

Case Report: Anisakiasis Causing Acute Dysentery in Malaysia

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Abstract. Human anisakiasis is a zoonosis acquired by eating raw or undercooked infected seafood. Herein, we report a case of acute dysentery caused by anisakiasis in a 64-year-old man in Malaysia. A colonoscopy was performed and a nematode larva was found penetrating the mucosa of the ascending colon. Bleeding was observed at the site of penetration. Y-shaped lateral epidermal cords were seen from the cross section of the worm, which is a prominent feature of *Anisakis* larva. Molecular analysis using polymerase chain reaction of cytochrome oxidase 2 (*cox2*) gene confirmed the specimen to be larva of *Anisakis simplex*.

INTRODUCTION

Anisakiasis is a zoonosis caused by the nematode belonging to the *Anisakis* genus.¹ Two most common species to cause infection in humans are *Anisakis simplex* and *Anisakis pegreffii*.² This parasite undergoes a complex life cycle that requires multiple hosts. In brief, the adult nematode that resides in the stomach of marine mammals lays unembryonated eggs which are shed through the host's feces. In water, the eggs become embryonated and the larvae mature into the second stage (L2). The free-swimming L2 larvae hatch and are consumed by crustaceans, where they develop into L3 larvae. When fish, squid, clams, or eels ingest the infected crustaceans, the larvae migrate to the new host's muscle tissues. Humans acquire the infection by eating raw or undercooked infected marine fish, squid, clams, or eels.^{3–5}

After ingestion of the L3 larvae, humans can exhibit gastric, intestinal, extraintestinal, or allergic symptoms.^{3,4,6–8} Patients may present with epigastric pain, nausea, vomiting, symptoms of bowel obstruction, acute abdomen, or symptoms of allergic reaction such as urticaria, and angioedema.^{3,4,9} These manifestations are predominantly caused by the attachment, embedment, or penetration of the L3 larvae into the gastric and intestinal mucosa.¹⁰ The time to the onset of symptoms after ingestion of raw or undercooked infected marine animals vary from a few hours to several weeks.^{3,10}

The larva cannot survive in humans and dies within a few weeks. Humans are an accidental host and larva cannot develop into adult in human tissue. Salting of marine fish does not kill the parasites. The parasites are killed if the fish is frozen at -20°C for a few days or cooking at 60°C .

Although anisakiasis cases were reported mainly in Japan in the past, this condition has now been diagnosed in many countries where eating of raw or undercooked seafood such as sushi and sashimi has become a trend. In Malaysia, with the burgeoning of Japanese restaurants, anisakiasis should be suspected in patients who give a history of ingesting raw or undercooked seafood and presenting with acute gastrointestinal symptoms.

CASE REPORT

A 64-year-old man presented to a private hospital complaining of abdominal discomfort and passing stool with fresh blood in it. The day before presentation, the patient had brought an empurau fish (*Tor tambroides*) from Sarawak, Malaysian Borneo, to be cooked for dinner at a restaurant in Kuala Lumpur. In less than 30 minutes after ingesting the fish, he developed abdominal discomfort and passed out stool mixed with fresh blood twice. He also admitted to have eaten sushi 2 days before. The patient had a history of ischemic heart disease diagnosed a few years ago, and was started on clopidogrel, an antiplatelet drug.

On examination, the patient was afebrile, had a blood pressure of 124/88 mmHg and a pulse rate of 82 beats per minute. Abdominal examination was unremarkable with no tenderness or guarding upon palpation. Blood test showed hemoglobin of 10.1 g/dL, total white cell count of 4.3 k/ μL (neutrophils 47%, lymphocytes 40%, monocytes 9%, eosinophils 3%, and basophils 1%), platelet count of 162 k/ μL , and erythrocyte sedimentation rate of 7 mm/hour. A colonoscopy was performed on the patient on the same day. A worm was observed burrowing into the mucosa of the ascending colon (Figure 1). There was blood oozing from the penetration site with blood clots forming around the worm. The whole worm was pulled out and sent to Parasite Southeast Asia Diagnostic (Para:SEAD) Laboratory, Department of Parasitology, Faculty of Medicine, University of Malaya, for identification. The specimen was examined under a stereomicroscope, and it showed a nematode larva measuring approximately 25 mm long, off-white in color, and moving actively (Figure 2). Histological examination of the cross sections of the worm showed the characteristic Y-shaped lateral epidermal cords which is diagnostic of *Anisakis* (Figure 3).

For species-specific identification, the worm was therefore subjected to polymerase chain reaction targeting the mitochondrial cytochrome oxidase 2 (*cox2*) gene as described previously with minor modification.¹¹ In brief, the larva was ground with a sterile pestle using mechanical vortex and the homogenate was then incubated overnight with proteinase K followed by genomic DNA extraction using a commercial kit. DNA amplification was performed and the positive amplicon was subjected to DNA sequencing. Homology search using the National Center for Biotechnology Information (NCBI) reference sequences with the Basic Local Alignment Search Tool confirmed the worm species as *A. simplex*. The sequence

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