

# CASE REPORT

## A SECOND CASE OF DIPHYLLOBOTHRIASIS IN MALAYSIA

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**Abstract.** Diphyllbothriasis was first reported in Malaysia in 2002. We are reporting a second case of diphyllbothriasis in Malaysia. The patient was a 37-year-old Chinese male seen at the outpatient clinic with a complaint of passing strands of white color flat worm in his stool. He had no other abdominal complaints. Laboratory and physical examinations were normal. *Diphyllbothrium latum* was confirmed by examination of the gravid proglottids passed out and the typical operculated eggs expelled from the ruptured proglottids. The patient had a history of eating raw fish. He was treated with a single dose of praziquantel.

### INTRODUCTION

*Diphyllbothrium latum* is the fish tapeworm that causes diphyllbothriasis. Diphyllbothriasis is seen in most part of the world but is most prevalent in the Sub arctic and temperate regions of the northern hemisphere. Diphyllbothriasis is found in the cold countries for example Japan (Tsieh, 1988), Finland (Kyrönseppä, 1993), Korea (Min, 1990; Lee *et al*, 1994) and the United States (Tsieh, 1988). It is estimated that nine million people are infected worldwide (Tsieh, 1988). Man acquires the infection after consuming raw or inadequately cooked infected fish with the plerocercoid larvae. The plerocercoid larvae can be found in any organ of the fish. Human beings can become infected by tasting raw fish before and during the cooking process. Salmon has been implicated in the transmission of diphyllbothriasis in Japan and the United States (Tsieh, 1988). The plerocercoid larva develops into an adult worm in the small in-

testine of the host which includes man, dog, cat, fox and other fish eating mammals. Man serves as the definitive host. Dogs, cats and bears serve as the reservoir hosts.

Although many *Diphyllbothrium* species have been incriminated as agents of human infection, *D. latum* is the only species generally recognized as such (Tsieh, 1988). *D. dendriticum* occurs throughout the circumpolar area at high latitudes (Curtis and Bylund, 1991).

*D. latum* is the longest tapeworm that infects man, measuring 4 - 15 m in length and 10 - 20 mm in width (Tsieh, 1988). Creamy white in color, it consists of 3,000 to 4,000 proglottids. The scolex has a pair of bothria, in its anterior portion that serves as an organ of attachment (Tsieh, 1988). The immature operculated eggs are released into the feces. Egg hatches in water and releases the embryo, or coracidium. After being ingested by a copepod the coracidium metamorphoses into a proceroid larva. When the copepod is eaten by a fish, the proceroid develops into a plerocercoid larva (Tsieh, 1988). When fish containing plerocercoid larva is eaten by man it develops into an adult worm in the small in-

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testine and attained sexual maturity in about 5-6 weeks and start discharging eggs which are passed along with the feces. The individual worm may live for a period of 5-13 years. Diagnosis is made by looking for gravid proglottids and eggs in feces. So far, one case has been documented in Malaysia in 2002. The patient was a 62-year-old Chinese male who had a history of eating Japanese raw fish (sashimi) (Rohela *et al*, 2002). We are reporting a second case of diphyllobothriasis in a Malaysian Chinese male.

### CASE REPORT

A 37-year-old Chinese male was seen at the outpatient clinic of University Malaya Specialist Center (UMSC) in August 2004, with a complaint of passing white color flat worm in his stool. He had no other abdominal symptoms. On examination he was not anemic. The rest of his physical examination was normal. The specimen was sent to the Department of Parasitology, Faculty of Medicine, University of Malaya, Kuala Lumpur for identification. The worm passed out in the stool was identified as *Diphyllobothrium latum*. The diagnosis was confirmed after examination of the gravid proglottids which came out in chains and the typical oval operculated eggs that were expelled after rupturing the gravid proglottids (Figs 2 and 3). The egg measures 71 by 50  $\mu\text{m}$ . The eggs are broadly ovoid, operculate with moderately thick-shelled. The segments or proglottids are greater in breadth than in length. Laboratory investigations showed a hemoglobin level of 13.3 g/l, an eosinophil of 4%, serum vitamin B<sub>12</sub> of 217 pmol/l and serum folate of 21.4



Fig 1—Fragments of gravid proglottids of *D. latum*.

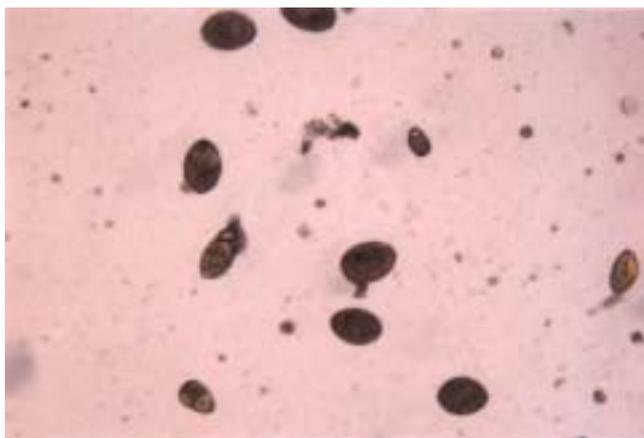


Fig 2—Eggs of *D. latum*, unstained x 100.

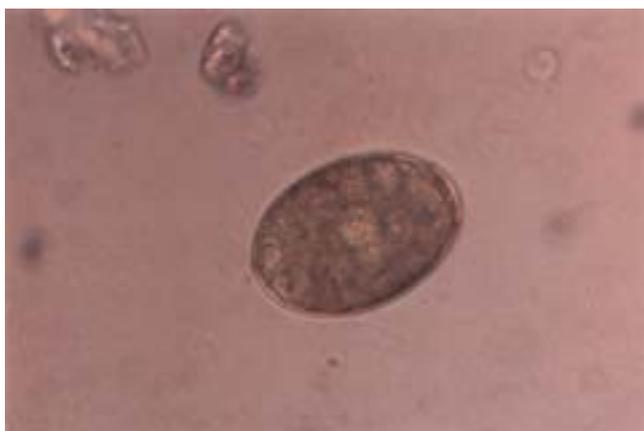


Fig 3—An egg of *D. latum* has a inconspicuous operculum. Unstained x 400.

nmol/l. The laboratory results are within normal limits. A single dose of praziquantel 10 mg/kg was given to the patient and discharged. Stool examinations were carried out on his wife and three children but were negative for *D. latum* ova. On direct questioning, the patient revealed that he traveled to Thailand quite often and while in Thailand he enjoyed eating raw fish. In Malaysia he frequently ate raw fish in Japanese restaurants and had been consuming raw fish for years.

### DISCUSSION

The major clinical manifestations of diphyllobothriasis are those of pernicious anemia although most infections are asymptomatic. The parasite can prevent the absorption of vitamin B<sub>12</sub> by the host (Tsieh, 1988). Other clinical manifestations may include transient abdominal discomfort, diarrhea, vomiting, weakness and weight loss. Our patient was asymptomatic and he excreted gravid proglottids (Fig 1) of *D. latum* together with his stool. The plerocercoid larva of *D. latum* in fish is not destroyed by ordinary salting, pickling or smoking. As a personal prophylaxis in endemic areas, fish should be thoroughly cooked before eating. Imported fish from endemic areas for *D. latum* should not be taken raw or im-

properly cooked. Praziquantel is highly effective for diphyllobothriasis. Parenteral vitamin B<sub>12</sub> should be given if B<sub>12</sub> deficiency is manifested (Stone *et al*, 1998).

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