

## Occurrence of gravid *Loa loa* in subconjunctival space of man: a case report from West Bengal, India

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**Abstract** *Loa loa* a benign filarial eye worm is endemic in tropical rain forests areas of west and central Africa. Reports of its sporadic recovery from India are available mostly from the travellers and migrants. This is the fifth report from India in 100 years. One 10.5 cm long gravid female eye worm *Loa loa* was recovered from the subconjunctival area of a 50 year old Indian lady with history of trekking in swamp areas in the Himalayas in Kumayun district. She was suffering from recurrent attacks of swelling, pain and redness of right eye and fleeting itchy rashes all over the body. Slit lamp examination revealed an indistinct coiled structure in the sub conjunctival space. Through a small nick, the structure was pulled out and was found to be a live worm which was identified as a gravid female species of *Loa loa*.

**Keywords** *Loa loa* · Subconjunctival space · Gravid female · Kumayun district

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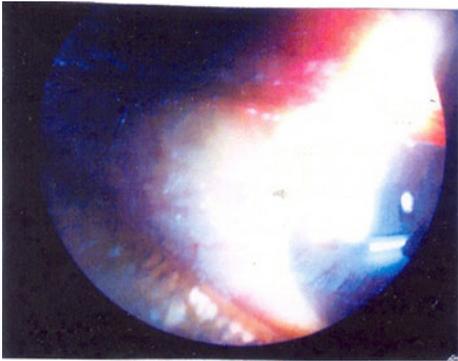
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### Introduction

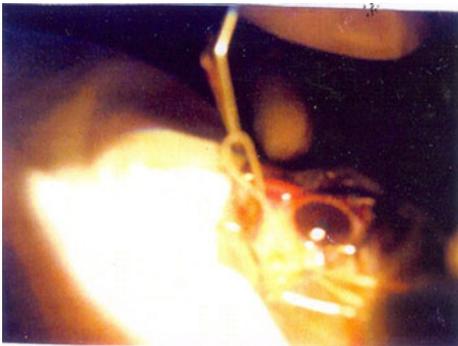
The eye worm *Loa loa*, a filarial nematode worm causing benign filariasis showing higher microfilariaemia in the day time, is endemic in the tropical rain forest areas of west and central Africa and sporadic reports of its occurrence are available from different countries of the World mostly from the travelers and migrants. In addition to man, the mandrill and several species of *Cercopithecus* have been found infected with a *Loa* worm morphologically similar to *Loa loa* of man (Duke and Wijers 1958). However, the monkey strain has larger adults and utilizes the species of canopy-dwelling crepuscular biting tabanid fly *Chrysops* (Dockrell et al. 2010; Beaver et al. 1984). *Loa* spp. is commonly found in subcutaneous tissues of man associated with the Calabar or fugitive swellings in the appendicular extremities especially around the joints and some harbour in the subconjunctival tissue, while many infected persons are asymptomatic, microfilaria may be detected in the blood or adult worms may be seen under the skin or the sclera of the eye. The present report is a case of recovery of subconjunctival gravid female *Loa loa* recovered from West Bengal, India.

### Case report

One fifty years old lady from Baguiati, Calcutta, West Bengal, India with swelling on the nasal side of bulbar conjunctiva of right eye and suffering from pain, itching and irritation in the same eye (Fig. 1) and fleeting attacks in the body reported to the out patient department of district hospital, Howrah, West Bengal. She did not give any history of travel outside India but she used to go for trekking in Kumayun district in Himalayan forest where she



**Fig. 1** Photograph of condition of the eye before operation of conjunctiva



**Fig. 2** Removal of the worm after topical use of anaesthesia

found abundant large-sized flies. Her corrected visual acuity in both eyes were 6/6, N6. Slit lamp examination revealed an indistinct whitish coiled structure in the subconjunctival space of nasal bulbar conjunctiva of right eye. There was no other abnormality in either eye. Under topical anesthesia, through a small incision in the dependant part just below the structure, the coiled material was partially hooked out with closed McPherson forceps and then held with it tightly to take it out fully (Fig. 2). A long slender white living worm was out and kept in normal saline.

The worm was whitish, elongated, 10.5 cm long, 0.5 mm wide (Fig. 3), thread-like with cuticle containing a number of transparent irregular protuberances. Anterior portions was gradually tapering, mouth without definite lip-like structure (Fig. 4), uterus filled with elongated embryo (Fig. 6), covered with hyaline sheath. Vulva was near mouth (Fig. 7), tail blunt rounded, with two paired large papillae and supported by fat chord (Fig. 5). The worm was identified as a female eye worm *Loa loa*. Routine blood examination and examination for microfilaria in blood taken during noon revealed no abnormality, She was treated with antifilarial drug DEC.



**Fig. 3** Photomicrograph of the worm in high magnification



**Fig. 4** Photomicrograph of the anterior portion of the worm, magnified view  $\times 100$

## Discussion

*Loa loa*, the eye worm, causative organism of loiasis, a more or less benign filariasis is endemic in the rain forest belt of western and central Africa and equatorial Sudan (Fain 1978; Boussinesq and Gardon 1997). However, reports of sporadic incidence are available from other countries including India, mostly from travelers and migrants from Africa. From India Maplestone (1983) first recorded a case of loiasis from an European woman, He described two adult female worms one from subconjunctival tissue and another from the neck and designated as *Loa inquirenda*, as the adults differed from the classical *Loa loa*. Another report of loiasis was from a 20 year old Nigerian male attending Ophthalmology Department of S.V.R.R. Hospital, Tirupati. Two adult 15 cm female *Loa loa*, one from subconjunctival tissue and another from

**Fig. 5** Photomicrograph of the posterior end of the worm, magnified view  $\times 100$



**Fig. 7** Photomicrograph of the worm showing vaginal part,  $\times 400$



**Fig. 6** Photomicrograph of the posteromiddle part of the worm showing the larvated uterus, magnified view  $\times 400$

subcutaneously below the sternal end of the left clavicle, were operated in 1988 (Lakshmi and Kumar 1988). Satyavani and Rao (1993) also reported a male *Loa loa* in the anterior chamber of left eye of a rural boy aged 10 years attending the Ophthalmic O.P.D., Government General Hospital, Kakinada. Barua et al. (2005) recovered a male adult *Loa loa* from the anterior chamber of right eye of a 48 year old police constable from rural Assam, attending

the Regional Institute of Ophthalmology, Gauhati Medical College and Hospital, Guwahati. Khetan (2007) recovered a 11.2 cm long male *Loa loa* from supra temporal sub-conjunctival space from a 18 year old girl attending Rotary Eye Hospital, Dondaicha, Dhule, Maharashtra, India. The present patient did not have any recorded calabar swelling nor any recognized microfilariaemia in peripheral blood. The history of regular yearly trekking in Kumayun ranges raises interest on the possibility of being infected in the places. These findings of sporadic occurrence of *Loa loa* in the people who never visited the foreign endemic areas raise doubt on presence of vector *Chrysops* in the forest areas of sub-Himalayan range and source of the nematode *Loa loa* which needs thorough survey of both the parasite as well as insect. All these reported nematodes from India are larger in size. In the present case it is 10.5 cm. These parasites may be of simian origin which may hints at its zoonotic potentiality, which raise interest for its further study of presence of its vectors as well as other sources of infection in India.

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