

SUBCUTANEOUS DIROFILARIASIS IN CHILDREN - AN EMERGING ZONOTIC NEMATODAL INFECTION: A CASE SERIES

Varghese Kuttiyil Oommen¹, Chandana Chandran¹, Maanasi Pranala², Vivek Sanker³, and Umang Gupta⁴

¹Believers Church Medical College Hospital

²Dr Somervell Memorial CSI Medical College and Hospital

³Noorul Islam Institute of Medical Science and Research Foundation Medicity

⁴Nepalgunj Medical College

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INTRODUCTION:

Human beings are often infected with species of filariasis which are naturally found in animals. Among these the commonly reported is due to dirofilaria species - *D repens* and *D imitis*. It is transmitted by mosquito bite. The review of literature revealed around 800 cases reported worldwide. Most of the pediatric cases reported in India are ocular dirofilariasis. Subcutaneous dirofilariasis cases are mostly reported in adult population. Here we present a series of four cases of subcutaneous dirofilariasis in children presenting as subcutaneous nodules.

CASE PRESENTATION:

Case 1:

A four and half year-old female child presented with a midline neck swelling of one month duration. There was no history of pain or itching. On examination, it was identified as a small subcutaneous nodule clinically suspected to be a sebaceous cyst. On further exploration, the swelling was 1x1 cm in the subcutaneous plane with a thread like worm approximately 12 cm in length, inside the swelling (Figure.1).

The swelling was excised completely and was sent for microbiological examination and was found to be *dirofilaria repens*. The child was discharged with oral amoxicillin and clavulanic acid. On follow up, the patient was asymptomatic and with no residual disease.



Figure 1: A thread-like worm approximately measuring 12cm obtained from the swelling

Case 2:

A two and half year-old male child presented to the outpatient department (OPD) with a history of swelling of the left hemi-scrotum of three months duration. He also complained of intermittent itching over the swelling. There was no history of fever or pain. On examination, there was a subcutaneous swelling approximately 1x1 cm, non-tender in the left hemi scrotum. Ultrasonogram study revealed a soft tissue swelling with thin tubular tortuous structure in the left scrotal wall: Worm (*Dirofilaria*)

The child was taken up for elective excision under general anesthesia. Per operatively, a cystic lesion 1 x1 cm adherent to the dartos fascia with live worm within was excised (Figure 2). The worm was sent for microbiological analysis and was found to be *Dirofilaria repens* (Figure 3). The child was post operatively asymptomatic and on follow up he had complete recovery.



Figure 2: Cystic lesion 1 x1 cm adherent to the dartos fascia



Figure 3: Microbiological analysis of the specimen found it to be *Dirofilaria repens*

Case 3

A two-year-old female child presented to the OPD with an incidentally noticed swelling over the right lower limb by her mother. There was no history of pain or trauma. On examination, a small 0.5 x 0.5 cm lesion over the shin of Right leg, non-tender and was mobile. Ultrasonography showed a subcutaneous lesion 7.8 x 4.3 x 7 mm in Right leg and was suggestive of a sebaceous cyst.

The child underwent elective excision under general anesthesia. A small 1 x 0.5 cm cystic lesion was excised and was sent for histopathological examination, which in-turn showed foreign body granuloma with deeper sections showing cross sections of dirofilaria worm (Figure 4). Post operative period was uneventful and she had a complete recovery.

