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OCULAR DIROFILARIASIS IN IRAN: A CASE REPORT

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ABSTRACT

Dirofilariasis is caused by a Filariid parasite of the genus *Dirofilaria*. This zoonotic infection is spread by mosquito vector from animal to human. Ocular Dirofilariasis involving the eye and adnexa is rare. A nodule in the right eye had developed in a 20-year-old soldier from Mazandaran province, north of Iran. The mass was removed surgically and measured 5×5 mm. The specimen was identified on the basis of microscopic section by the presence of longitudinal cuticular ridges, the thick muscle cell layer and the presence of 2 nuclei in the lateral cord. The worm was identified as a Dirofilaria, (presumptively *D. conjunctivae*). This report is one of the first reports of ocular Dirofilariasis from Iran.

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Keywords: Dirofilariasis, *Dirofilaria repens*, ocular, human

INTRODUCTION

Dirofilariasis is a zoonosis caused by a filarial parasite of the genus *Dirofilaria*. The microfilariae, the blood born stages of the parasite, are transmitted by mosquito vectors, Aedes and Culex. A variety of domestic and wild animals act as natural hosts. All species of Dirofilaria are found in subcutaneous tissues of man. Infection in humans is rare.[1,2] The most common form of involvement is a pulmonary infection caused by *Dirofilaria immitis*, the dog heart worm.[3] Less frequent are subcutaneous infection, including involvement of the tissues surrounding the eye. Initially, these periocular infections were described under the name *Dirofilaria conjunctivae*. Orihel and Beaver ascertained that most of the subcutaneous infections were caused by *Dirofilaria tenuis*, a common parasite of the raccoon.[4] During the past 50 years, a limited number of cases of dirofilariasis from *D.imitis, D.conjunctivae* and recently *D. repens* have been reported. *D.conjunctivae* and *D. repens* are considered synonymous terms. In Europe and Asia, *D. repens,* a common subcutaneous parasite of dogs, is the most frequent agent of human infections.[5,6] Beaver suggested that out of 56 cases of ocular filariasis reported internationally until 1988, only six were accurately identified. This indicates the difficulties related to the recognition of the parasite.[7] However, there are some reports of *Dirofilaria repens* infection in animals and only two cases of human subcutaneous infection in Iran,[8] but there is no report of ophthalmic filariasis in humans. This is one of the first reports of ocular dirofilariasis in Iran.

CASE REPORT

A 20-year-old soldier resident in Mazadaran province was admitted to No.504 Armed Forces Hospital because of presence of a nodule in his right eye. The nodule measured approximately 5 x 5 mm, and had grown slowly in the past year. He complained of itching, epiphora and mild pain in his right eye. There was no history of trauma, allergies or previous cutaneous lesions. Laboratory evaluation revealed a white blood cell count of 5800 cells/mm^3 with a normal differential (also total eosinophil count was normal), hemoglobin of 14mg/dL, hematocrit of 42% and the sedimentation rate (E.S.R.) was normal. The stool specimen contained no ova of parasite or larva and the urine analysis was normal. Ophthalmologic examination disclosed a round, white to grayish and completely mobile mass that involved the lateral rectus muscle in the right eye. The round nodule appeared to be inflamed and congested. On slit-lamp ex-

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amination, the mass was not cystic, it was solid and soft and clinically it was diagnosed as an early benign neoplasm of the eye. The mass measured approximately 5×5mm. Microscopically, the presence of longitudinal cuticular ridges, a thick muscle cell layer, the presence of internal organs, consisting of intestine and reproductive organs (Fig.1) and the presence of 2 nuclei per histological section in the lateral cord (Fig. 2), led us to identify the specimen as a Dirofilaria, but the species could not be identified.

DISCUSSION

The first case of eye infection by Dirofilaria was described in 1885 by Addario, an Italian ophthalmologist.[2,9] Dirofilaria most often presents to the ophthalmologist as a subcutaneous mass in ocular adnexa. Less often it presents within the orbit or, rarely, as a subconjunctival mass.[9] Font and co-workers reported six cases of ophthalmic dirofilariasis: three occurred in the eyelid, two were periorbital, and one was subconjunctival.[10] The worm described in this report was present in the periocular region. Based on the size and morphology of the worm, especially the presence of longitudinal cuticular ridges, the thick muscle cell layer, 2 nuclei in the lateral cord, the presence of intestine and uterus and the involvement of the lateral rectus muscle in his eye, we identified the specimen as Dirofilaria (presumptively *Dirofilaria conjunctivae*). As expected, the patient's blood test did not show microfilariae because this type of filaria usually remains subcutaneous or submucosal at the point of the bite of an insect vector.

