

## Mixed nocardia and acinetobacter keratitis together mimicking as mycotic keratitis after fish injury

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### Abstract

*Nocardia asteroides* is an unusual organism and *Acinetobacter baumannii* being a commensal organism causes keratitis which initially mimics as fungal keratitis. For delayed diagnosis the patient suffers for a prolonged time, which increases ocular morbidity. Here we are reporting an unusual case report where mixed bacterial keratitis mimics as mycotic bacteria.

A 26 years old male fisherman, came to eye OPD with chief complaint of pain, photophobia, chemosis associated with watering, gradual blurring of vision and foreign body sensation in left eye post 3 months of injury by fish while fishing near swamp area. On initial examination his visual acuity was 6/6 in right eye (RE) and finger count 1 ft in left eye (LE). On slit lamp biomicroscopy; generalized 360°conjunctival congestion was noted. LE revealed corneal oedema with diffuse cellular infiltrates throughout the cornea. A ring-shaped infiltrate of 5mm X 4mm size, in “wreath like pattern” with feathery margins of the ulcer covering the pupillary region with superficial stromal involvement without endothelial infiltrates with approximately 2 mm of hypopyon and multiple satellite lesions were noted. The ulcer was in

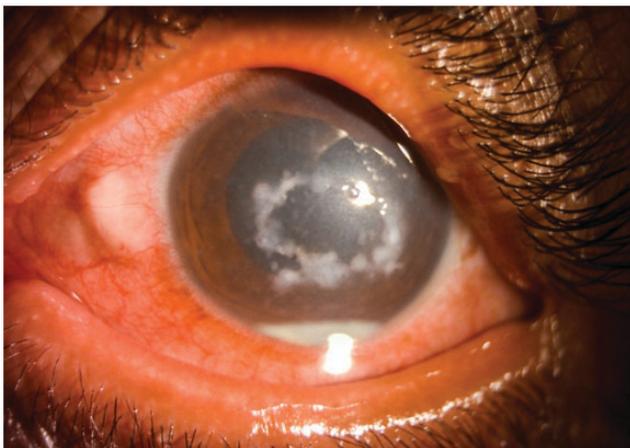


Fig. 1 – A ring-shaped, mid – peripheral infiltrate of 5mm X 4mm size, in “wreath like pattern” with feathery margins of the ulcer covering the pupillary region with approximately 2 mm of hypopyon and multiple satellite lesions.

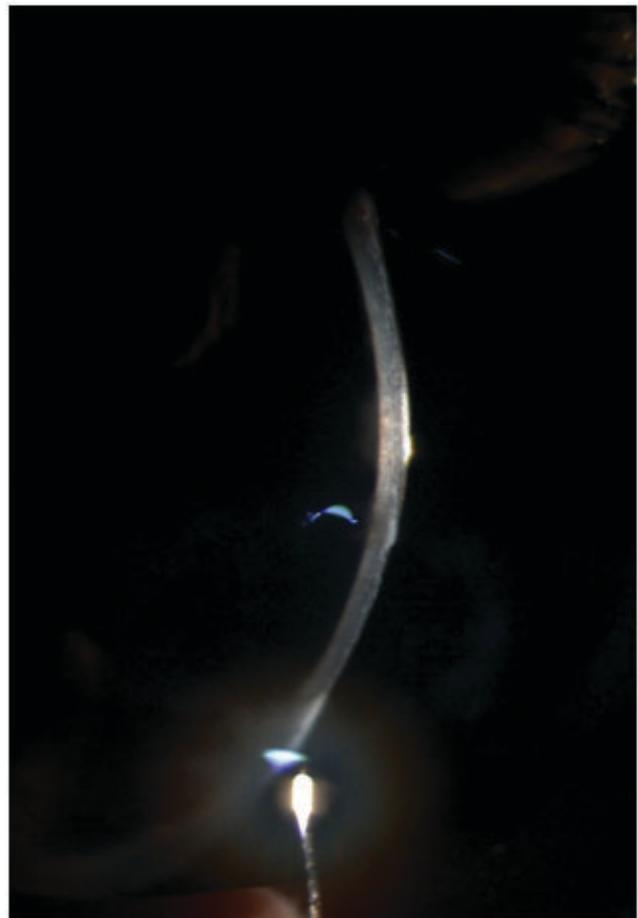


Fig. 2 – LE revealed corneal oedema with diffuse cellular infiltrate throughout the cornea with superficial stromal involvement without endothelial infiltrates and no Descemet fold.

mid periphery region of the cornea. No Descemet folds were present. Anterior chamber showed severe reaction

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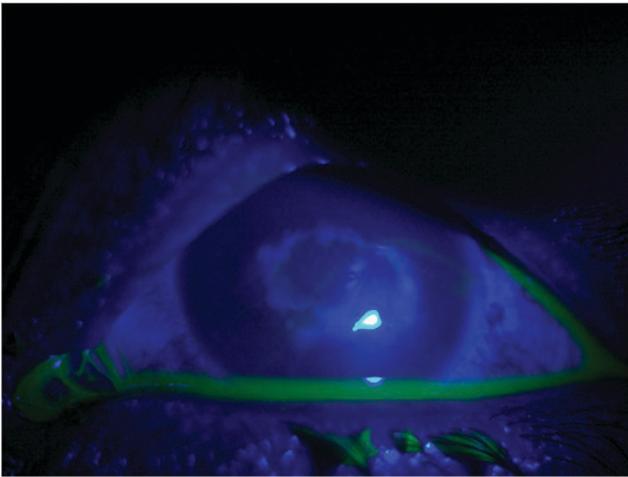