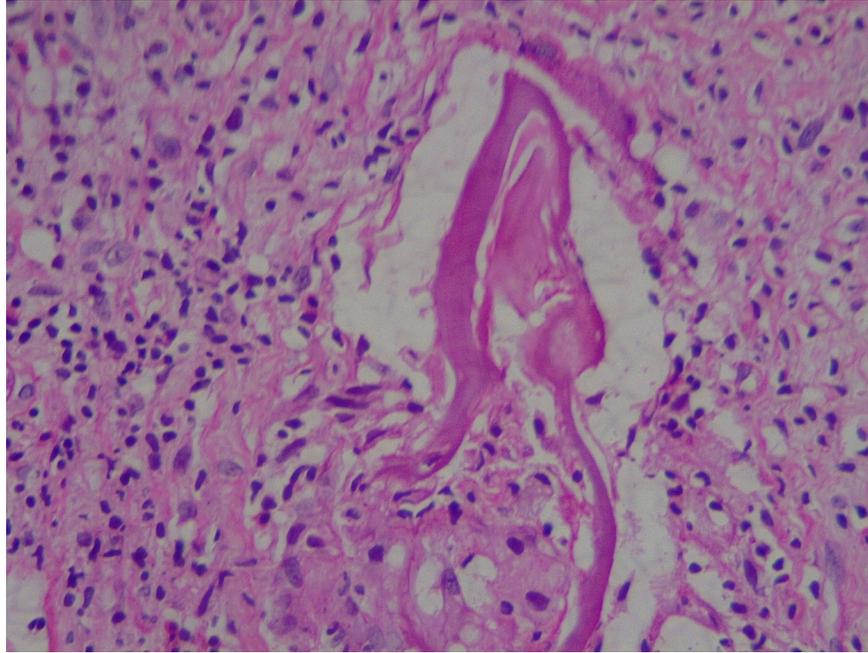


Figure 4: Histopathological examination showed foreign body granuloma with deeper sections showing cross sections of dirofilaria worm

Case 4

A three and half year-old male child came to the OPD with complaints of swelling on the anterior abdominal wall noticed 6 months back which recently showed an increase in size and was associated with itching over the lesion. On examination there was a 0.5 x 0.5 cm subcutaneous lesion in the epigastric region which was non tender. Ultrasonography revealed a worm in the subcutaneous cyst in the epigastrium (Figure 5).

Excision of the lesion was done, the cyst was sent for histopathological examination (HPE) which revealed a parasitic granuloma with few remnants of parasite, some calcified which is comparable with *Dirofilaria*. On follow up, child was doing well with no signs of infection.



Figure 5: Ultrasonography showing worm in the subcutaneous plane

DISCUSSION:

Human *Dirofilariasis* is an emerging zoonotic infection. *Dirofilaria* commonly presents with ocular and subcutaneous involvement followed by pulmonary manifestations. It was first described in 1885, after that approximately 1782 cases of human *dirofilariasis* have been reported [1]. However, the reported cases maybe lesser due to underreporting of unnoticed

subcutaneous nodules and asymptomatic fibrosis.

The initial cases of human ocular *dirofilariasis* infection in India were reported from south India (Kerala) in 1976 and 1978 [4,5]. This region of India is considered endemic for *dirofilariasis* due to its climatic conditions and the presence of vectors.

Subcutaneous *Dirofilariasis* which is caused by adult and pre adult *Dirofilaria repens* worm presents as subcutaneous nodules, which are either migratory or non-migratory. It grows gradually over a period of weeks to months. Histological examination reveals four types of nodules with diverse contents and characteristics [2]. Although the highest incidence of subcutaneous cases occurs in individuals of age 40 -49 years, infections can occur in patients of all ages, mostly in Sri Lanka where 33.6% of reported infections have occurred in children under the age of ten years.

The Definitive diagnosis of human subcutaneous *dirofilariasis* can be made after surgical excision on biopsy. Blood eosinophilia or elevated serum IgE levels are rarely observed [3]. In sub cutaneous nodules, high resolution ultra sound imaging is helpful for spotting parasite migration. Surgical Excision is both diagnostic and therapeutic. Anti-helminthic medications like ivermectin may assist to halt the parasite's migration, while their benefits are not entirely evident. In all the four cases we reported, children responded well to surgical excision and had complete recovery with no recurrence of the disease.

Dirofilariasis should be considered in the differential diagnosis of asymptomatic migratory or non-migratory subcutaneous swelling both in pediatric and adult population, especially if the patient is coming from Endemic Areas [7].

CONCLUSION :

Human infection with *dirofilariasis* is at a rise in India as well as other part of the world. Most of the cases remain undiagnosed because of the asymptomatic nature of the disease. Diagnosed cases remain unreported as well. Hence there is an increased need of awareness about this infection and active surveillance that will help determine the actual prevalence of the disease.

CONFLICTS OF INTEREST:

None declared.

AUTHOR CONTRIBUTION:

All the authors contributed equally in drafting, editing, revising and finalizing the case report.

ETHICAL APPROVAL:

The ethical approval was not required for the case report as per the country's guidelines.

CONSENT:

Written informed consent was obtained from the patient to publish this report.

DATA AVAILABILITY STATEMENT:

The data that support the findings of this article are available from the corresponding author upon reasonable request.

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