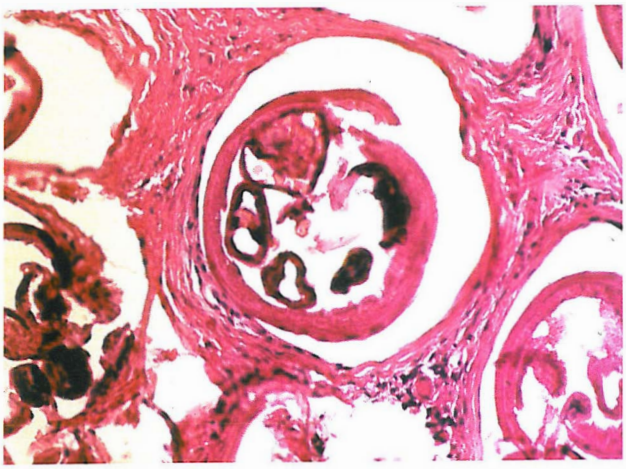

Fig. 1. Cross section of the body of the parasite shows longitudinal ridges on the cuticle, a thick muscle layer and reproductive and digestive tubes (Hematoxylin and Eosin × 40).

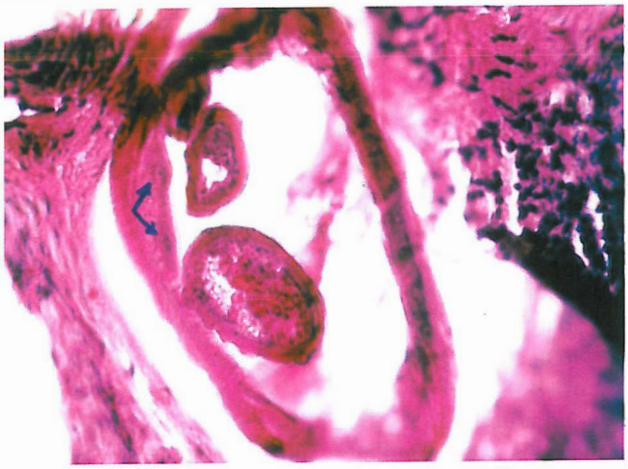

Fig. 2. Cross section of the parasite shows the presence of 2 nuclei in the lateral cord (Hematoxylin and Eosin × 1000).

REFERENCES

1. Beaver PC, Jung RC, Cupp EW: Clinical Parasitology. 9th ed., Philadelphia: Lea & Febiger, p. 825, 1985.
2. Heurle DD, Kwa BH, Vickery AC: Ophthalmic Dirofilariasis. Ann Ophthalmol 22: 273-275, 1990.
3. Nicholson CP, Allen MS, Trastek VF,Tazelaar HD, Pairolero PC: *Dirofilaria immitis*: a rare, increasing cause of pulmonary nodule. Mayo Clin Proc 67: 646-50, 1992.
4. Orihel TC, Beaver PC: Morphology and relation of *Dirofilaria tenuis* and *D. conjunctivae*. Am J Trop Med Hyg 14: 1030-43, 1965.
5. Arvanitis PG,Vakalis NC, Damanakis AG,Theodossiadis GP: Ophthalmic Dirofilariasis. Am J Ophthalmol 123(5): 689-691, 1977.
6. Orihel T, Isbey EK: *Dirofilaria striata* infection in a North Carolina child. Am J Trop Med Hyg 42(2): 124-126, 1990.
7. Beaver PC. Intraocular filariasis: a brief review. Am J Trop Med Hyg 40: 40-45, 1989.
8. Eslami A: *Dirofilaria repens* infection in Iran. Veterinary Helminthology, Tehran University Publications, p. 603, 1997.
9. Kersten RC, Locastro AJ, Eberhard ML, Spaulding AG, et al: Periorbital Dirofilariasis. Ophthalmic Plast Reconstr Surg 10(4): 293-296, 1994.
10. Font RL, Neafie RC, Perry HD: Subcutaneous dirofilariasis of the eyelid and ocular adnexa. Report of six cases. Arch Ophthalmol 98: 1079-1082, 1980.