

Eyelid Tick Manifestation in Subhimalayan Region – A Case Series of 3 Cases

Mandeep Tomar, Neha Gautam, Anubhav Chauhan, Lalit Gupta, Surat Singh

Dr. Yashwant Singh Parmar Government Medical College Nahar, Himachal Pradesh, India

Abstract

Ticks are ectoparasites which live by hematophagy and transmit zoonoses including Lyme disease, tularemia, Scrub typhus, etc. We present a short case series of 3 cases of tick infestations of the eyelids in a span of 3 weeks during the winter season in our centre. 2 patients were elderly females and in one case a young school boy was affected. Two patients had tick manifestation in upper eyelid and in 1 case lateral canthal skin was affected. Chief complaint of all patients was pain, redness and swelling of the eyelids from last 48-72 hours and no patient was aware of any live organism attached to their eyelids. Complete mechanical removal of ticks with blunt non toothed forceps under slit lamp was done and sent for microbiological examination, which revealed them to be hard ticks of genus *Ixodes*. All patients were given antibiotic prophylaxis. Neither patient developed systemic disease or adverse sequelae after tick extraction. Complete mechanical removal of ticks located on the eyelid with blunt forceps is a safe and effective treatment method.

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Ticks are ectoparasites which live by hematophagy of mammals, birds and reptiles, and consequently act as vectors of various diseases. Tick infestation has gained attention in recent times due to Crimean-Congo hemorrhagic fever (CCHF), a potentially fatal tickborne disease. Ticks transmit zoonoses including Lyme disease, tularemia, Scrub typhus, etc. These also have been associated with localized lesions resembling erythema chronicum migrans, lymphoid hyperplasia, tick-related alopecia and foreign body granuloma.¹ To reduce the potential complications, complete removal of the organism is critical.

We report a case series of 3 cases of tick infestations of the eyelids in a span of 3 weeks during the December and January months of winter season in a tertiary centre in northern India.

Case 1

A 62 years old female presented to routine eye OPD with complaints of pain, swelling and redness in her left upper eyelid from last 2 days. Visual acuity was 6/6 in both eyes. Ocular movements were full, cornea and rest of the ocular examination was unremarkable. On slit lamp examination there was presence of a live tick-like organism adherent on the upper and medial 1/3rd eyelash margin and intermarginal strip firmly attached to the adjacent eyelid skin (Figure 1 and 2). Also, there were numerous eggs lying adjacent to the attachment of tick. Few eggs were also present in the lower eyelid margin of left eye (Figure 3). Preauricular lymph nodes were enlarged on the side of the involvement. The tick was removed carefully using blunt toothless forceps and sent to the microbiology department. On microbiological examination, hard tick of species *Ixodes* was identified. Patient was given oral doxycycline 100mg OD for 2 weeks for prophylaxis against Lyme's disease and topical moxifloxacin 0.5% eye drops. Patient was kept on regular follow up and did not show any signs of tick transmitted diseases.

