



BMH Medical Journal 2016;3(1):10-14 **Case Report**

Sparganosis - Not uncommon in Calicut, Kerala

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Abstract

Sparganosis is a zoonotic larval cestode infection, rarely reported from India. We report 4 cases of subcutaneous Sparganosis from Calicut between Oct 2010- Jan 2015.

Key Words: Sparganum, Spirometra Sp, Larva migrans

Introduction

Sparganosis is an infection by the plerocercoid larvae of various diphylobothroid tapeworms belonging to the genus *Spirometra*. It is similar in morphology and life cycle to the fish tapeworm, *Diphylobothrium latum*. Sparganosis is reported sporadically around the world; a higher prevalence of the disease occurs in several East Asian countries. Only few cases have been reported from India.

Life cycle

The adult *Spirometra* live in the small intestine of the definitive host - a dog, cat, raccoon, or other mammal where they produce many eggs. The unembryonated eggs are excreted in the feces and hatch when they reach fresh water. The eggs are eaten by copepods (crustaceans of the genus *Cyclops*) which are the first intermediate hosts. In the copepods, the eggs develop into *proceroid larvae* that live in the body cavity. The second intermediate hosts include fish, reptiles, amphibians, birds and mammals that consume the copepods. Snakes, tadpoles and frogs are the common vectors for sparganum.

The larvae penetrate the intestinal tract of the second intermediate host, where they become *plerocercoid larvae (sparganum)* and proliferate to the subcutaneous tissues and muscles. The second intermediate host is eventually eaten by a definitive host predator, such as a dog, and the cycle begins again. Humans are accidental hosts in the cycle, becoming infected with the plerocercoid larvae by contact with or ingestion of the first or second intermediate hosts. The larvae migrate to the subcutaneous tissues in humans; however, no development takes place and the human is not capable of transmitting the disease.

Sparganum infection occurs by three major routes:

1. Infection is acquired by drinking water contaminated with copepods infected with the proceroid larval stage of the parasite.
2. Infection may occur through ingestion of undercooked meat that is infected with the plerocercoids. In some areas, snakes or tadpoles are consumed raw for medicinal purposes
3. Human infection may also be caused by the practice of placing poultices of frog or snake flesh on open wounds or other lesions, or the eyes, where the plerocercoid larva may directly penetrate the tissues. This practice was common in many East Asian countries.

Clinical Presentation

The clinical manifestations of sparganosis depend on which organs or tissues are involved. Subcutaneous tissues are most likely to be infected by the parasite. The larval worms usually grow into irregular nodules (1 to 2 cm in diameter) and surrounding tissues becoming oedematous and painful. These nodules may persist for months or even years without any symptoms then suddenly become painful. Some patients complain of migratory nodules that come and go for many years.

Sparganosis of visceral organs including the eyes, brain, urinary tract, pleura, pericardium, and spinal canal are reported. Sparganosis can cause intestinal obstruction, and the parasite has been recovered from the wall of the intestine, the breast, the scrotum, the epididymis, ureter, urinary bladder, abdominal cavity, heart, and lung [1-7].

Case Reports

All these 4 patients attended the surgical OPD of Red Crescent Hospital Calicut with c/o painful/itchy migratory swellings, where the surgeon removed live worms which were sent to BMH Microbiology Department for identification (**Table 1**).

Case 1	Oct 2010	35 F	Migratory, painful abdominal wall swelling	0.5 cm Pale cream, flat
Case 2	Nov 2012	38 F	Itchy, painful swelling left calf	1.5 cm, white flat
Case 3	May 2013	30 F	Itchy swelling left femoral triangle	3 cm White, flat
Case 4	Jan 2015	32 F	Painful, itchy swelling on medial aspect of middle of right thigh	2.5 cm White, flat

Table 1: Details of cases of Sparganosis

These four patients had no history of eating / contact with flesh of intermediate hosts. The most likely mode of infection in these patients is by swallowing cyclops in the water, as all these four women gave the history of using river/ lake for bathing and washing clothes. Removal of the larval worm was curative in all the patients.

Diagnosis

Morphological diagnosis was done. The sparganum larvae are white, ribbon-shaped, with a wrinkled surface. They range from a few millimeters in length to several centimeters. The anterior end can invaginate and bears suggestions of the sucking grooves that are present in the scolex of the mature worm. Section of the larva shows a flat body with both longitudinal and horizontal muscle bundles

giving a checker board appearance. The first specimen was sent to the Parasitology department, PGI Chandigarh for confirmation.



Figure 1: Morphology of the Spargana

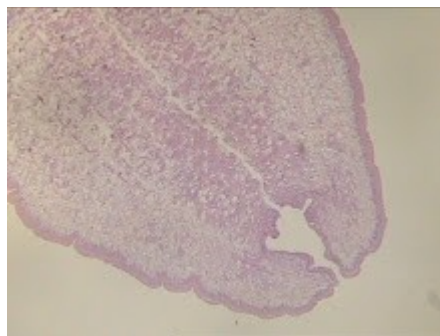


Figure 2: Histopathology section of sparganum - anterior end

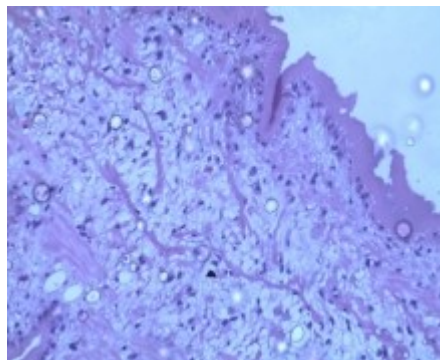


Figure 3: Histopathology section of sparganum - body

Discussion

Sparganosis is reported sporadically around the world; a higher prevalence of the disease occurs in several Eastern and South Eastern Asian countries. There are several case reports from Japan, Korea, China and Thailand. Most cases of human infections in these countries were mainly acquired by eating raw or insufficiently cooked meat of frogs and snakes or by placing frog or snake flesh on open wounds for skin ulcers or on eyes to treat inflammation [8-13]. There are reported cases of cerebral [14,15], ocular [16,17,18], renal [19], hepatic [20] and subcutaneous sparganosis [21] from different parts of India also. Surgery has been the treatment of choice in all these cases. Visceral larva migrans due to this parasite has high morbidity and considerable mortality.

Diagnosis of four cases of subcutaneous sparganosis from the same hospital within a period of five

years is an indication of the common prevalence of the parasite *Spirometra* in the domestic/ wild animals in Calicut. Because sparganosis is a rare infection, public health strategies have not made its prevention a priority. Public health strategies focusing on providing basic access to clean water may help to reduce future sparganosis infections.

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