

Gnathostomiasis without Eosinophilia Led to a 5-Year Delay in Diagnosis

To the Editor:

Eosinophilia in travelers returning from the Tropics is widely used as a screening tool for the presence of possible helminthic infections. However, no prospective studies exist that determine the exact frequency and causes of eosinophilia in this heterogeneous population. Much less is known about the frequency of helminthic diseases, without eosinophilia. We report the case of a woman with gnathostomiasis after returning from Thailand. She had no eosinophilia, which caused a 5-year delay in diagnosis.

A 37-year-old Caucasian woman presented at our outpatient clinic with a 5-year history of low fever, malaise, and intermittent episodes of discrete, migratory, subcutaneous swellings on her right arm, chest, and face that lasted for several days. Before 1995, she had frequently traveled to Southeast Asia where she had consumed traditional food. During 5 years, she underwent many medical assessments and two hospital stays. Laboratory analyses showed normal counts of leukocytes and eosinophils and normal immunoglobulin (IgE) levels. No organ dysfunction was present. No signs for viral, bacterial, and protozoal infections or autoimmune disorders were detected. Imaging of head, chest, and abdomen were normal. She received one biopsy when a swelling on her chest was removed in 1998. Histology revealed hematoma. Because the migratory swellings reported by the patient were often neither seen nor believed by the physicians, a psychosomatic disorder or an artifact syndrome was suspected. When presenting at our clinic, the patient's symptoms and her travel history, including consumption of raw fish, were highly suggestive of gnathostomiasis. Our diagnosis was confirmed by a specific enzyme-linked immunosorbent assays, using crude extract of larvae of *Gnathostoma spinigerum* from Thailand. Serology was positive at 1:387 (cut-off 0:713; positive control 1:043, cut-off 0:499; in-house test, provided by Professor K. Janitschke, Robert-Koch-Institute, Berlin, Germany). Cross reactions with *Toxocara canis* and *Paragonimus westermani* were ruled out. There is no proven effective chemotherapy. Our experimental therapeutic approach with albendazole 400 mg every 8 hours and ivermectin 6 mg every 8 hours for 7 days was unsuccessful. The patient declined further therapy. On reexamination 1 year later, the patient reported persistent but much less frequent symptoms of migratory swellings.

Gnathostomiasis is a helminthic infection endemic in Southeast Asia and Latin America, characteristically manifesting as intermittent, migratory, subcutaneous swellings. It is acquired through ingestion of raw or insufficiently cooked fish, poultry, or pork.^{1,2} The usually mild symptoms are caused by migration of *Gnathostoma* larvae in subcutaneous tissue and can persist for up to

10 to 12 years.³ With time, episodes tend to become less frequent, less intense, and of shorter duration. About 70% of the patients in gnathostomiasis show marked eosinophilia often exceeding 50% of the total white blood count.^{1,2,4,5} Differential diagnosis includes cutaneous larva migrans, paragonimiasis, sparganosis, strongyloidiasis, and myiasis. There is no proven effective treatment for gnathostomiasis other than surgical removal of the worm, which often is not possible.

In times of extensive global travel, physicians often are faced with patients from areas where helminthic infections are prevalent. As a screening test for parasites, eosinophilia is frequently used but has never been fully evaluated with respect to sensitivity and specificity in a randomized prospective study.⁴⁻⁶ Eosinophil count varies widely with the burden, distribution, maturation, and migration of the parasite, within the host and therefore can also be normal.^{4,6} Our patient had no eosinophilia but presented the characteristic symptoms of gnathostomiasis after having traveled to Southeast Asia. Her normal eosinophil count and the lack of generating an appropriate differential diagnosis led to a 5-year delay in diagnosis. Therefore, the absence of eosinophilia is of limited utility to exclude helminthic infections. For the diagnosis, exposure history and clinical symptoms are more important.

Hortense Slevogt, MD

Department of Medicine (Infectious Diseases),
Charite, Humboldt-University,
Berlin, Germany

Martin P. Grobusch, MD

Department of Parasitology, Institute of Tropical Medicine,
Eberhard Karls University,
Tuebingen, Germany

Norbert Suttrop, MD

Department of Medicine (Infectious Diseases),
Charite, Humboldt-University,
Berlin, Germany.

References

1. Rusnak JM, Lucey DR. Clinical gnathostomiasis: case report and review of the English-language literature. *Clin Infect Dis* 1993; 16:33-50.
2. Diaz Camacho SP, Zazueta Ramos M, Ponce Torrecillas E. Clinical manifestations and immunodiagnosis of gnathostomiasis in Culiacan, Mexico. *Am J Trop Med Hyg* 1998; 59:908-915.
3. *Gnathostoma spinigerum* Owen, 1836. In: Daengsvang S. A monograph on the genus *Gnathostoma* and gnathostomiasis in Thailand. Tokyo, Japan: Southeast Asian Medical Information Center, 1980: 4-49.
4. Leder K, Weller PF. Eosinophilia and helminthic infections. *Bailliere Clin Haem* 2000; 13:301-317.
5. Schulte C, Krebs B, Jelinek T, et al. Diagnostic significance of blood eosinophilia in returning travellers. *Clin Infect Dis* 2002; 34:407-411.
6. Mawhorter SD. Eosinophilia caused by parasites. *Pediatr Ann* 1994; 23:9-13.