GNATHOSTOMIASIS OF THE ANTERIOR CHAMBER

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Abstract

Ocular involvement with *Gnathostoma spinigerum* occurs years after the initial infection that is acquired by ingestion of poorly cooked, pickled seafood or water contaminated with third stage larvae. Here we report a case of gnathostomiasis of the left eye of a 32-year-old lady hailing from Meghalaya, India. Her vision had deteriorated to hand movement. Slit lamp examination revealed a live, actively motile worm in the anterior chamber, which was extracted by supra temporal limbal incision and visual acuity was restored.

Key words: Anterior chamber, Gnathostoma spinigerum, live worm

Gnathostomes are spiruroid nematodes that are natural parasites of domestic and wild animals. Gnathostomiasis is a rare zoonotic infection of humans where man is the paratenic host. The infective form is the third stage larva (L3), which is responsible for larva migrans syndrome that causes cutaneous, cerebrospinal and ocular lesions. The single most important species reported from Asia is *Gnathostoma spinigerum*. Infection is acquired by ingestion of poorly cooked or pickled seafood or water contaminated with L3 larva. The larvae then migrate to the superficial tissues from the digestive tract and cause systemic manifestations that include migratory cutaneous swelling and eosinophilic meningoencephalitis. Ocular involvement may occur years after the initial infection.

People in the hills are known to consume a variety of animal meat and therefore the chances of acquiring infection are greater. Here we report a case of ocular gnathostomiasis where L3 larva was present in the anterior chamber of the left eye of a lady hailing from Meghalaya, one of the hilly states of northeast India. This, we believe is the first reported case from this part of the country.

Case Report

A 32-year-old lady attended the outpatient department of the Regional Institute of Ophthalmology, Gauhati Medical College, Guwahati, with complaints of severe lacrimation, photophobia and pain and redness of the left eye with vision of hand movement for one month. Her right eye was normal. The symptoms were insidious in onset and progressive in nature. Prior to the symptoms in the eye, the lady experienced a swelling on the left side of the abdomen, which was non-tender and subsided on its own in two days. Thereafter, she had a swelling on her face, which too was on the left side.

The patient was a housewife, a non-vegetarian, used water from municipal supply and had no pet animals. She was of medium built; there was no pallor, edema or organomegaly. No swelling could be found in any part of the body. Examination of the eye revealed a congested and watery left eye. On slit lamp examination a live worm of about 3-4 mm length with cuticle was seen to be moving freely in the anterior chamber with multiple pits in the iris (Fig. 1). The conjunctival fornices and the cornea were normal. Flare in the anterior chamber and sluggish pupillary reaction was noted in the left eye. Fundoscopic examination and ocular movements of both the eyes were normal.

Total and differential WBC count was within normal limits with eosinophils 5% and absolute eosinophil count 123 / µL. C - reactive protein was raised to 2.4 mg/dL. Both thick and thin peripheral blood films were negative for any microfilaria in the nocturnal and diurnal blood samples. No ova or eggs were found in the stool for three consecutive days. Ultrasonography of the left orbit revealed no suggestive finding. CT scan brain was also normal.

A live, actively motile worm was extracted by supratemporal limbal incision and sent to the Microbiology Department for identification. Macroscopically, the worm was a short and stout reddish brown, cylindrical structure measuring 3.5 mm in length (Fig. 2). The anterior end revealed the head bulb (Fig. 3) that possessed four circumferential rows of hooklets (Fig. 4) and the entire body was covered with fine cuticular spines. Two of the three lips could be clearly seen in the head bulb. The posterior end was rounded (Fig. 5). Two
Discussion

Intraocular infestation by live *Gnathostoma spinigerum* is a rare occurrence. The worm was first described in 1836 by Richard Owen in a stomach nodule of a tiger. The first human infection was described by Levinsen in 1890 in a breast abscess of a woman living in Siam. The first human case of intraocular gnathostomiasis was reported in Thailand. Several cases of ocular gnathostomiasis have been reported thereafter from various parts of the world. *Gnathostoma* has also been reported to be extracted from the cervix, the abdominal skin, and also been coughed out from the pharynx.

The infection is more common in women, perhaps owing to transmission via skin penetration during food preparation or from contaminated water containing infected copepods. The food preparation practices of people from the hills mostly involves eating of raw or half cooked meat, pickled fish etc. which could also be the source of infection.

The infection in our patient may have been acquired by 400 mg daily for 21 days along with tapering dose of oral prednisolone.
eating infected fish or drinking contaminated municipal water. Swelling on the left side of the abdomen, face and multiple fenestrations in the iris could be due to migrating larva. In our case, the eosinophil count was found to be only 5%, which is similar to the findings of previous authors. The unusually low eosinophil count could be due to the fact that the parasite was in the anterior chamber, which is avascular and hence shows lesser cellular response.

Prevention depends on avoidance of raw or inadequate cooking of food like fresh water fish, snails, pork etc. Proper sewage disposal and treatment of drinking water may prevent the spread in the community.

Gnathostoma is a cause of larva migrans and perhaps fatal eosinophilic myeloencephalitis. Failure to remove the worm may lead to cerebrovascular accidents if the parasite migrates to the central nervous system. No anti parasitic drugs are available to treat ocular involvement and therapeutic success depends on early and complete surgical removal, which could also be life-saving.

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