

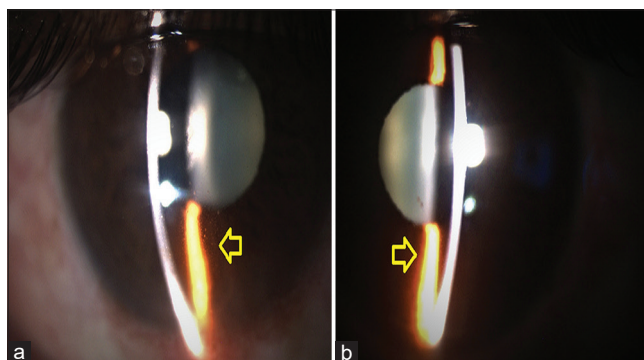
## Leptospiral uveitis in coastal Karnataka: A case report

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We report a case of a young male from Udupi, Karnataka, presenting with features of bilateral non-granulomatous anterior uveitis with mild vitritis. There was a history of fever and myalgia a month before ocular features, which was partially treated. He also gave a history of being actively involved in the flood relief work in the district, before the onset of fever. This prompted an evaluation of leptospirosis, which came positive. The possibility of leptospira uveitis needs to be considered, especially in cases of non-granulomatous uveitis after floods in areas endemic for leptospirosis, which may otherwise be wrongly labeled idiopathic.

**Key words:** Anterior, floods, India, Karnataka, leptospirosis, uveitis

Leptospirosis is a spirochetal infection caused by the *Leptospira species*. The presentation of this febrile illness may range from a mild subclinical infection to fulminant multiorgan dysfunction.<sup>[1]</sup> This is a zoonosis, affecting rodents and other mammals, including cattle and dogs, with humans being accidental hosts. The live organisms excreted in the urine of the infected mammals can penetrate through skin abrasions and mucous membranes of humans in contact with these animals. Hence, veterinarians and cattle farmers are at a greater risk.<sup>[1]</sup> During natural disasters such as floods, contaminated urine of infected animals may mix with water reservoirs.<sup>[2,3]</sup> A similar environment may also be noted in paddy fields where water needs to be stagnated for some time. The exposure of the skin surface of humans to such contaminated water bodies, through activities including swimming or walking barefoot, can make them susceptible to the infection. Leptospirosis is endemic in India and has been reported from several states



**Figure 1:** (a) Fine keratic precipitates in the right eye; (b) Fine keratic precipitates in the left eye

including the districts of Dakshina Kannada and Udupi in coastal Karnataka.<sup>[4,5]</sup> Uveitis due to leptospirosis was initially described by Weil and more recently by Rathinam *et al.*<sup>[6]</sup> However, the reports of *Leptospira* uveitis in India are sparse from regions other than the states of Tamil Nadu and Kerala.<sup>[7-9]</sup> We report a case of acute bilateral non-granulomatous anterior uveitis due to leptospirosis, from coastal Karnataka.

### Case Report

A 49-year-old male auto-rickshaw driver from Udupi, Karnataka presented in September 2019 with a history of pain in both eyes for 2 weeks. He gave a history of high-grade fever with myalgia, a month before the onset of ocular symptoms, which subsided after 2 doses of amoxicillin tablets 500 mg. He discontinued the treatment as he had diarrhea after the second dose, and did not seek further medical advice thereafter. On questioning further, he attributed the fever to be the consequence of the relief work he had undertaken during the floods affecting the region around that time. He had also received topical gatifloxacin – prednisolone eye drops 4th hourly for a week before presentation to us. He did not give any other significant history of oral or genital ulcers, joint or low backache, skin lesions, exertional breathlessness, urinary, or gastrointestinal complaints. On examination, he had a best-corrected visual acuity of 6/12, N8 in both eyes. Slit-lamp biomicroscopy revealed bilateral circumcorneal congestion, fine keratic precipitates with grade 3 cells in the anterior chamber [Fig. 1]. The lens was clear, with the fundus showing a normal disc and macula in both eyes. There were grade 2 cells in the anterior vitreous. The intraocular pressure by Goldmann applanation tonometry was noted to be 15

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mmHg in both eyes. A dilated fundus examination using indirect ophthalmoscopy done showed a grade 1 vitreous haze but did not show any vitreous membranes. The peripheral retinal examination was found to be within normal limits. There was no evidence of retinal vasculitis. A diagnosis of bilateral acute anterior non-granulomatous uveitis was made. Although the patient had moderate anterior vitreous cells, it was presumed to be due to severe iridocyclitis resolving on topical steroids, instead of intermediate uveitis, as there were a greater number of cells in the anterior chamber and a relatively normal-appearing posterior vitreous. Investigations revealed a normal total count of 9800/ $\mu$ L with neutrophils being 58.6%, and lymphocytes being 27.2%. The erythrocyte sedimentation rate was 18 mm/h. His *Treponema pallidum* hemagglutination test was negative, and his Mantoux test revealed an induration of 10 mm after 48 h. Given the history of wading through waist-deep water in paddy fields, during the flood relief work, a test for antibodies to leptospira (IgM) by ELISA was requested, which came positive. A subsequent leptospira microagglutination test (LeptoMAT) of the serum was positive for *Leptospira interrogans serovar*

## Discussion

There are no published reports of uveitis in leptospirosis, before the present case, from the state of Karnataka, despite it being endemic in this region. In their paper, Holla *et al.* have described conjunctival suffusion in nine of the 202 cases of systemic leptospirosis in an institution based study from the region, but have not specified whether this was attributable to intraocular inflammation.<sup>[4]</sup>

Our report also highlights the need for a careful history to elicit clues to help request for specific investigations. The history of exposure to water bodies during the floods which affected Karnataka in 2019, in a non-agrarian young male, led to a suspicion of leptospirosis as an etiology of anterior uveitis. The occurrence of leptospirosis is known to be increased after floods.<sup>[2,3]</sup> However, the definitive diagnosis of leptospira uveitis may be missed due to several reasons. The availability of the gold standard diagnostic test for leptospirosis (Lepto MAT) is limited. ELISA kits for IgM antibody detection may not be of relevance in detecting leptospira uveitis, as it usually manifests months after the primary infection.<sup>[6]</sup> Moreover, the primary episode may be subclinical, thereby lacking the classical signs of icterus, hemorrhage, and renal failure. The lack of a proper diagnosis may result in recurrences and complications of uveitis including cataract.<sup>[6]</sup> It may also be misdiagnosed as other better-reported non-granulomatous uveitic conditions

such as Behcet's uveitis, HLAB27 related uveitis, or endogenous endophthalmitis, but have different modes of therapy.<sup>[10]</sup> Although severe anterior segment inflammatory signs including hypopyon, posterior synechiae, and severe vitritis with vitreous membranes, retinal vasculitis, and disc edema are described in leptospira uveitis,<sup>[6]</sup> these were absent in our case, possibly due to the incomplete initial treatment received with topical steroids and antibiotics.

## Conclusion

In the aftermath of the floods in Karnataka in 2019, subclinical leptospirosis may present with bilateral non-granulomatous uveitis. A careful history and the use of LeptoMAT in addition to an ELISA Leptospira IgM test may be of value in the diagnosis, which may otherwise be wrongly labeled as "idiopathic."

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## Conflicts of interest

There are no conflicts of interest.

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