




## CASE REPORT

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### Rare Case of Subconjunctival *Dirofilariasis* from South-East Part of India

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#### Abstract

*Dirofilariasis* is caused by the parasite *Dirofilaria repens*, which can also cause ocular infestation. There have been few reports of this infection from the southern-eastern part of India. Herein we reported a 60 year aged woman presented with pain, foreign body sensation, and crawling sensation in the left eye since one day. A parasite 12.4 cm length and 0.5 cm diameter was extracted from the conjunctiva. Microscopy identified as *D. repens*, as a male.

Keywords: subconjunctival dirofilariasis, *Dirofilaria repens*, zoonosis.

#### Introduction

*Dirofilariasis* is caused by a zoonotic filarial nematode. Usually, a coyote or domestic dog is infected, although a wide variety of other animals can be infected including cats, weasels, beaver, aquatic mammals, horses, and humans. Humans may become infected accidentally after being bitten by a disease-carrying mosquito such as *Aedes*, *Culex*, *Anopheles*, and *Mansonia*. The conjunctiva is the most common site of nodules; involvement of the eyelid and periorbital region (palpable mass) have also been described. (1) *Dirofilariasis* was occasionally reported from the various parts of India (Kerala, Mumbai, Karnataka, and Haryana).

#### Case Report

A 60-year-old woman from Visakhapatnam presented to Sankar Foundation Eye Hospital (A Tertiary Eye Institute), Visakhapatnam, Andhra Pradesh, India. Patient came with complaints of redness, pain, foreign body sensation, and sensation of something crawling in her left eye for one day. The slit-lamp exam showed conjunctival injection and a thin, thread-like coiled subconjunctival worm moving in the nasal bulbar conjunctiva in her left eye. The cornea was normal, and there was no anterior chamber reaction. Pupils were normal in size and hyperactive against the light. Both eyes were pseudophakic, and the fundus examination of both eyes with indirect ophthalmoscopy was normal. Intraocular pressure in both eyes was normal.

When the patient was sent for a B-scan ultrasonography to rule out the presence of multiple worms posteriorly in orbit, not only the result came out to be negative, but also the worm, which was visualized with the naked eye before, migrated posteriorly, making the situation worse [Fig. 1]. The patient returned to the hospital at midnight of the same day, and the worm was surgically removed with a small incision in the conjunctiva. Immediately, it was transferred into formalin solution for characterization at Department of Microbiology, JIPMER, Puducherry. During histological analysis, a thick cuticle with exterior longitudinal cuticular ridges and a thick muscle layer

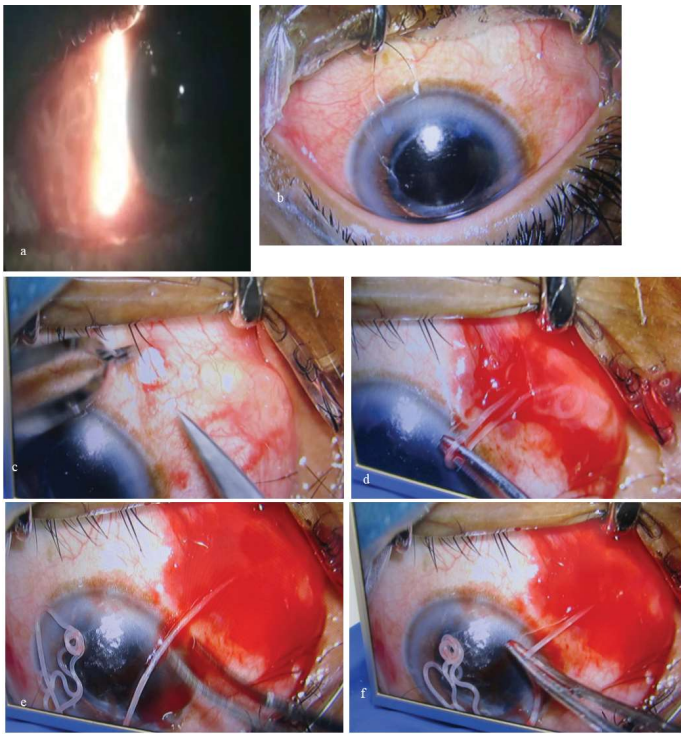


Figure 1. a. Slit lamp examination of subconjunctival *Dirofilaria repens*. b to f: Surgical procedure of *Dirofilaria repens* excision.

