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Case Report

Diphyllobothriasis Accidentally Found In the Small Intestine of A Thai Man: A Case Report

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1. Abstract

Diphyllobothrium latum infestation is well known as the helminthic disease in non-tropical countries. It has never been reported in Thailand. This report was aimed to present a case of *D. latum* accidentally found in a Thai patient during the gastroscopy for upper gastrointestinal hemorrhage. He was a 60-year-old Thai patient who passed melena and had abdominal distension for two days. His underlying diseases included the end stage renal disease under regular hemodialysis, type 2 diabetes mellitus, hypertension and anemia. Three months ago, his gastroscopy revealed one 3-cm gastric ulcer at the antrum. His physical examination showed the marked pallor, an abdominal distension with positive shifting dullness. His present blood tests showed hemoglobin 6.0 g%, WBC 7,200/mm_3, N 83 %, L 12 %, E 0.8 %, creatinine 3.6 mg%, albumin 2.8 g%, globulin 4.5 g%. The present gastroscopy showed the old antral ulcer was still persistent and one living flat and long parasite that was later morphologically identified to be *D. latum* was accidentally found in the small intestine. The parasite was removed and the patient was treated with praziquantel. The antral ulcer in our patient had been persistent for three months despite the long term treatment with the proton pump inhibitor. It is wondered whether there is any association between the big parasite like *D. latum* and the ulcer of the part of the gastrointestinal tract where the parasite resides.

2. Keywords: Diphyllobothrium latum; Thailand

3. Introduction

Diphyllobothrium latum or fish tapeworm is a member of class Cestoda, phylum Platyhelminthes. It is the longest intestinal parasite of the human, 15 meter long or more and can survive 20 years after establishment[1]. It can be acquired by ingestion of raw or undercooked fish particularly salmon from lake or stream. Besides the human, other definitive hosts include mammals that ingest fish such as a dog, bear, cat, marine mammals, and piscivorous birds. and it needs a small fresh water fish and crustacean as an intermediate host [2]. Actually its endemic areas are Scandinavian and Baltic countries, Siberia, Japan, Chile, Switzerland, Korea[3,4] and North America. Most patients who harbor this parasite are usually asymptomatic which may be accidentally found at endoscopy for other diseases[5], only 25 % may have diarrhea, light or transient abdominal pain or discomfort and spontaneous discharge of tapeworm segment in the feces[6,7] and rare cases may have subacute appendicitis-like, intestinal obstruction, megaloblastic anemia due to vitamin B12 deficiency if they have multiple parasites or

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prolonged infestation[8].

Although *D.* latum is estimated to affect 20 million people worldwide[9], it has never been found among Thai people. Herein we reported one case of *D.* latuminfestation accidentally found during gastroscopy in a man that is supposedly the first case of Thailand [10].

4. Case Presentation

A 60-year-old Thai man complained of passing melena for two days with mild abdominal discomfort, no hematemesis. He also noticed abdominal distension. His underlying diseases included the end stage renal disease undergoing the regular hemodialysis for nine months, type 2 diabetes mellitus, hypertension well controlled with medications and anemia. Three months before this admission, he suffered from chronic abdominal discomfort and his gastroscopy revealed one 3-cm gastric ulcer at the antrum. He was fully treated with the proton pump inhibitor since then.

His present physical examination showed marked pallor, abdominal distension with positive shifting dullness, no epigastric mass. His blood tests showed hemoglobin 6.0 g%, WBC 7,200/mm3, neutrophil 83 %, lymphocyte 12 %, monocyte 4 %, eosinophil 0.8 %, platelet 156,000/mm_3 , FBS 156 mg%, Hb A1c 7.3 %, cholesterol 215 mg%, BUN 20.0 mg%, creatinine 3.6 mg%, albumin 2.8 g%, globulin 4.5 g%, AST 15 U/L, ALT 6 U/L, alkaline phosphatase 99 U/L, total bilirubin 0.3 mg%, direct bilirubin 0.2 mg%, HBsAg, anti-HCV, and HIV antigen / antibody -negative.

The gastroscopy showed the old antral ulcer was persistent and one flat and long living parasite that was later parasitologically identified to be *Diphyllobothrium latum* was accidentally found in the small intestine as the **Figure 1.** The parasite was successfully removed.The antral ulcer was biopsied and its microscopic pathology was shown to be chronic non specific gastritis . The stool examination showed only red and white blood cells, no parasite.

The diagnosis was mainly antral ulcer with Diphyllobrothrium latum infestation, with multiple underlying diseases: end stage renal disease, diabetes, hypertension and anemia. He was promptly treated with blood transfusion, proton pump inhibitor, praziquantel and other supportive treatments.

He underwent regular hemodialysis during follow-up for a few weeksafter discharge but finally lost follow-up. The blood test and stool examination could not be repeated.

Fgure 1: fish tapeworm in the small intestine.

5. Discussion

Diphyllobothrium latum in our patient was incidentally found during gastroscopy for finding the cause of upper gastrointestinal hemorrhage[5]. The abdominal discomfort for many months in our case was presumably responsible by the gastric ulcer at the antrum because most patients who harbor *D.* latumare usually asymptomatic or may have non-specific abdominal symptoms such as recurrent abdominal pain, discomfort, or passing melena.

Although genus Diphyllobothrium comprises 14 species that are capable of causing diphyllobothriosis, our case was presumed to harbor *D. latum* because it is the most prominent and most pathogenic for human. However it needs to be verified by molecular method[11] because around 40 cases of morphologically identified *D. latum* infestation in Korea were later molecularly proved to be L. nihonkaiense[12].

The eosinophil count in our case was 0.8 % or 57.6 cell/ mm_3 that was not prominent despite the existence of *D. latum* infestation. As other intraluminal parasites, *D. latum* did not induce apparently eosinophilia if there was no concurrent hidden tissue parasite [13]. Or it should be concluded that normal eosinophil count could not preclude the existence of *D.* latum.

Praziquantel 10-25 mg/kg given as a single dose is found effective for the treatment of *D.* latum[1]. There has never been failure. The stool examination would be expected negative for parasite within one month after treatment[14].

Infection of *D.* latum is found to induce the degranulation of the mast cell and eosinophil leading to the releasing of the inflammatory cytokines and subsequently local gastrointestinal damage and motility[15]. This

pathogenesis may affect the healing process of the ulcer of the part of the gastrointestinal tract where the parasite resides.

D. latum infestation should be realized as the newly emerging disease in formerly non-endemic areas including Thailand because eating raw or undercooked fish from non-tropical areas as served in sushi and sashimi in Japanese restaurant or grocery is widely more popular especially among the young generation in the era of globalization[16-18]. To avoid this parasite, fish should be kept deeply frozen at −10°C for 24–48 hours or brine-treated with 12 % NaCl[19] or warmed at 55 degree Celsius for 5 minutes[20], the fish will be safe for consumption. If the fish are merely chilled not frozen, the plerocercoids of the diphyllobothriids may survive for several days[11].

6. Conclusion

Diphyllobothrium latum infestation was accidentally found in the small intestine during gastroscopy in a 60-year-old Thai man who presented with gastrointestinal discomfort and melena for a few days.
He was presumably the first case of D. latuminfestation in Thailand.

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