Short communication

TWO CASES OF HUMAN INFECTION WITH *BERTIELLA STUDERI* IN NORTH SUMATRA, INDONESIA

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Received January 27 1992/Accepted March 14 1992

Bertiella studeri, a cyclophyllidean tapeworm of the family Anoplocephalidae is commonly found in the intestine of the monkey and other primates in Asia, Europe, Africa and Puerto Rico (Yamaguti, 1959). The life cycle of this tapeworm was elucidated with mites as the experienced intermediate host (Stunkard, 1940), and human infection was believed to occur by accidental ingestion of mites containing cysticeroid larvae of this tapeworm. Although human infections have been reported from many parts of Asia and Africa (Faust *et al.*, 1971), the present cases are the 11th and 12th human infections with *B. studeri* reported from Indonesia.

Case 1: A 3-year-old female from Langkat district, Sumatra, Indonesia, passed out a piece of white tapeworm with her stools, and after fixation with formalin solution this tapeworm was sent from the Langkat Health Center to us for identification. However, her mother and doctor did not explain to the clinical symptoms and the results of clinical examination tests.

Case 2: Case 2 is an adult male living in Medan, North Sumatra, Indonesia. However, data from the clinical examination and symptoms in this case was not reported by the doctor. A specimen was merely sent to us for identification.

Upon the examination, the white specimens that were brought to the authors were apparently parts of tapeworms without scolex. The tapeworms measured 0.8 mm (1st case) and 0.76 mm (2nd case) in length, and 5 and 10 mm in width respectively.

Each proglottid owing to the transverse- and flatten-section (Figs. 1 and 2) of the tapeworm was found to be wider than long (1st case 7.98×0.61 mm; 2nd case 7.63×1.00 mm). There was a single set of reproductive organs per proglottid (Fig. 1).

In mature proglottids, the many follicular testes were seen distributed in the anterior part and almost the whole width of the proglottid. The genital pores alternated irregularly. The cirrus sac was a strong muscular organ, cylindrical or spindle-shaped containing a narrow canale cirrus. The ovary could not be observed clearly in the section with proglottids. The funnel shaped vagina was found to be weakly developed. The uterus was a single transverse tube having the appearance of outpocketings towards the anterior and posterior margins.

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Figure 1 Flattened section of the proglottid of *B. studeri* (Scale bar: 0.46 mm)

Figure 2 Transverse section near posterior border of the proglottid of *B. studeri* (Scale bar: 0.46 mm).

Abbreviations: cs: cirrus sac; ed: excretory duct; lm: longitudinal muscle bundles; tm: transverse muscles; ut: uterus; vg: vagina.

Eggs in the uterus were $(33-41) \times (36-41) \mu\text{m}$.

About 22 species of Genus *Bertiella* have been reported (Yamaguti, 1959), but only two species, *B. studeri* and *B. mucronata* are known to infect man (D' Lessandro *et al.*, 1963). *B. studeri* differs from *B. mucronata* in possessing the following features: strongly developed muscular cirrus sac and weakly developed funnel shaped vagina. Accordingly these present tapeworm should be therefore identified as proglottids of *B. studeri*.

B. studeri is not commonly encountered in man, as evidenced by only 47 cases have been documented by Bandyopadhyay and Manna (1987). The first report of human infection from Indonesia was in 1931 by Joyeux and Dollfus. After that the additional nine cases were recorded (Bonne, 1944; Lie Kian Joe, 1961; Kwo and Koh, 1969). Although the pathogenicity of *B. studeri* in the current patients could not be determined, a few researchers (Richard-Lenoble *et al.*, 1986; Bandyopadhyay and Manna, 1987) reported that patients suffered from various symptoms, including abdominal pain, loose bowels movements, and loss of body weight.

B. studeri, for which human infections have been reported by many authors, is primarily a primate parasite. There is a close association with infecting agents (free-living mites) which carry the cysticeroid stage of the parasite. Actually, the patients in this study told us that people in the village were breeding monkeys or apes. These breeding sites may be a possible source of infection.

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インドネシア，北スマトラにおける
条虫 *Bertiella studeri* の人体感染の 2 症例

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本来は猿やその他の霊長類の腸管内に寄生する条虫，*Bertiella studeri* (Anoplocephalidae) の北スマトラにおける人体感染の 2 症例を見出し，インドネシアにおける第11例目（3 歳，女性）と第12例目（成人男性）として報告した。

共に詳細な病歴は不明であったが，排出虫体の形態によって *B. studeri* と同定された。現在，世界的には総計47例の本虫感染例報告のある中で，インドネシアにおける本虫感染例が，極めて目立って多い事が解った。

本虫の感染は自由生活性のダニ類の経口摂取にある所から，人体への感染は偶然の機会に行われ，その感染予防の為に，終宿主となる猿類を椰子の実取り等の労働に使用したり，ペットとして飼育する際に十分な注意を行う事が，最も重要と考えられた。

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