

## Case Report

**Bertielliasis in a Man from Lampung****Agnes Kurniawan\*, Ika P. Sari, Sri Wahdini, Robiatul Adawiyah****Department of Parasitology, Faculty of Medicine Universitas Indonesia, Jakarta**

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**Abstract**

*Bertiella* is an intestinal cestode, typically infects the primate and it is rarely seen in human. There have been very few cases of human bertielliasis documented and mostly infect the children. We reported a 42 years old man from Lampung with persistent bertielliasis. He complained of passing a kind of worm, whitish, coming out from his anus during defecation. The man worked as an administrative officer for a pulp and paper company in Lampung and experienced treatment failure. Macroscopic examination showed a fragment of live strobila like ribbon consisted of 13 proglottids with a size 18 mm width and 1 mm length. The patient got recovery after treatment with praziquantel.

**Keywords:** *Bertiella*, persistent infection, praziquantel.

**Infeksi *Bertiella* pada Pasien Laki-laki dari Lampung****Abstrak**

*Bertiella* adalah salah satu cestode usus yang menginfeksi primata. Namun demikian, hanya sedikit laporan mengenai bertielliasis pada manusia. Cestode ini paling banyak menginfeksi anak-anak. Kami melaporkan seorang laki-laki usia 42 tahun berasal dari Lampung dengan infeksi kronik berteliiasis. Pasien mengeluhkan keluar potongan cacing berwarna putih dari anusnya saat buang air besar. Pasien bekerja sebagai tenaga administrasi di sebuah perusahaan kertas di provinsi Lampung dan telah diberikan pengobatan tetapi belum sembuh. Dari hasil pemeriksaan makroskopis ditemukan bagian tubuh cacing berbentuk pipih yang terdiri atas 13 proglotid dengan ukuran 18 mm x 1 mm. Pasien mengalami perbaikan pasca pengobatan dengan prazikuantel.

**Kata kunci:** *Bertiella*, infeksi kronis, prazikuantel.

## Introduction

The most common cestodes infecting humans are of the genus *Taenia*, *Diphyllo-bothrium*, and *Hymenolepis*, while the zoonotic cestodes *Dipylidium* and *Bertiella* are rarely infecting humans. *Bertiella* is known as monkey cestode, a common cestode in primates that also infect rodents, marsupials, dog, and man.<sup>1</sup> The adult worm lives in the small intestine of monkeys (chimpanzees, orangutan, baboons, gibbons and various monkeys) and excretes the gravid proglottids and the ova in the stool.

Human bertielliasis is acquired by accidental ingestion of Oribatid mites, the intermediate hosts. There have been more 83 reported cases of human bertielliasis cited in the literature, including eight from Mauritius consisted of 7 children and one adult male and 21 cases from Indonesia.<sup>1,2</sup>

There are currently 29 species of *Bertiella* in the world, however, only two species have been known to cause human infections, which are *Bertiella studeri* and *Bertiella mucronate*.<sup>1</sup> *Bertiella* life cycle involves two different hosts: the definitive host, which is the primate, and mite as the intermediate host. Men get infected due to ingestion of infected mites carrying the cysticercoid.

Bertielliasis cases are very few and distributed in several countries in Africa, South America, Europe, and Asia including Japan, China, India, Sri Lanka, Thailand, Vietnam, Philipine, Singapore, and Indonesia.<sup>1</sup> We present a case of bertielliasis in a man working as administrative officer for pulp and paper company with treatment failure.

## Case Report

A man, 42 years old, working as an administrative officer in a pulp and paper company based in Lampung, Sumatra, complained of passing a kind of worm, whitish, coming out from his anus during defecation since the last one month. There was no abdominal complaint or abnormalities. There was no history of contact with monkeys. The patient admitted there were monkeys in the forest, which were far distant from where he lived. He got mebendazole tablets 500 mg for medication from the company's doctor and had taken it for one week however, and the worms kept coming out. The doctor referred him to Jakarta to an internist who then referred him again to Parasitology Laboratory FKUI for the diagnosis. Macroscopic examination showed a fragment of live strobila like ribbon consisted of 13 proglottids with a size 18 mm width and 1 mm length (Figure 1).

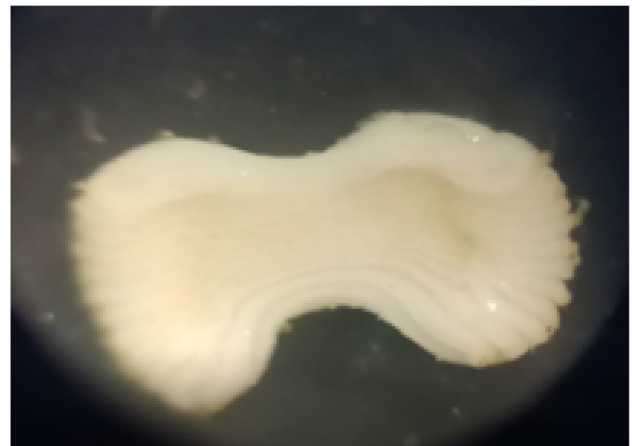


Figure 1. Live Proglottid of *Bertiella studeri*

The eggs were liberated from the proglottids on pressure. The egg is ovoid with diameter  $\pm 42.5 - 46 \mu\text{m}$ , has an outer shell, and an inner envelope with an albuminous layer in between contains a distinctive pyriform apparatus with oncosphere and hooklets (figure 2). It was confirmed as *Bertiella studeri*. The patient was treated with 15 mg/kg bodyweight/ day of Praziquantel for two days, and he brought again the strobila expelled on the second day after treatment. However, the patient did not send his stool for evaluation as he had to return to his workplace on the third day

