Polymerase chain reaction: A novel way to detect ocular dirofilariasis

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Key words: Ocular dirofilariasis, polymerase chain reaction, worm

A two-year-old girl presented with subconjunctival abscess in the right eye for one week duration. The cystic mass lesion was excised and a thin slender white opalescent worm (84 mm in length and 1.4 mm in width) was removed. On microscopic examination, the parasite had a sheathed wall, central lumen, and digestive tract [Fig. 1]. Cephalic end with mouth [Fig. 2] and tapered caudal part [Fig. 3] were noted. The parasite was identified as a subadult female of *Dirofilaria repens.* Polymerase chain reaction showed *Dirofilaria repens* on agarose gel electrophotogram [Fig. 4]. In our case, we used gradient PCR which could detect *Dirofilaria repens.* Peripheral blood smear examination showed eosinophilia. Patient improved symptomatically on follow-up visit.

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Discussion

Dirofilaria is an endemic parasite mostly seen in the Indian subcontinent, specifically in South India.[1] Domestic animals like dog, cat, wolf, raccoon, and bear are the definitive hosts.[2] Microfilariae are accidently transmitted to humans via infected culex, aedes, and anopheles mosquito.[1] Humans are a deadend host for the parasite because *Dirofilaria* dies in the human body without producing microfilaria. This child probably got this infection by mosquito bite. There can be various manifestations of ocular dirofilariasis.[2] It can be subconjunctival, intraorbital, or intravitreal.[1] *Dirofilaria repens* is the most common species which infects subcutaneous and subconjunctival tissues.[3] Mechanical removal is the only treatment option. Antiparasitic medication has no role in this. The entire parasite must be removed in order to avoid an allergic reaction due to parasite remnants.[1] *Dirofilaria* can be identified by direct microscopy with wet mount preparation. But exact species identification is often difficult. Polymerase chain reaction (PCR) is a method widely used to rapidly make millions of copies of a specific DNA sample. Our case showed that gradient polymerase

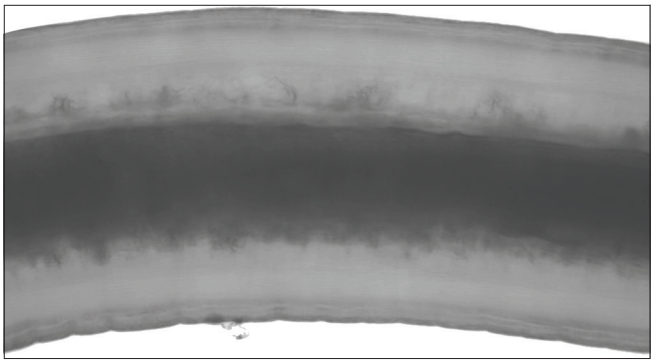

Figure 1: Microscopic picture of *Dirofilaria* showing thick cuticle, central lumen and digestive tract

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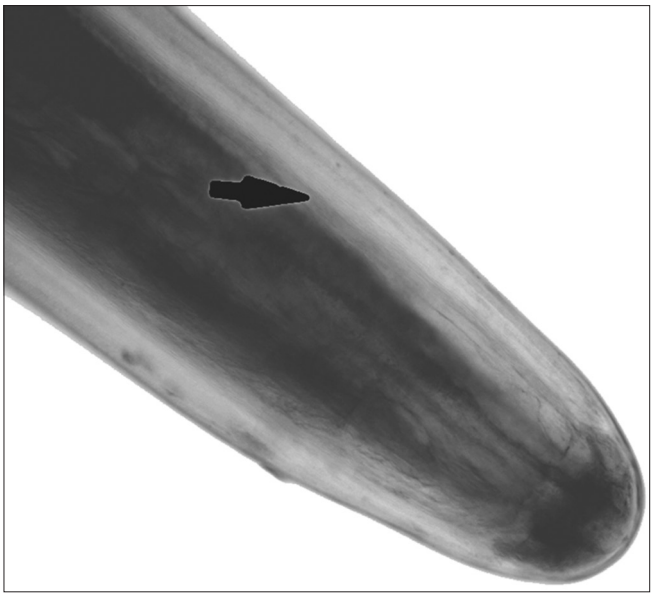

Figure 2: Microscopic picture showing cephalic end of the worm with presence of mouth

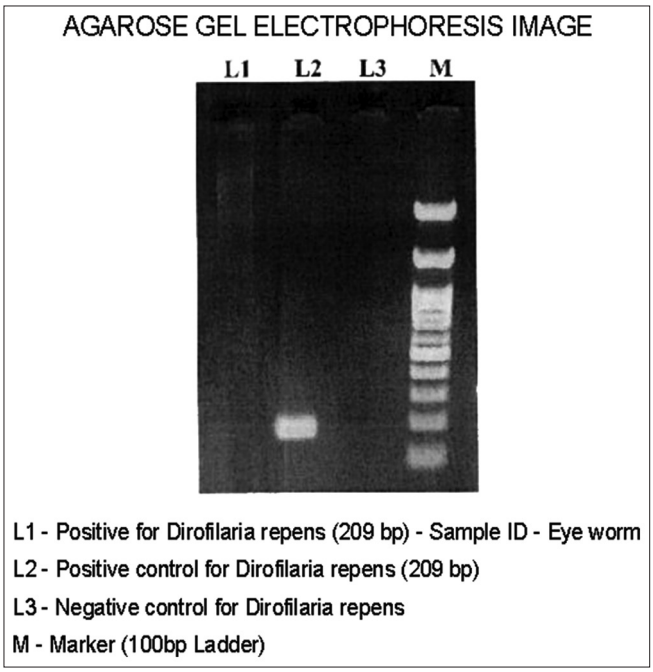

Figure 4: Polymerase chain reaction showing *Dirofilaria repens* on agarose gel electophoresis

chain reaction can be used as a novel technique to detect the species of *Dirofilaria*.

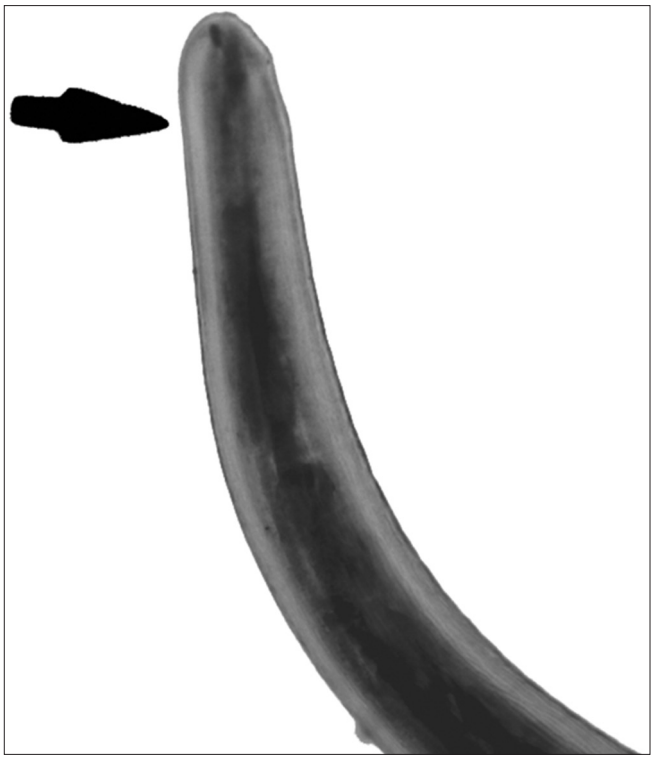

Figure 3: Microscopic picture showing tapered caudal end of the worm

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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