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SUBCUTANEOUS FILARIASIS - UNCOMMON PRESENTATION AT DIFFERENT ANATOMICAL SITES- A CASE SERIES

Histopathology

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ABSTRACT

Filariasis is a zoonotic infection, humans are infected through the mosquito bites and are terminal host. Dirofilariasis in humans and animals are expected to increase as the range and number of mosquitoes increases. We are reporting the subcutaneous dirofilariasis in forearm, forehead, and eye in kerala state. Excision was done for these lesions which demonstrated the dirofilarial worm. Death of these worms bring about intense inflammatory response, so careful grossing of the specimen is needed to identify the organism.

KEYWORDS

subcutaneous filariasis, zoonosis, eye

INTRODUCTION

Subcutaneous Dirofilariasis is caused commonly by a filarial nematode dirofilaria repens ,which is prevalent in tropic and sub tropics.India contributes about 40% of the global burden .These filarial nematode usually affect dogs and other carnivore. Humans are accidental dead end host. Humans acquire the microfilaria through the mosquito bite, and they perishes before attaining maturity. Mosquitoes belonging to the genera *Culex, Aedes, Armigeres* and *Anopheles* are vectors for the parasite(1).

Human dirofilariasis manifest either as subcutaneous nodules or pulmonary lesions. They are also found in male genitalia, female breast , thigh ,abdominal wall , eye. Latter is found during the migratory phase of the parasite .(1) we are presenting a case series with dirofilariasis in different anatomical location including eye.

CASE 1

A 27 year old female presented to out patient department with swelling on left hand .No other swelling elsewhere in the body. Ultra sonogram of the lesion was done and a live parasite was noted inside, without perilesional edema. Excision biopsy of the swelling was done.

On gross examination of the specimen a fibrous cyst wall was seen, and a long slender worm was noted inside.

Fig 1- Filarial Worm With Cyst Wall

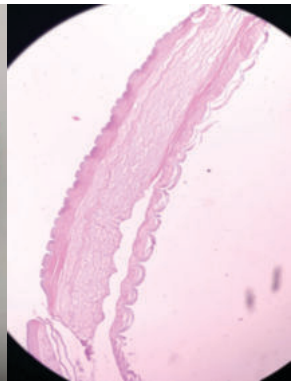

Fig 2- H & E View Of The Dirofilaria

CASE 2

A 39 year old man presented with swelling below left eye for 6 months. On examination 2 x 1cm size soft lesion in the left inferior periorbital region. Ultra sonogram (B scan) identified a cystic lesion with mobile, tubular structure suggestive of parasitic cyst. Surgical excision of the swelling was done. Both histopathology and microbiology examination was done on the same, and a diagnosis of Dirofilaria repens was made.

Fig3- B scan of the patient with a cyst showing parasite

Fig 4- gross appearance of the worm

CASE 3

A 52 year old man presented with swelling on forehead, the lesion was present there for 6 months. Not associated with pain or any local symptoms. Differential diagnosis of sebaceous cyst was considered and excision done. Peripheral smear of the patient done it was normal.

Gross examination of the excised specimen revealed a thin thread like organism. It was processed and a histological diagnosis of Dirofilariasis was made.

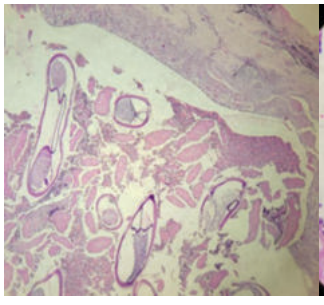

Fig 5- dirofilarial worm within cyst wall

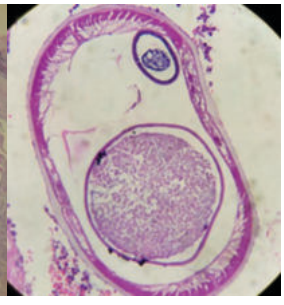

Fig 6- cross section of dirofilaria

DISCUSSION

The human dirofilariasis is caused by *D. repens*, and have been reported in Asia, Europe, and Africa . The first reported case of human ocular dirofilariasis in India was from Kerala in 1976[2] and subcutaneous dirofilariasis caused by *D. repens* was recorded in 2004 from the same region.[2] The region Kerala is considered endemic for dirofilariasis due to the climatic conditions and the presence of suitable vectors species.

Dirofilaria is an important genus of parasites that mainly infect canids (dog heartworm) and felines.

D. repens infection in humans usually causes solitary, erythematous, subcutaneous nodules. These nodules are usually tender and sometimes cause a sensation of "movement" under the skin.

The parasite has got a thick, laminated chitinous cuticle, longitudinal ridges, and large lateral cords, as well as a characteristic disposition of

smooth muscle fibers.

The parasite *Dirofilaria repens* is composed of thick external cuticula with longitudinal ridges , leading to a cogwheel-like appearance in a transverse section. Large lateral chords with tall, slender coelomian muscle layer and a single gut tube is also present in this group of parasites. In humans, nodules can occur in any part of the body especially those that are likely sites for mosquito bite. A study of the etiopathogenesis shows that the adult nematode lives in subcutaneous tissues of their natural hosts and attain full size and deposit microfilaria in blood. Vector arthropods ingest the first stage of larva (L1) while feeding on an infected host and (L1) microfilaria develop to infective third stage (L3) and migrate to the proboscis. Transmission occurs when the mosquito vector carrying the infective third stage lava (L3) penetrates a new host, which can be either a human or a natural host. Since the humans are a dead-end host, the nematode in humans does not reach sexual maturity and remains non fertile. Consequently microfilaria are not released into the peripheral blood in humans and, due to the presence of an adult nematode in the subcutaneous tissue, chronic inflammatory infiltration can occur in the surrounding tissue forming a parasitic granuloma (5)

The definite diagnosis can be made after surgical excision or biopsy. Blood eosinophilia or elevated serum immunoglobulin (Immunoglobulin)E levels are rarely observed. Therefore, eosinophilic counts and measurements of total IgE are of limited value in screening for dirofilariasis in patients with subcutaneous nodules. In order to confirm the diagnosis of *D. repens* infection, Deoxyribonucleic acid extraction followed by pan-filarial polymerase chain reaction (PCR) may be performed(.3)

Enzyme linked immunosorbent assay (ELISA) for antibody response to *D. repens* somatic antigen is a useful adjuvant test in endemic areas with a strong clinical suspicion ,although it has been found to be negative in many cases(.4)

A clinical diagnosis of dirofilariasis may be difficult due to the non specific symptoms presented by the patients. The serological tests lack specificity and sensitivity. Surgical removal of the worm is the treatment of choice.

Summary-

Filariasis can appear as subcutaneous nodule in varied sites, so a high index of suspicion is needed while reporting the cases. Even in non endemic areas filariasis can be see as the number of mosquitoes are increasing. Prompt identification and treatment can avoid many unwanted investigations.

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