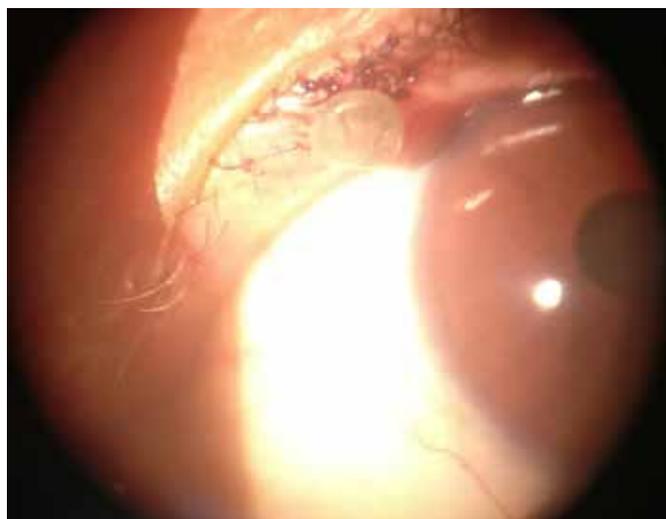


Figure 1&2: A hard tick anchored to upper eyelashes margin with numerous eggs

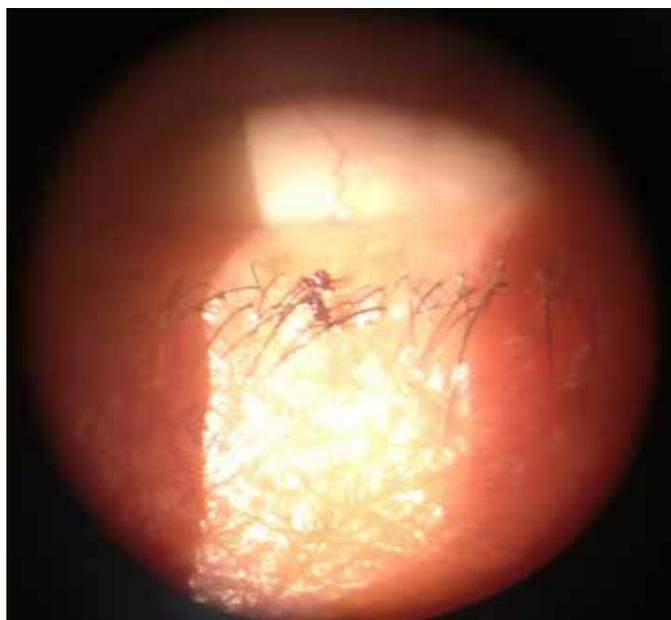


Figure 3: Eggs on lower eyelash margins

Case-2



Figure 4: Diffuse torch light showing tick temporal to lateral canthus in left eye mimicking a naevus



Figure 5: Slit lamp examination showing hard tick with its legs anchored to skin

Figure 4 Diffuse torch light showing tick temporal to lateral canthus in left eye mimicking a naevus and slit lamp examination showing hard tick with its legs anchored to skin (Figure 5).

A 56 years old female presented to us with severe pain and swelling left side of eyelid since last 2 days. She was a native of a nearby village and owned many cattles. Visual acuity was 6/6, ocular movements were full, intraocular pressure was normal and no other obvious ocular finding was there. Patient was having preauricular lymphadenopathy on left side. She complained of some foreign body sticking to her eyelid. Diffuse torch light and slit lamp examination revealed a grayish coloured organism adherent on temporal aspect of lateral canthus in left eye. A complete mechanical removal of organism was done with non toothed plain forceps and sent for microbiological examination, which revealed organism to be a hard tick of species ixodes.

Case 3

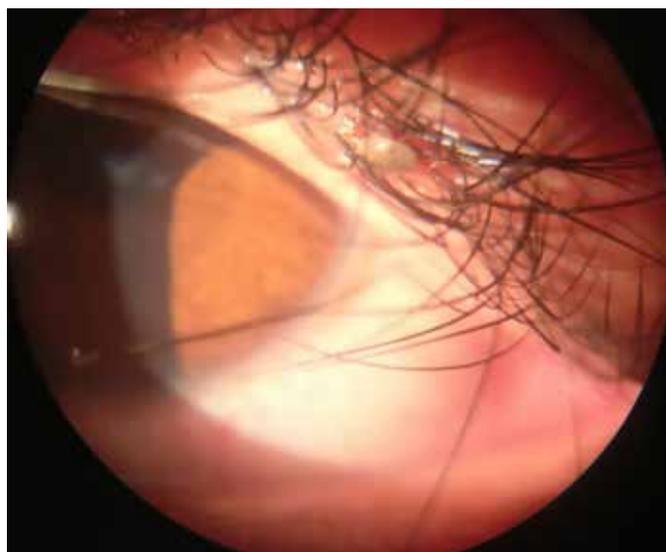


Figure 6&7: Showing diffuse torch light and slit lamp examination showing A tick attached to upper eyelashes



Figure 8: A microscopic picture showing 4 pairs of legs, capitulum and scutum (dorsal shield)-parts of a hard tick

A 18 year old school boy from a rural area nearby our hospital came to us with complaints of pain, redness and swelling in his left eye since last 2 days. On examination visual acuity was 6/6, normal intraocular pressure, ocular movements and ocular adnexa were normal. Patient was having swelling and erythema over left upper eyelid. On careful torch light and slit lamp examination, a tick was found firmly adherent to upper eyelash margins (Figure 6, 7). Removal of tick with plain non toothed forceps was done and was sent for examination in microbiology department. On microscopic examination, parts of a hard tick of genus *Ixodes* having 4 pairs of legs, capitulum and scutum (dorsal shield) were found (Figure 8). Patient was advised oral doxycycline 100mg OD for 2 weeks, topical moxifloxacin 0.5% 6 times and antibiotic ointment at bed time. All the symptoms resolved within 4-5 days.

