

Severe Intra Abdominal Armillifer Armillatus Infestation: An Incidental Finding in A 52 Year-Old Man with Recurrent Low-Back Pain

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Abstract: A case of infestation with *Armillifer armillatus* found incidentally in a 52 year old man with characteristic radiological appearances described with particular reference to peritoneal and liver involvement. The case emphasizes the indispensable role of imaging in diagnosing the disease entity.

I. Introduction

Amillifer armillatus infestation (a form of pentasomiasis) is a zoonotic disease that has been reported in several parts of the world including America and Asia¹. This disease is more prevalent in Western and Central Africa with highest reported cases being from the Congo and Nigeria². The disease is caused by the larva stage (nymphs) of the parasite and two species have been identified to cause disease in man viz: *armillifer armillatus* and *liguatullaserata*: the former being more common in Tropical Africa³. The definitive hosts are snakes and other reptiles, while the intermediate hosts are carnivorous mammals and rarely humans⁴. Human infestation occurs after accidental ingestion of infective ova, which are shed into the environment by snake secretions and faeces.

II. Case report

U.J is a 52 year old male civil servant referred to our facility for radiologic evaluation on account of recent onset general body weakness and low back pain of about a year's duration. He had no history of previous hospital admission. He is married in monogamous setting and neither drinks alcohol nor smoke cigarette. He had lived most of his life in rural setting but recently transferred to the city to resume a new job appointment. On examination, he was chronically ill-looking, mildly pale, anicteric and not dehydrated. His blood pressure was 150/90mmHg and pulse rate was 78bpm. Examination of the chest and other system were unremarkable. Results of laboratory investigations were as follows: low HB of 10g/dl with other FBC parameters essentially normal. ESR was elevated with a value of 25 mm/hr (normal 0-20mm/hr). Urinalysis was normal. Liver function test revealed slight increase in gamma glutamyltransferase (GGT) of 52.2Iu/L (normal 9-47Iu/L) with other parameters being essentially normal. Lumbosacral spine radiographs (Figs. 1 and 2) done on account of the low back pain revealed lumbar spine degenerative and grade 1 L3/L4 and L4/L5 spondylolisthetic changes with widespread, crescentic, calcific opacities in the soft tissues (hepatic region and peritoneum). Abdominal ultrasound scan (figs. 3) showed multiple curvilinear hyperechogenicities with posterior acoustic shadows in the liver due to the dead (calcified) Amillifer larvae. He was reviewed by his physician and placed on conservative treatment (mebendazole) as well as analgesics for his low back pain. He had several follow-up visits at the clinic and was said to be clinically stable.

Fig. 1: Lumbosacral spine radiograph (Antero-posterior view) of the patient showing lateral marginal osteophytes on superior endplate of L4 vertebra as well as on the visualized T10-T11 vertebrae. Widespread, crescent shaped, calcific dense opacities are seen in the soft tissues due to calcified *Armillifer armillatus* larvae.

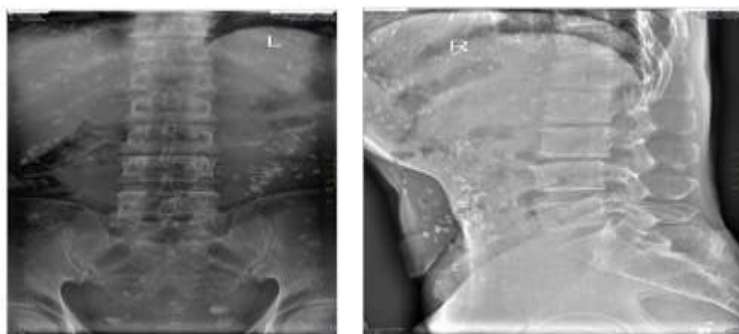


Fig. 2: Lumbo-sacral spine radiograph of the patient (lateral view) showing degenerative and grade 1 L3/L4 and L5/L5 spondylolisthetic changes evidenced by anterior marginal osteophytes on L3-L5 vertebral endplates with widespread, crescent shaped, calcific dense opacities in the soft tissues due to dead *Armillifer armillatus* larvae.



Fig. 3: Abdominal ultrasound scan showing multiple crescentic shaped intrahepatic parenchymal hyperechoic structures with posterior acoustic shadows in the patients' liver due to calcified *armillifer armillatus* larvae.

