

GNATHOSTOMA LARVA MIGRANS AMONG GUESTS OF A NEW YEAR PARTY

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Abstract. An outbreak of *Gnathostoma larva migrans* occurred among guests of a New Year's party in Chachoengsao, Thailand. Nine people who consumed a raw fish dish called 'Hu-sae' contracted the disease. Five of them developed gastro-intestinal symptoms consisting of nausea, vomiting, abdominal cramps and diarrhea as early as within the first 24 hours, while in the other four, symptoms started on the following day. After the initial symptoms pertaining to the gut, malaise, chest discomfort, cough, myalgia, weakness, itching and migratory swellings were experienced. Eosinophilia was demonstrated in every patient with a mean (\pm SE) count of $5,516 \pm 1,010$ cells/cu mm. Detection of antibody against aqueous extracts of *G. spinigerum* adult antigen using an enzyme-linked immunosorbent assay showed a titer of 1:1,600 or greater in every patient except one who had a titer of 1:400 (positive \geq 1:400). This outbreak illustrates the high attack rate when heavily infected fish are consumed.

INTRODUCTION

Gnathostomiasis in man is a disease caused by migration of larvae or young adults of *Gnathostoma spinigerum* through various tissues producing cellular reaction and mechanical injury. Man contracts the disease by consuming uncooked or poorly cooked fresh-water fish, bird, frogs, snakes and other intermediate hosts containing *Gnathostoma* larvae.

The disease is characterized systematically by eosinophilia and locally by a variety of manifestations, eg, migratory swelling of the cutaneous tissue and inflammation of various visceral organs. There have been many reports about the migration of this worm in the eye (Daengsvang, 1980; Rhithibaed *et al*, 1937), lung and pleura (Prityanonda *et al*, 1955), urinary tract (Migasena *et al*, 1964; Nitidandhaprabhas *et al*, 1975), intestine (Kurathong *et al*, 1979; Srikulchayanonta and Chongchitnant, 1979) and central nervous system (Choudhury, 1970; Punyagupta *et al*, 1968; Chitanondh and Rosen, 1967). Fatal cases were also reported (Choudhury, 1970; Punyagupta *et al*, 1968; Chitanondh and Rosen, 1967).

Gnathostomiasis is endemic in many Asian countries including Thailand. The prevalence in Bangkok was estimated to be 0.4% (Suntharasamai, 1987) and usually occurs sporadically and rarely

in the form of an outbreak. Thus, we report an outbreak of *Gnathostoma larva migrans* which occurred among guests at a New Year's party.

CASE REPORT

An outbreak of *Gnathostoma larva migrans* occurred among guests at a New Year's party in Chachoengsao Province in eastern Thailand. Nine people who consumed a raw fish dish called "Hu-sae" contracted the disease. "Hu sae" is a special Chinese dish prepared from raw fresh fish. The fish eaten was obtained from the Tha Chin river in the neighboring province. Five out of the nine patients developed gastrointestinal symptoms as early as within 24 hours after the party. The symptoms consisted of nausea, vomiting, abdominal cramps and diarrhea. The other four cases developed similar symptoms on the following day. After initial symptoms pertaining to the gut, malaise, chest discomfort, cough, myalgia, weakness, itching and migratory swelling of the skin were experienced. Sites of the initial swelling reported by the patients were cheek, shoulder, epigastrium and thigh. The direction of migratory swelling were shown in the diagram below:

cheek —————> epigastrium
cheek —————> gum —————> epigastrium
left shoulder —————> right shoulder —————> left axilla

epigastrium → hypogastrium → groin → right leg
 epigastrium → right hypochondrium
 right thigh → left thigh → left leg

Complete blood counts were obtained; eosinophilia was demonstrated in all of them (Table 1) with a mean ± SE of 5,516 ± 1,010 cells/ul. Other laboratory investigations (urine analysis, liver function tests, creatinine, BUN and blood glucose) were within normal limits. Stool examination for ova and parasite and stool culture were done in all patients; all except one who had giardiasis, yielded negative results.

IgG antibody titers were measured by ELISA using *Gnathostoma* adult antigen (Desakorn *et al*, 1990). All except one had a titer of > 1:1,600 2: a titer of 1:400 or above is indicative of infection (Desakorn *et al*, 1990).

All patients were treated with albendazole 400 mg twice a day, orally for 10 days. Six out of nine developed a rash within 10 days of taking the drug; two out of the nine still complained of symptoms after treatment.

DISCUSSION

The high attack rate among the guests who consumed "Hu sae" suggested that the fish flesh was highly infected. The symptoms and signs of the patients who suffering from gnathostomiasis depended upon the migration of the worm, and

ranged from symptoms pertaining to the gut only to cutaneous symptoms of creeping eruption or migratory swelling. Few patients also presented with the typical symptoms of abdominopulmonary hypereosinophilic syndrome or larval gnathostomiasis (Punyagupta, 1967). This syndrome is characterized by fever, abdominal pain, cough, weakness, myalgia and eosinophilia. The cutaneous manifestations of gnathostomiasis in the form of creeping eruption are usually rare (Miyasaki, 1960; Pinkus *et al*, 1981; Bhaibulya and Charoenlarp, 1983) but here 3 out of 9 experienced superficial cutaneous manifestations.

All patients except one showed IgG antibody titers of > 1:1,600. The case with an IgG antibody titer of 1:400 presented only the symptoms of malaise, myalgia and a 3 day long diarrhea without a history of migratory swelling. Six out of 9 patients developed an urticarial rash after albendazole (Zentel) treatment, this side effect was never recorded before.

This report is presented to emphasize the high attack rate when heavily infected fish is consumed and stresses the importance of gnathostomiasis in the Thai population especially among those who consume uncooked meat.

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Table 1
 Total leukocyte counts (TLC) and percentage of eosinophils before and after treatment.

	Before	Days of treatment 14 days	28 days
TLC			
Mean	13,000	7,825	8,450
Range	10,100-18,400	5,300-10,800	8,100-8,800
Eosinophils %			
Mean	40	20	11
Range	6-57	10-30	3-13
Eosinophils/cu mm			
Mean	5,200	1,565	929.5
Range	276-10,488	650-3,240	704-1,053

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