



## HUMAN SUBCUTANEOUS DIROFILARIASIS: CASE REPORT

## Microbiology

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## KEYWORDS

## INTRODUCTION:

The genus *Dirofilaria* includes various species that are natural parasites of dogs, cats, foxes, and wild mammals.[1] Dirofilariasis is a zoonotic infection which can be found world-wide. It is caused by *D. repens*, *D. immitis*, *D. tenuis* and *D. ursi*. [2] *Culex*, *Aedes*, and *Anopheles* mosquitoes are vectors for this parasite, which take up the microfilaria while feeding the blood of an infected host. Microfilaria develops in the malpighian tubules into the third stage larva and then migrates to the proboscis through the body cavity of mosquitoes. The transmission takes place when a potential vector bites the dogs or other hosts including humans during a subsequent blood meal. [3] *D. repens* is the main causative agent of subcutaneous human dirofilariasis in Asia, including India.[1],[2], [4] We report cases of subcutaneous human dirofilariasis affecting the face region.

## CASE REPORT:

A 28-year-old male, residing in western suburbs of Mumbai, presented with a non tender nodule over the left cheek, intra-orbital, at left nasolabial groove, since 3 months. On examination the nodule measured was around 3 cm and was firm in consistency. The complete hemogram was normal. Patient was given Cefotaxim but there was no response.

## MORPHOLOGY:

The worm was thin, cylindrical, greyish and measured about 10.5 cm in length with a maximum diameter of 0.2mm. The anterior end was rounded and of greater diameter than the posterior end. [Figure 1] The cuticle of the worm was thick and had marked longitudinal ridges with transverse striations and underlying muscles are well developed. [Figure 2] Body cavity shows uteri and intestinal folds [Figure 3]. Based on the size and cuticular morphologic features, the worm was identified as *D. repens*.



Figure 1

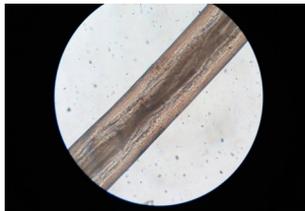


Figure 2



Figure 3

## DISCUSSION:

Dirofilariasis is primarily confined to animals such as dogs, cats, foxes, raccoons and some wild animals that act as definitive hosts. Various mosquitoes serve as intermediate hosts take up the microfilariae while feeding on an infected host. Microfilariae develop further in mosquitoes. The transmission to dogs or other hosts including humans occurs through mosquito bite during subsequent blood meal. In human infections usually just one larva develops, which does not reach sexual maturity [5].

In India, almost all reported cases of dirofilariasis in humans have involvement of face in the form of ocular dirofilariasis with a few reports on subcutaneous dirofilariasis [6–12]. Although about 40 different species of dirofilaria are recognized, fewer than 6 are known to cause human infections, which can be found worldwide [9]. *D. repens* causes most cases of human dirofilariasis in Europe, Asia and Africa; hence it is considered an emerging zoonosis in these continents [10] Among the documented cases of human dirofilariasis caused by *D. repens*, recorded in India, most of them had ocular infections and a few had subcutaneous involvement of the face [6,11,12,13]. A case of subcutaneous dirofilariasis involving scrotal region has also been reported from (Orissa) eastern India [13]. A case of subcutaneous dirofilariasis involving right leg has also been reported from vidarbha [15].

In our case study, patient had nontender subcutaneous nodule on left cheek. Surgical removal of the worm from biopsy is the treatment of choice. [19] The clinical importance of human dirofilariasis is that, these subcutaneous lesions may be initially misidentified as malignant tumours, requiring invasive investigation and surgery before the correct diagnosis is made. [15]

*D. repens* is the most common causative agent while *D. immitis* is rarely recorded as a causative agent of dirofilariasis from India. Exact identification of species may be possible only after studying the fully matured worm. *D. repens* has a cuticle of 20 µm thickness, transverse striations, and large numbers of external longitudinal ridges. *D. immitis* can be differentiated from *D. repens* by the absence of longitudinal ridges and transverse striations.[4] Sexes are determined by the number of reproductive tubes present in the body cavity, typically two in females and only one in males [14]. Blood eosinophilia or elevated serum IgE levels are rarely observed [9]. In order to confirm the diagnosis of *D. repens* infection, DNA extraction followed by pan filarial polymerase chain reaction (PCR) may be performed [7]. Human cases of dirofilariasis are mostly under reported and under diagnosed probably because of the varied clinical presentations and organ affected. Dirofilariasis should be considered in the differential diagnosis of a single migratory or nonmigratory subcutaneous swelling, though not a known endemic area of Dirofilariasis.

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