLA STUDERI* IN THAILAND

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## INTRODUCTION

*Bertiella studeri*, a cyclophyllidean tapeworm of the family Anoplocephalidae is commonly found in the intestines of the monkeys in Asia and Africa (Joyeux and Baer, 1929). The life cycle of this tapeworm was elucidated with having mites as the experimental intermediate host (Stunkard, 1940), and human infection was believed to occur by accidental ingestion of the mites containing cysticeroid larvae of the tapeworm. Although human infections have been reported from many parts of Asia and Africa (Faust *et al.*, 1971), the present case is the first human infection with *Bertiella studeri* reported from Thailand.

**Case report:** A 26-year-old Thai female was admitted to a hospital in Bangkok with the chief complaint of having diarrhoea on and off for 3-4 months. Three months prior to admission she noticed a white object in the faeces on 4-5 different occasions but paid little attention. Three days before admission she had diarrhoea and she found a long and white object in the faeces. She was admitted in the hospital for investigation and medication.

She was a resident of Chumporn, a province in southern Thailand, and had moved to reside in Bangkok for the past four years. However, she visited her home town at least once a year. She had no pets in her house in Bangkok, but a dog and a cat lived in the house of her parents in Chumporn.

On physical examination, despite having intermittent diarrhoea for 3-4 months she was

in good health, no signs of dehydration nor malnutrition were observed. On the faecal examination, no ova nor parasites were found.

## Parasitological description:

The long and white object which was brought to the author was apparently a part of tapeworm without scolex. It comprised of 211 proglottids and measured 191 mm in length and 8-15 mm width. Each proglottid was found to be wider than long. The strobila was divided into several pieces, and were fixed with alcohol formal acetic fixative and stained with acid carmine for studying the internal structures.

The tapeworm obtained comprised mostly the gravid and few mature proglottids. The genital pores were seen opening at the lateral aspect of the proglottid with irregular alternation. The small dorsal and large ventral excretory canals as well as the transverse excretory duct were clearly seen in most of the proglottids. In mature proglottids (Fig. 1), the follicular testes numbering 214-237 were seen distributed in the anterior part and almost the whole width of the proglottid. The cirrus sac was a strong muscular organ, cylindrical or spindle-shaped containing a narrow canal cirrus. 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 shaped vagina was found to be weakly developed. The uterus was a single transverse tube with the anterior and posterior evaginations. In the gravid

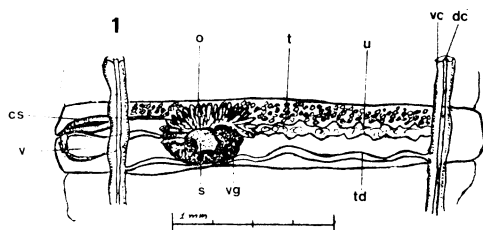


Fig. 1—Mature proglottid of *Bertiella studeri*; cs = cirrus sac; dc = dorsal excretory canal; o = ovary; s = shell gland; t = testis; td = transverse excretory duct; u = uterus; v = vagina, vc = ventral excretory duct; vg = vitelline glands.

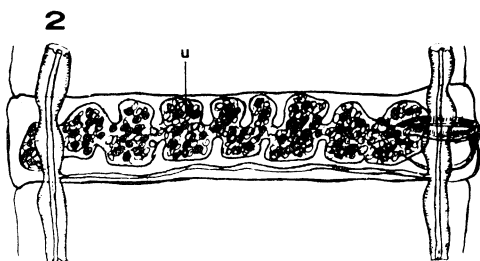


Fig. 2—Gravid proglottid of *B. studeri*.

proglottids (Fig. 2), the uterus was seen with large anterior and posterior outpocketings containing ova. The testes, ovary vitelline gland and shell gland were hardly seen. However, the cirrus sac, cirrus and vagina were still intact.

This tapeworm was therefore, identified as a strobila of *B. studeri*.

Niclosamide at 2 gm dosage was given orally and a search for the tapeworm in 24 hours faecal specimen was done. No tapeworm was recovered.

## DISCUSSION

Many species of *Bertiella* have been reported, but only two species, *B. studeri* and *Bertiella mucronata* are known to infect man (D'alessandro *et al.*, 1963). *B. studeri* of the present case differs from *B. mucronata* in

possessing the following features: Larger number of the follicular testes, strongly developed muscular cirrus sac and weakly developed funnel shaped vagina. However, *B. studeri* and *B. mucronata* are regarded as identical by some authors (Cameron, 1929; Adams and Webb, 1933; Wardle and McLeod, 1952).

Faust *et al.*, (1971) stated that the tapeworm caused no symptoms whereas intermittent diarrhoea was observed in the present case. Gastro-intestinal disturbance was reported from the *Bertiella* infection in man in Paraguay (D'alessandro *et al.*, 1963).

*B. studeri* was recorded from many primates namely, *Anthropithecus troglodytes*, *Cercopithecus pygerythrus*, *Cercopithecus schmidtii*, *Cynomolgus fascicularis*, *Cynomolgus sinicus*, *Hylobates hoolock*, *Macaca cynomolgus*, *Macaca fascicularis*, *Macaca radiata*, *Macaca syrichta*, *Pongo pygmaeus* and *Simia studeri* (Stunkard, 1940; D'alessandro *et al.*, 1963; Faust *et al.*, 1971). In Thailand, various primates are known to inhabit in the country, but only few species have close ecological contact with man (Lekagul and McNeely, 1977). *Macaca nemestrina* (Pig-tailed macaque) is commonly used for picking coconut in southern Thailand. *Macaca mulatta* (Rhesus macaque) is found not uncommonly in temples, shrines and tourist resorts. *Macaca fascicularis* (Crab eating macaque) is trained to perform in a show which was often seen in many festivals. *Hylobates lar* (white handed gibbon) is kept as a pet by many Thais. However, *B. studeri* has never been recorded from these primates. The actual transmission and source of infection of the present case are therefore, not known, although the crab eating macaque used to pick coconuts from the orchards of her parents is suspected.

Desowitz *et al.*, (1961) stated that oleoresin of aspidium, quinacrine or dichlophen could evacuate the tapeworm. Niclosamide may have dissolved the *B. studeri* as no tapeworm

was recovered or that the parasite was passed out before treatment.

#### SUMMARY

*Bertiella studeri* infection in a 26-year old Thai female was reported from Thailand. The intermittent diarrhoea and evacuation of a segment of the tapeworm brought the patient to the hospital. The parasitological description of the tapeworm specimen is reported.

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