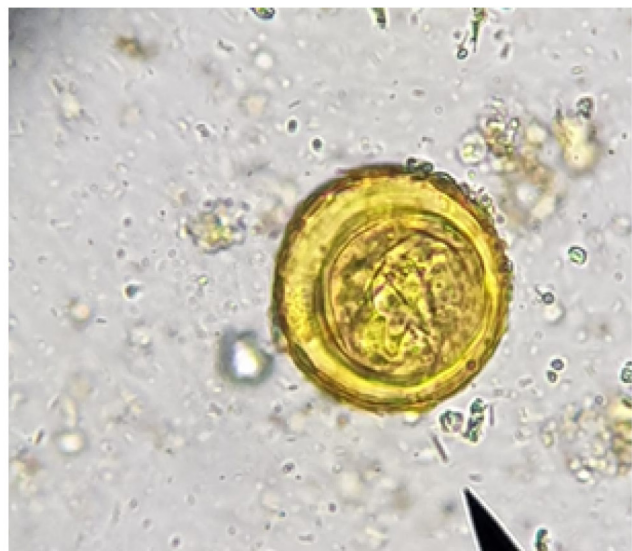


Figure 2. The Egg of *Bertiella* in Wet Smear. Stained with Lugol solution, showing the oncosphere/hexacanth embryo (10X40 magnification)

## Discussion

*Bertiella* adult worms reside in the small intestine of the definitive host, attached to the intestinal mucosa through its four suckers at the scolex with unarmed rostellum<sup>1</sup>. The mature gravid proglottids containing eggs may be excreted with the feces or individually as strobila. When the eggs are ingested by the intermediate host, the Oribatid free-living mites, the oncospheres (hexacanth embryo) will form cysticercoids within nine days. Oribatid mites live in moist soil and fruit. Man and the primate get infected after ingesting infected mite through the consumption of vegetables, fruit, or soil. Human infection is accidental and occurs mainly in infants or children who have a propensity of geophagia.<sup>1</sup>

*B. studeri* and *B. mucronata* are the two species currently recognized infecting humans with different geographic distribution. *B. studeri* is the most frequently reported and distributed widely in South Asia, Southeast Asia, China, Middle-East, Sub-Sahara Africa, Mauritius, and St. Kitts while *Bertiella mucronata* is known to be prevalent in South America (Cuba, Argentina, Brazil, Paraguay).<sup>1,3</sup>

Bertielliasis in Indonesia has been reported several times, which have been 21 cases until now<sup>1</sup>. The first case was recorded in Sumatra in 1931, followed by cases in Java and Borneo<sup>1,3</sup>. All cases were children mostly below 5 years old and only one case reported in adult. This case report is the second case of bertielliasis among Indonesian adults so far. Most cases reported were from Sumatra, while cases from Java and Borneo were reported two cases each, respectively, suggesting Sumatra can be regarded as the endemic area of bertielliasis.<sup>4</sup>

Bertielliasis can be asymptomatic or manifested gastrointestinal symptoms like other tapeworm infection such as: epigastric pain, nausea, diarrhea, tender abdomen, sometimes with constipation.<sup>5,6</sup> The symptoms are more common in children. Diagnosis of bertielliasis is performed by identification of the parasites elements or proglottid in the stool and egg morphology/morphometry in the stool or from the proglottid. In this case report, the egg was obtained from the mature gravid proglottid on pressure. Limited awareness on this parasite and lack of technical expert in Parasitology, makes bertielliasis is still under-reported with true incidence is not known and subsequently brings an impact on the treatment.<sup>1,2</sup>

Praziquantel is the drug of choice for tapeworms, which is well tolerated and has good efficacy. It has been successfully used in the treatment of several *Bertiella* infection cases.<sup>2-5</sup> It acts on the membrane calcium channels and cause worm paralysis. Niclosamide is the alternative drug used for the treatment of taeniasis and other cestodes.<sup>1</sup>

In our case, the patient was treated with mebendazole, which showed no efficacy as the proglottid was still released. After treatment with Praziquantel at 15 mg/kg BW for two days, the patient expelled another proglottid on the next day and brought it to the laboratory. He did not come again for stool evaluation as he had to return to his workplace in Lampung.

Although the patient did not have any history of contact with monkey at work and home, there is still a possibility of soil contamination by the intermediate host. These Oribatid mites get the infection from monkeys. The possibility of the patient eating raw fruit, vegetables or food contaminated with the intermediate host at his workplace in the plantation or his residential area nearby somehow may explain the way *Bertiella* infected the patient. Sumatra was once a transmigration area with extensive forests and one of the primates' conservation areas in Indonesia, which underwent deforestation and turned into many palm plantations and industrial logging in the last 25 years. The changes, destruction of the natural monkey habitat may have forced the primates to occupy human habitats, especially during the dry season; this probably accounts for the occasional *Bertiella* infections in Sumatra reported during the last few years.

## Conclusion

A case report of a 42 years old man complained of passing a kind of worm. The assessment was made by anamnesis and Parasitology examination of the worm. The patient was prescribed with Praziquantel for two days. The prognosis of the patient is expected to be excellent with good patient compliance.

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