

## Human Tapeworm from Simalungun, Indonesia

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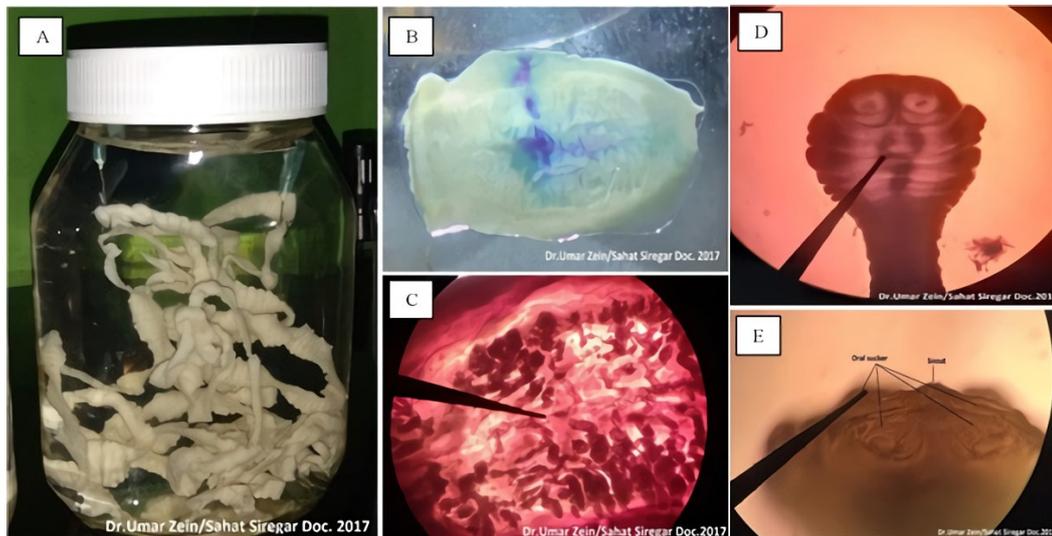
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**Figure 1.** Strobila of the tapeworm (A), Gravid proglottid after stained and pressed (Macrophoto) (B), Microphoto of 16 Uterine branches gravid proglottid (400X magnification) (C), Microphoto of scolex (100X magnification) (D), Microphoto Scolex *Taenia asiatica* (400X) with four oral sucker and one "Snout" (E).

*Taenia asiatica* is an endemic tapeworm species in some region of North Sumatera, Indonesia.<sup>1,2</sup> It has unique presentation in clinical syndrome, medical management, macroscopic and microscopic appearance.<sup>2</sup>

A 46-years-old man from Indonesia, resides in Nagori Dolok Village, Silau Kahaean Subdistrict, Simalungun District, Sumatra Utara Province, had of spontaneous discharge of tapeworm segments (proglottids) from anus almost every day for ten years. There were 1-5 segments which can move actively and discharge

per day. Although he feels embarrassed about the condition, no significant symptoms were found, and physical examination was within normal limits. Clinical diagnosis of Taeniasis was made on October 20, 2017, and subsequently received oral Praziquantel 600 mg tablet single dose and 5 mg of oral Bisacodyl. Four hours later, the patient was defecated. The stool was collected in plastic and filtered with a filter device to collect any tapeworm segments.

A full segment of tapeworm as long as 2.86 meters were found (**Figure 1A**). Microscopic

examination was done to identify the eggs of worm, proglottids, and scolex. Dye substance was injected into a mature gravid proglottid through the genital pore and pressed in two object-glasses to identify the reproductive organs (**Figure 1B**). Microscopic examination (400x magnification) of this sample revealed that the number of uterine branches and testes in a proglottid were 16 pairs (**Figure 1C**). Consistency of the number of uterine branches in some gravid proglottids, not in range like *T. solium* or *T. saginata*. The number of uterine branches in *T. solium* are 8-12 pairs and *T. saginata* are 18-32 pairs.<sup>1</sup>

The filtered stool was moved into a container and carefully observed. A soft yellowish-white material of 1.5 mm in diameter was found, which turned out to be the head of the tapeworm called Scolex (**Figure 1D**). Microscopic examination of scolex revealed that the rostellum was absent. A segment called 'snout' was found at the apex. The functions were probably as a sense of smell and vacuum organ (**Figure 1E**).

The patient was lived in Simalungun, North Sumatera, some tribe in that area has a long tradition of culinary called 'Hinasumba', consist of raw pork liver and meat, and 'Naiholat' consist of poorly cooked pork.

Even though pig was determined as an intermediate host, the type of tapeworm was not consistent with *T. solium*. The patient had the long history of infection but never had sign or symptoms of neurocysticercosis.<sup>2</sup> Based on ethno-geographical condition<sup>3</sup>, the patient was infected by *T. asiatica*.<sup>4</sup> Microscopic examination of the uterus and scolex indicate that the tapeworm had most similarity to *T. asiatica*.<sup>5-7</sup>

Amin et al.<sup>8</sup> from Bangladesh in 2009 reported a case of *T. asiatica* in human with total strobila length was 1.5 meters. Macroscopic morphology (length:width) of gravid proglottid segment of *T. saginata* is 3:1, *T. solium* 1.5:1. The tapeworm that we discovered had 1-1.5:1 ratio (2.5 cm length and 2 cm width).

Some features of the tapeworm (no rostellum, present of the snout, and fix number of the uterus in every proglottid) were not found in three existing type of *Taenia* species.<sup>5,9</sup> Further microscopic and molecular study should be done to determined type or subtype of the tapeworm.

A case of taeniasis asiatica who had completed treatment was reported. Macroscopic and microscopic was done to support the clinical diagnosis.

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