



Case Report

Gnathostomiasis-A Rare Nematode Infection

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Abstract

Gnathostoma, primarily an animal nematode, is rusty in colour, 2-3 cm long in adult stage, can infect man by their larval form. Human infection occurs by the third stage larva by consumption of undercooked or raw fish, poultry, or pork and rarely by skin penetration. In Bangladesh gnathostomiasis is not reported. But recently a female of 38 year of age of the northern district, Rangpur has got infected with a species of *Gnathostoma*, manifested by the appearance of the larva in anterior chamber of her right eye. The larva was removed from her eye surgically in living state and the patient was cured.

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Introduction

Cases of gnathostomiasis have been diagnosed in many countries in Southeast Asia, certain countries of South America, and parts of Mexico. Among all four species of human infection of *Gnathostoma*, *G. spinigerum* is the best-understood species. Its definitive host is dogs, cats, tiger, lions etc. These animals harbour adult worms in their stomach wall and eggs are released in the faeces. Cyclops, in fresh water (1st intermediate host) in gest these ova and the larva develops up to early third stage form. Cyclops are eaten by fish (2nd intermediate host) or directly by definitive host. A wide variety of animals, including fish, bird and mammals serve as second intermediate host to *Gnathostoma*. The worms lodge in the gastric wall of definitive host but in second intermediate host fish, poultry and human, they such as lodge into other tissue and don't develop to their adult forms. Human can acquire larval by ingestion of definitive host (not common), second or first intermediate hosts. Since humans are "dead-end-hosts", the larval are unable to mature into adult form, thus they migrate throughout the body and can survive up to 10 years and encysted in any tissue.

Individuals infected with gnathostomiasis can develop symptoms as soon as 24 hours after ingestion of worm. Symptoms include malaise, fever, urticaria, vomiting, diarrhea, and epigastric pain. Cases of gnathostomiasis have been observed in the lung, eye, face, genitourinary tract, GIT, auditory and CNS. Cutaneous gnathostomiasis is often diagnosed by the presence of migratory oedema or creeping eruptions. Oedema, localized swelling and skin abscesses are the more common indicators.

Visceral gnathostomiasis can take many and the parasites can be found in eye (intraocular), GI tract, lung, ear, nose CNS etc. Repetition defective Migratory sub cutaneous nodules are common with visceral gnathostomiasis involving CNS. Although it is not understood how *Gnathostoma* are able to enter the eye, they have been known to cause damage the sensory apparatus of the retina, leading to irreversible blindness.

Clinical presentation is the key to recognize gnathostomiasis. Migratory oedema or creeping eruption is visual sign of the presence of parasite. History of consumption of related food or

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traveling to endemic area can provide key information. A wide array of serological tests-precipitation, indirect fluorescent antibody, indirect agglutination and ELISA has been used for the detection of antibody against the parasite. Albendazole (400 mg twice daily for 21 days) and ivermectin (200µg/kg body wt for 1-2 days) have been shown to be effective against gnathostomiasis but the treatment of choice is often surgical removal of the parasite.

Case Record

A 38 years old female patient of Rangpur, a northern district of Bangladesh presented with defective vision, recurrent pain and redness of her right eye for the last 2 months. On examination her visual acuity was 6/60 in the affected eye, while it 6/6 was in her left eye.

On slit lamp examination, surprisingly a motile worm about 1 cm. in length, seen in the anterior chamber not was/right eye. With application of topical oxybuprocain, (0.40%) attempt was taken to paralyze the worm but failed. Then was started medical treatment of uveitis when worm was surgically removed from the anterior chamber by limbal incision and application of viscoelastic substance.

The worm was collected in vial containing distilled water. The worm was live and its motility was like a maggot. At first the identity of the worm was not clear. But when it was magnified and photomicrography taken reveals details morphology if the worm to be consistent with the larval stage of *Gnathostoma* species.

The larva is covered with fine spine like scales all over the body. The cephalic bulb is globular and covered with four circular rows of spines. The head is separated from body by a narrow neck. The long esophagus is continuous with the alimentary canal.

The Patient does not give history of taking such food but eating half-boiled egg is not uncommon in this area. Rare cases have shown that the third stage larval worm can enter the host by skin penetration. However, the route of transmission in

this case could not be assumed. On follow-up for two months the women was all right and her visual acuity returned to 6/9 within this period.



Fig: Larva of *Gnathostoma*

Discussion

So far we know, except this present case, no case of gnathostomiasis has been reported in Bangladesh. But it does not mean that infection of *Gnathostoma* is not here. Presence of gnathostoma larva in blood is not documented, unlike microfilaria, which is very common in this zone of the country. So it is difficult to isolate the larva from tissue but it could be easily visualized when ocular involvement present. Ocular involvement may represent the tip of the iceberg of the prevalence of the disease. So Awareness should be created among the health personal about the parasite to diagnose the infection earlier and thus to avoid serious complications due to involvement of internal organs like CNS, eye of auditory area by the parasite.

References

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