Discussion

Ticks are ectoparasitic vectors of serious and life threatening diseases such as CCHF, Lyme disease, tularemia, and Q fever.²

In an endemic setting, ocular tick infestation may be seen in individuals of any age group or gender who have exposure.³ All areas of the eye are susceptible to tick inoculation. Involvement of the globe most commonly manifests as conjunctivitis, uveitis, keratitis, and vasculitis.⁴ Bites confined to the eyelid have manifestations, which can range from transient pruritis to severe blepharitis.⁵

A tick at the margin habitually enroots the meibomian gland orifice⁶ and often presents as a mass that mimics the appearance of a hemangioma, nevus, or epidermal cyst.⁷ The preferential localization to the eyelid margin may be due to a combination of determinants, including the fondness of ticks for warm, moist environments,⁸ easy access to a pore without the skin as a first-line defense; and the possibility that the ticks travelled to the host on the eyelashes (cilia have similar appearance to the blades of the grass on which ticks typically wait for a new host).⁹ It is also possible that inhabitation near the margin may be concealed by the superimposed lashes, making initial visual detection by the patient more challenging.

Once on a host, the tick inserts its hypostome, a central

piercing element which has hooks/reverse barbs into the host's skin. This anchors the tick to its host. Some ticks secrete a cementing material to fasten themselves to the host. In addition, *Ixodes* ticks secrete anticoagulant, immunosuppressive, and anti-inflammatory substances into the area of the tick bite. These substances help the tick to obtain a blood meal without the host's noticing. The same substances also help any freeloading pathogens establish a foothold in the host.¹⁰

Removing ticks completely from the affected tissues is of utmost importance in the prevention of tickborne diseases and possible abscess, granuloma, or other local lesions. Therefore, ticks should be removed immediately and carefully from affected tissue. Human and animal studies have demonstrated that the risk of disease transmission and infection increases after the first 24 hours of tick infestation and is especially high after 48 hours.¹¹

Studies have shown that it is not possible to remove ticks completely using chemical substances and also that the use of chemicals stimulates tick's salivation and increases the risk of disease transmission.¹²

The options for removal are either en bloc excision or removal with forceps. In particular, application of a hot match to the tick body, covering the tick with petroleum jelly, gasoline, alcohol, or nail polish, injection, or application of lidocaine to the tick body and passing a suture needle through the tick are dangerous as they may induce the tick to salivate and regurgitate into the attachment site.¹³ Also, use of sharp forceps, and twisting off the head should be avoided, as they might cause leakage of the ticks' potentially infectious body fluids and increase the risk for transmission of certain zoonoses, particularly Lyme disease.¹⁴

2 of our 3 cases showed hard ticks firmly adherent to eyelashes and intermarginal strips along the meibomian glands pores. 1 case was having hard tick anchored to the skin along the lateral canthus mimicking a naevus. All cases were managed by successful removal using blunt plain forceps not leaving any residual tick parts behind.

Conclusion

Any patient presenting with history of swelling, redness and pain in eyelids with or without flu like symptoms, may be seen with a suspicion of having tick infestation of eyelids, particularly in endemic country like India. Ticks removal should be immediate and complete and should be followed by an antimicrobial prophylaxis. Patients should be warned about potential symptoms of Lyme disease such as the development of a circular red rash and flu-like illness. Prevention of tick bites can also be promoted by wearing appropriate long sleeved clothing and the use of repellents in endemic regions.

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Address for correspondence

Mandeep Tomar MS, DNB
 Department of Ophthalmology
 Dr. Yashwant Singh Parmar Government
 Medical College Nahan
 Himachal Pradesh, India
 Email id: sunnyigmc85@gmail.com



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