Subcutaneous *Dirofilaria Repens* Infection of the Eyelid - A Report of Two Cases

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**Introduction**

Dirofilariasis is a parasitic disease of domestic and wild animals that occasionally occur in humans. Ophthalmic infection with Dirofilaria is documented all over the world, including North America, Europe, Australia, Africa, the Middle East, and Asia. Reports of this infection from India are however limited. The involvement of the eye may be periorbital, subconjunctival or intraocular. In this report we describe two cases of *Dirofilaria repens* presenting as a subcutaneous swelling of the upper eyelid.

**Case 1**

A thirty three year old female presented with a six-week history of painful swelling of the upper eyelid. There was no history of preceding trauma, injury, or visual impairment. Her medical history did not disclose any general health problems and she had no close association with domestic animals. The lesion persisted after systemic antibiotic and anti-inflammatory treatment. Ocular examination showed a tender, nodular swelling of size 3 x 2 cm over the left upper eyelid with surrounding periorbital edema. Routine laboratory tests were within normal limits. On excision, an encysted nodule was removed and a long, thin, dead worm was extracted. Histopathological examination showed inflammatory lesion with plenty of eosinophils. The worm was 9 cm in length, with a maximum width of 320 μm (Fig 1a). The anterior rounded end of the worm was observed to be wider than its posterior end, and parasite had a thick unsegmented cuticle with characteristic longitudinal ridges and cross striations (Fig 1b). Based on the morphologic features, the worm was identified as *Dirofilaria repens*. The patient had complete recovery after surgery and is asymptomatic on follow up.

**Case 2**

A forty six year old female presented with painful swelling and itching of the left eye of 4 months duration. There were no systemic symptoms or signs associated with the lesion. Physical examination revealed a mobile swelling 2 x 1 cm in the upper eyelid. A complete blood count was within normal limits for all parameters. An adult white worm 8 cm in length was extracted from the nodule. Histopathology of nodule revealed dense...
inflammatory infiltrates composed of eosinophils and lymphocytes. Parasitological examination identified the worm as a member of *Dirofilaria* species (Fig. 2).

**Discussion**

Human dirofilariasis is a cosmopolitan zoonosis. The dirofilaria are natural parasites of mammals and are accidentally transmitted to man by bite of zooanthrophilic mosquitos carrying infective larvae acquired from microfilaria rich blood of animal hosts parasitized with dirofilaria. Man is a suboptimal host. Dirofilaria cannot mature fully in human tissue and dies before producing microfilaria. Though nearly forty species of dirofilaria have been identified, only a few have been reported to cause human infection. *Dirofilaria immitis* and *Dirofilaria* of the subgenus *Nochtiella* (*repens, tenuis, ursi, subdermata*) are the two subgenera. The species vary according to the geographical area, with *D. tenuis* transmitted by raccoons being common in United States and *D. repens* mainly transmitted by dogs, cats and foxes in Europe, Middle east and Southeast Asia. Clinical manifestations after infection include nodules in subcutaneous tissues, muscles, and visceral organs. Ophthalmic dirofilariasis is transmitted to humans by common insect vectors like *Anopheles*, *Culex* and *Aedes* mosquitoes. Most cases with ophthalmic infection present with pain in the eye, redness, blurred vision, localized pruritis, hyperemia of conjunctiva, swelling of eyelids and sometimes sensation of movement under the skin or conjunctiva.

However allergic reaction with urticaria, facial oedema and fever may occur. In an extensive review of about 400 cases of human infection with *D. repens*, the majority of worms presented within nodules in subcutaneous tissues on the upper half of the body, with the largest number localized around the eyes, in the eyelids or under the conjunctiva. Rarer ocular presentations masquerading as subcutaneous tumor of the eyelid and intravitreal location have also been reported. Symptoms appear mostly weeks or months after infection with microfilaria. The first case of human ocular dirofilaria was reported by Addario in 1885 from Milan, Italy. These worms were earlier referred to as *Filaria conjunctiva* and later as *D. conjunctiva* because of their frequent association with orbit. Cases of *D. repens* infection have been reported in Italy, France, Greece, Spain, Turkey and Israel. Reports of human ophthalmic dirofilariasis from India are very few. The first three cases of human ocular dirofilarial infection in India were reported from same part of India (Kerala). The correct diagnosis of the parasite is usually made with typical gross morphological features and histological examination. *D. repens* have rounded anterior end with buccal cavity and the longitudinal ridges are broader than long, less distinctly raised and appear to have a more branching effect. The dyes used in examining the transverse sections are hematoxylin-eosin (HE) and periodic acid-Schiff (PAS). In majority of instances the parasites are found in excised nodule and tissue biopsies. Less commonly they are removed intact from the tissues. The diagnosis is usually established with the surgical removal of the adult worm. The only cure currently known is surgical excision.

In our case, both patients made good recovery after surgery.

**References**

Henri Parinaud (1844 - 1905)
An Unassuming Lovable French Ophthalmologist...

Prof. Padmaja Krishnan MS

Henri Parinaud, one of the ‘greats’ of French Ophthalmology, came of humble stock. He was born to a poor locksmith on May 1, 1844 at Bellac, Haute-Vienne in France.

At 13, he was sent to study at the seminary in Ajain, but the death of his father in 1863 put a temporary halt to his education. He started giving private tuitions to make money for his studies while providing for his mother and brothers.

The money he made enabled him to begin his medical education at the University at Limoges in 1865. He moved to Paris in 1869 but the Franco-Prussian War which broke out in 1870 once again interfered with his studies.

Parinaud joined the Red Cross ambulance service and saw action at Metz. His role in evacuating the wounded from Château d’un earned him a medal for unusual bravery from the prime minister. This was used by the writer Ludovic Halévy in one of his stories.

After the war, Henri returned to Paris to continue his studies. His thesis at medical school, “A study on the optic nerve in meningitis of infants”, earned him the respect and recognition of many in the field including Charcot.

He worked under Charcot at the Salpetrière and developed an interest in Neurology working on multiple sclerosis, ophthalmoplegic migraine, hysteria, supranuclear lesions and concomitant squint.

He is best known for describing a syndrome of vertical gaze palsy, convergence-retraction nystagmus and light-near dissociation, caused by dorsal midbrain lesions, typically pinealomas. This has come to bear his name.

Henri worked on the physiology of vision- the role of the visual receptors, light sense, night-blindness and colour vision.

He also described a unilateral conjunctivitis with pre-auricular and cervical adenitis and fever often associated with cat-scratch disease. This was in 1889 and more than two decades before the agent of tularemia was discovered. The eponymic term Parinaud’s oculoglandular syndrome was given to this condition by the American ophthalmologist Harold Gifford in 1898.

Parinaud was a good man without interest in either fame or fortune. He was modest and endeared himself to colleagues, students and patients alike. His free clinic attracted poor patients and students from far and near. He also published extensively and was an active member of several societies of both neurology and ophthalmology.

He devoted his spare time to composing and publishing music under the pseudonym of Pierre Erick.

Henri Parinaud was never physically strong and throughout his life suffered from indifferent health. After the death of his wife in 1904, his own health deteriorated rapidly. He died in Paris on March 23, 1905 of bronchopneumonia.