III. Discussion

In recent times, there has been an increase in documented cases of human infestation by the larvae of pentastomes. Nzeh et al⁵ documented higher incidence of this disease in males with a ratio of 2:1 (M:F). The index case was a male. The adult parasites have been reported⁴ to live in the pulmonary air sacs of several species of python and viper where they lay eggs. Humans get infested as a result of consumption of water or food such as crude vegetable contaminated by the nasobronchial secretion or faeces of the snake or more rarely, from eating raw or inadequately cooked snake or lizard, or the flesh of another definite host⁴. When ingested, the eggs which have protective envelopes are digested by duodenal juice with the release of larvae that migrate through the walls of the small gut into the mesentery and viscera where they eventually encyst as nymphs. Our patient had no history of consumption of snake meat in the past as it was forbidden in his culture: therefore contaminated water or vegetables was probably his source of infestation as he had lived most of his life in rural setting with poor source of drinking water.

It is generally accepted that the pentastomid nymphs do little, if any harm to humans, hence most infested individual are asymptomatic until being discovered incidentally during surgery or at radiological investigations for other reasons^{6,7} as in the index case. In time past diagnosis of this condition was made via histological examination of parasites in tissue section⁸. Nowadays, imaging with conventional radiography, computed tomography and ultrasonography have found great use for identification of patient harboring dead *Armillifer* parasites. The radiological appearances of calcified nymphs of *Armillifer armillatus* are amongst the most characteristic of soft tissue calcifications. They are usually seen as crescent, horseshoe, comma-shaped, or coiled calcific dense structures when seen en-face⁴. They vary from 4 mm to 8 mm in size, are always multiple and are generally localised to the chest and upper abdomen⁴. The imaging findings in our patient had similar features as described. The dead larvae in this case being in the liver and peritoneum. The muscles are rarely affected by the parasite and this in addition to the number of parasites serves to distinguish the condition from cystercercosis in which the parasites are fewer and localised to the muscles⁴. The lateral lumbosacral radiograph of this patient showed intact abdominal wall muscle with no demonstrable parasite. Clinically, most patients are asymptomatic as in the index case. However, some may present with fever, abdominal pain, vomiting, diarrhea, jaundice, and abdominal tenderness in cases of abdominal visceral infestation⁹.

Under some circumstances however, the parasites cause serious damage and produce remarkable clinical symptoms, because of either their location or the large numbers involved⁷. Heavy infestation involving the intestine have been known to result in surgical emergencies like bowel obstruction and perforation⁸. Altered hepatic function with resultant neurologic sequelae due to accumulation of toxic substances was reported by Adeyekunet al.⁷ in a 57year old woman with heavy hepatic burden of dead larvae. Though our patient was asymptomatic, his hepatic parasitization was most probably responsible for his deranged liver enzyme. In the majority of diagnosed cases of pentastomiasis, treatment is conservative while surgical intervention is the modality for managing those with surgical emergencies arising from heavy parasite burden. In the case presented, treatment was conservative and patient did well thereafter.

References

- [1]. Latif B, Omar E, Heo CC, Othman N, Tappe D. Human pentastomiasis caused by *Armillifer moniliformis* in Malaysian Borneo. *Am J Trop Med Hyg.* 2011;85:878–881.
- [2]. Lavarde V, Fornes P. Lethal infection due to *Armillifer armillatus* (Porocephalida): a snake-related parasitic disease. *Clin Infect Dis.* 1999;29:1346–1347.
- [3]. Tappe D, Meyer M, Oesterlein A, Jaye A, Frosch M, Schoen C, Panchev N. Transmission of *Armillifer armillatus* ova at snake farm, The Gambia, West Africa. *Emerg Infect Dis.* 2011; 17:251 – 254.
- [4]. 2011; 17:251 – 254.
- [5]. Vicci du P, Andrew JB, Ivor E, Helmuth R, Savvas A. Pentastomiasis. *SAMJ.* 2007; 97:928-930.
- [6]. Nzeh DA, Akinlemibola JK, Nzeh GC. Incidence of *Armillifer armillatus* (pentastome) calcification in the abdomen. *Cent Afr J Med* 1996 42(1): 29-31.
- [7]. Guardia SN, Sepp H, Scholten T, Morava-Protzner I. Pentastomiasis in Canada. *Arch Pathol Lab Med* 1991; 115: 515-517.
- [8]. Adeyekun AA, Ukadike I, Adetiloye VA. Severe pentastomide *Armillifer armillatus* infestation complicated by hepatic encephalopathy. *Ann Afr Med* 2011;10:59-62.
- [9]. Tappe D, Büttner DW. Diagnosis of human visceral pentastomiasis. *Negl Trop Dis.* 2009;3:320.
- [10]. Chen SH, Liu Q, Zhang YN, Chen JX, Li H, Chen Y, Steinmann P, Zhou XN. Multi-host model-based identification of *Armillifer agkistrodontis* (Pentastomida), a new zoonotic parasite from China. *Negl Trop Dis* 2010;4:647 .

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