

## APPARENT PSEUDOPARASITISM OF THE ALIMENTARY CANAL OF A 5-YEAR-OLD CHILD BY THE MILLIPEDE *BRACHYIULUS LUSITANUS* (DIPLOPODA: JULIDAE)

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Sir,

The millipede *Brachyiulus lusitanus* is a free-living diplopod reported here to be the cause of an apparent case of pseudoparasitism of the alimentary canal of a 5-year-old child. The boy is believed to have expelled approximately 150 to 200 millipedes, the majority alive, over a period of three to four months without signs of clinical illness or major pathology as determined by colonoscopy. His parents' concerns had previously been rejected as delusions by some physicians. Millipedes were frequently encountered in the family's surroundings. However, the route by which they gained access to the boy's alimentary canal and their survival for some time therein remains enigmatic.

### • Case report

In February 2005, a 5-year-old boy residing in a rural area of Sari, in northern Iran, was referred to our Parasitology Department at the Tehran University of Medical Sciences. His parents reported wormlike creatures coming out of the child's anus and during the past month had collected some 40 specimens which they brought with them to the clinic. These were easily identified as millipedes by microscopic examination. The parents reported the boy had passed some hundred or so similar organisms on several occasions over the past two or three months. Millipedes were commonly encountered in the family's surroundings, and are known to enter houses in this part of Iran.

Upon presentation, the boy looked slightly pale but otherwise healthy. His stool was malodorous with melena. He complained of dysuria and had been diagnosed with *Hymenolepis nana* and *Giardia lamblia* one month earlier (he had been treated for the former

with niclosamide about three weeks before his visit). His parents explained the millipedes were discharged alive, unrelated to defecation, but after the niclosamide treatment, the expelled millipedes were usually dead or moribund.

The boy was admitted for observation and after eight hours five millipedes were expelled from the anus (Fig. 1). This event was witnessed by the two attending doctors, Drs Mowlavi and Anaraki. Recovered millipedes (9-10 mm-long), were sent to the Virginia Museum of Natural History and were later identified as *Brachyiulus lusitanus* Verhoeff 1898 (Class Diplopoda, Order Julida, Family Julidae).



Fig. 1. – Millipedes being discharged from the anus of a 5-year-old boy.

Laboratory examination of the feces revealed slight quantities of blood and no pathogenic organisms. The complete blood count was normal except for a mild lymphocytosis. Colonoscopy was recommended, but two months passed before the parents were convinced the procedure could prove useful. During these months, the boy expelled millipedes for a few more days with a gradual decline in numbers and frequency of discharge. Once performed, the colonoscopy results were unremarkable: the colonic mucosa appeared normal and no millipedes were observed. The liver was of normal size and appearance based on abdominal sonography. After the procedure, no further millipedes were reportedly passed by the child, and he seemed to be clinically normal.

The boy's house was visited twice by Drs Mowlavi and Naddaf, in June and November of 2005. The first visit revealed a clean and well maintained house. Millipedes were found at this time in the garden in superficial soil at the base of trees in the yard. The second visit was

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most unfortunately to pay respects to the family after the boy passed away from the effects of a rapidly growing neurofibroma. Before his death the boy had been moved to hospitals in Sari and Tehran.

### • Discussion

Pseudoparasites are free-living animals or parasites of other hosts acquired by an individual and which may survive for some length of time therein. There are other reports of pseudoparasitism by myriapods in humans (Blanchard, 1898, 1902; Huber, 1902; Laurens, 1913-1919; Chamberlin, 1923; Garzia, 1938; Cavier, 1953; Ertek *et al.*, 2004). In summaries in 1898 and 1902, Raphael Blanchard reported 40 confirmed cases of pseudoparasitism by millipedes and chilopods, most recovered alive from patients (Blanchard, 1898, 1902). By 1953 the total grew to 54 reported cases: 35 from the nasal cavities and frontal sinuses, three from "other parts" of the body (*i.e.* ear canal and urethra), and 16 from the gastrointestinal tract (Blanchard, 1898, 1902; Chamberlin, 1923; Garzia, 1938; Cavier, 1953). In 2004 Ertek *et al.* recovered the millipede *Nopoiulus kochii* from the intestine of a 14-year-old Turkish boy with a history of stomach aches and burning-throat sensations; he had found active millipedes in his mouth and feces (Ertek *et al.*, 2004).

Historically cases of pseudoparasitism have been initially regarded as delusions or misperceptions, often believed to have been fabricated. However, Chamberlin in 1923 stated, "*the number of carefully authenticated cases is now so large that there is no room whatever for doubt that myriapods may live for considerable periods, in some cases months, if not years, both in the aerial passages and in the alimentary tract, through the entire length of which they may pass unharmed*" (Chamberlin, 1923). It was believed that cases associated with the respiratory tract were likely a result of chilopods entering the nasal passages while the patients slept (Chamberlin, 1923; Laurens, 1913-1919). In the case of intestinal pseudoparasitism, however, the route of acquisition is unknown (Blanchard, 1898, 1902; Chamberlin, 1923; Ertek *et al.*, 2004). In general, symptoms associated with the presence of the arthropods in all these reports resolved once the myriapods were voided.

This is the first report of apparent pseudoparasitism of the alimentary canal by the millipede *Brachyiulus lusitanus* (Diplopoda), and the first in which such large numbers have been reportedly discharged. *B. lusitanus* is clearly synanthropic and is widely distributed by commerce in cultivated plants. This species is now known from almost the entire Mediterranean region (Hoffman, personal communication). There is a report

on this species by Enghoff and Moravvej from Iran, but no detailed description is available (Enghoff, 2005). As with previous reports, it is unknown how this child acquired the millipedes. However, based on the continuous expulsion of such a large number of millipedes, intentional ingestion may have been the most likely cause. There are cases reported where children, for unimaginable reasons, will eat freshly passed and coiled adult *Toxocara cati* nematodes out of litter boxes and pass the adult worms over a period of several weeks; similar behavior could perhaps lead to a child to ingest large numbers of coiled millipedes (Eberhard, 1998). Another, perhaps less likely, possibility is that they may have been inserted directly into the rectum and colon through the anus. In either case, the child may have enjoyed the attention garnered by passing living millipedes.

Reports of patients with fictitious illness, Munchausen Syndrome and Munchausen Syndrome by Proxy (where patients or their care-givers deliberately mimic symptoms of disease or induce illness for secondary gain), are growing more numerous in the literature (Gill, 2002; Sheridan, 2003; Thomas, 2003). One must, when assessing unusual cases such as this, with no apparent explanation as to their origin, consider the possibility of this type of affliction. However, whether this case is one in which the millipedes gained access to the intestinal tract accidentally, or a case of intentional introduction to the body, medical evaluation was necessary.

### • Conclusion

The question remains whether the present is an actual case of pseudoparasitism by millipedes or a sort of charade brought to the medical community by the boy or his parents. In light of all the previous reports, it seems these types of cases should be given credence, although without better evidence in this instance it is hard to be truly certain one way or the other. Regardless, cases such as these should be fully examined and not disregarded as delusions, because individuals may truly have an affliction that may be extraordinary but real.

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