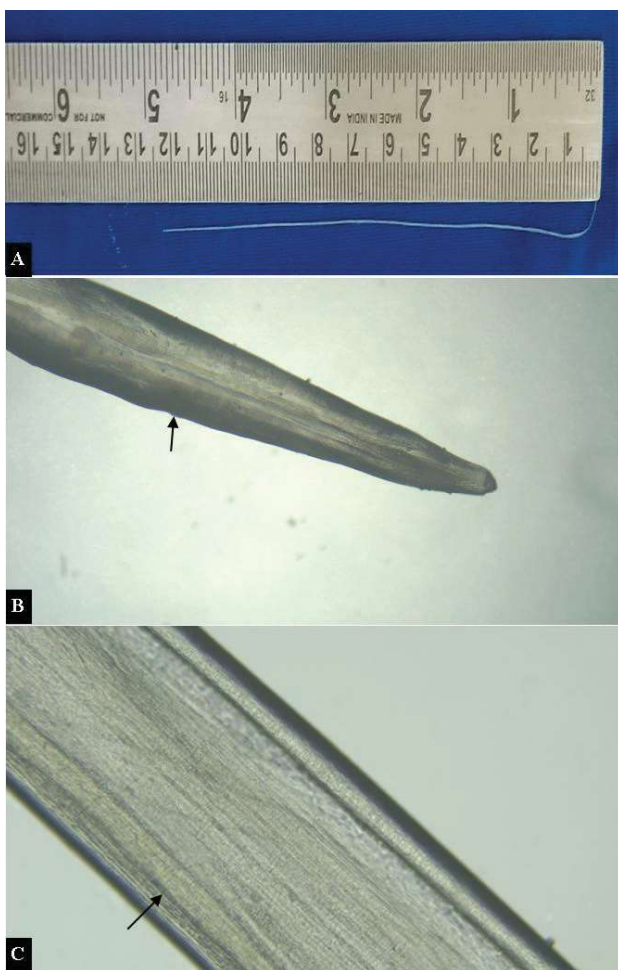


Figure 2. Microphotograph showing longitudinal view of *Dirofilaria repens*. A. *Dirofilaria repens* adult worm measuring about 12.4cm. B. Worm showing longitudinal cuticular ridges (arrow). C. Longitudinal section of the worm showing a thick muscle layer (arrow).

were observed. The extracted worm was gross, translucent, 0.5 cm in diameter, and 12.4 cm in length. Microscopic examination identified the worm as *D. repens* [Fig. 2]. In this case report, the patient was non-diabetic and non-hypertensive, and free from systemic illness. The patient had undergone cataract surgery in the same eye three months back in the same hospital. The patient had neither a history of traveling to other countries nor had any pet animals, and she was not residing near river beds. Moreover, all the investigations like hemogram including absolute eosinophil count, peripheral smear, chest X-ray, echocardiography, CT orbit & brain were normal and the results of coprological investigations for ova & cysts were negative. Physical examination was reported normal, with no evidence of lymphoedema or subcutaneous swellings.

Ocular congestion responded to treatment with topical steroids and antibiotics after worm removal. No antihelmintic drugs were given. The patient was asymptomatic in 6 months follow-up. The patient had a quiet eye and normal vision (BCVA OU – 6/6).

## Discussion

The zoonotic disease Dirofilariasis is caused by *Dirofilaria* species. (Genus-*Dirofilaria*; Family-Onchocercidae; Order-Spirurida; Phylum-Nematoda). It replicates in dogs, foxes, cats, bears, and other wild animals, and microfilariae enter the bloodstream and *Culex*, *Aedes*, or *Anopheles* transmit the disease to other animals or humans. (2,3,4) *D. repens* causes subcutaneous infections and *D. immitis* causes pulmonary infections.(5) The most common ophthalmic involvement is periorbital, intraocular, or in the eyelids, with subconjunctival involvement being less prevalent.(4,6) The first case of ocular dirofilariasis was documented in 1885. Addario identified it as a *Filaria conjunctivae* infection.(7,8,9) *Dirofilaria* spp., notably *D. repens*, *D. immitis*, *D. ursi*, and *D. tenuis*, cause human illnesses.(10)

A 60 year women presented herein was the case of subconjunctival localization of *D. repens*. The patient presented complaint of itching with pain, foreign body sensation with something crawling in her left eye since one day. Diagnosis was done by microscopic characterization, length, presence of thick cuticle with external striations and well developed underlying muscles, body cavity showing intestinal folds. Surgically the worm is removed and subsequently undergone morphological characterization to establish proper management. On pathology, the worm was gross, translucent, 0.5 cm in diameter, and 12.4 cm in length.

In a study by Seema in Kerala state revealed a dirofilari-  
al worm inside the granuloma of a 4 year old boy. After  
the incision of the cyst, a white 6 cm length thread like  
structure arised along with the serous fluid diagnosed as  
*D. repens*. (11)

Rupali Chopra et al. from Tamil Nadu state identified an  
immature female nematode *D. repens* measuring 10 mm  
in a 25-year-old male who had complained of pain and  
redness in right eye since one month. (12)

Shambhu et al. identified a female *D. repens* of 13.5cm  
length and 0.5mm width in a 91-year-old man with sub-  
conjunctival dirofilariasis and orbital cellulitis.(13)

Andrea Montesel et al. found a 67 year aged male with a  
16x10mm spherical, translucent, slightly moveable sub-  
conjunctival cystic enlargement under the bulbar con-  
junctiva on the temporal side of the right eye, as well as  
localised congestion and chemosis.(14)

Dirofilariasis infections can be avoided by avoiding mos-  
quito bites and using animal chemoprophylaxis. In cases  
of ocular lesions or nodule formation, surgical therapy  
remains the treatment of choice.(15)

## Conclusion

This patient's mode of infection was unknown. Surgi-  
cal removal of the worm and subsequent identification  
by morphological features aided in establishing the di-  
agnosis and treatment. Early diagnosis and immediate  
treatment is important. Anthelmintic drugs are inef-  
fective as *Dirofilaria* is reproductively inactive. Human  
infections caused by *Dirofilaria* species are frequently  
misdiagnosed and underreported. Increased cases of  
dirofilariasis in India are an alarming sign that the infec-  
tion is spreading and that dirofilariasis is an emerging  
zoonosis.

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This work was carried out in conformity with the Helsinki  
Declaration (1964).

## Conflicts of Interest

Authors declared that they had no conflicts of interest.

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