Fig. 3 – Ulcer is fluorescent stain negative.

in left eye Cells and flares both of them were of grade IV (Figures 1, 2, 3). RE was within normal limit. Initially it was diagnosed clinically as mycotic keratitis with combination of bacterial keratitis, as there was presence of severe pain and photophobia and lacrimation, which was more in favor of bacterial keratitis but the appearance of the ulcer was like mycotic ulcer. Immediately corneal scraping was done and sends to microbiology laboratory for staining and culture sensitivity. Empirical antibiotic treatment started i.e. topical moxifloxacin (0.5%), tobramycin (0.3%) and natamycin (5.0%) hourly to reduce the infection. We also started topical cycloplegic (Homatropine) to reduce anterior chamber reaction. Patient came after 1 week for follow up without any improvement. Meanwhile microbiology reports of staining

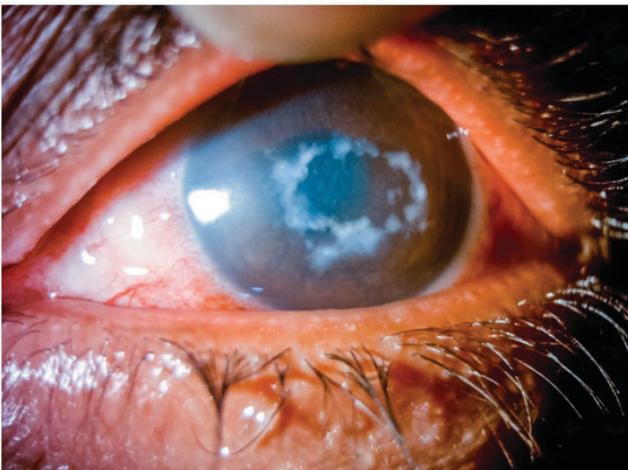


Fig. 4 –Post treatment week 1 – Hypopyon resolved, cells and flares of anterior chamber reduced both to grade I, corneal oedema started reducing, but cellular infiltrates were still there.

and culture reports showed a mixture of *Nocardia asteroides* and *Acinetobacter baumannii*, isolated in pure culture and tested susceptible for amikacin and tetracycline, but no fungus was present. The species identification was done by automated system VITEK 2 in Microbiology department of our hospital. After this result; eye drop Amikacin (1.0%) hourly and oral Doxycycline (100) OD was started for 1 week. Patient was followed up again after 1 week and his symptoms and signs started improving, visual acuity post 1 week of medication was finger counting 3 ft in LE. Hypopyon resolved, cells and flares of anterior chamber both reduced to grade I, corneal oedema started reducing, but cellular infiltrates were still there, the feathery edges of ulcers started become well demarcated but the size of the ulcer was still same 5mm X 4mm, surprisingly satellite lesions disappeared. ( Figure 4) After 1 month of this continued treatment; visual acuity of the patient improved by finger counting 5 feet in LE, peripheral cornea become clear, no anterior chamber reaction was present, and corneal ulcer size reduced approximately by 1mm in diameter, but pupillary region

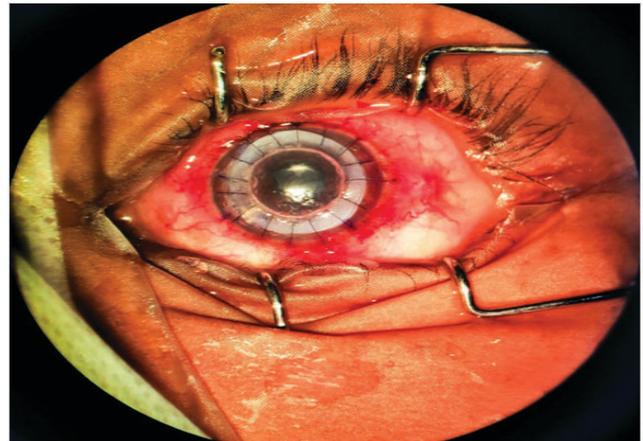


Fig. 5 – Intra-operative picture of optical penetrating keratoplasty.

was not clear. After 6 months LE of the patient became quite and no infection was present but healed corneal opacity was present at the pupillary region, for which visual improvement was not satisfactory and patient had undergone Optical penetrating keratoplasty. In Post-operative treatment patient received tab Ciprofloxacin 500mg twice daily and tab Doxycycline 100mg twice daily for 1 week along with tab Paracetamol 500mg 2times daily for 5 days and oral Prednisolone acetate (1 mg/kg body wt.) 50 mg for 2 weeks then slow tapering was done for 1 month. Topically the patient received Moxifloxacin

(0.5%) 8 times daily and Amikacin (1.0%) hourly in left eye with prednisolone acetate (1.0%) 8 times daily for 1 week which was gradually tapered off and homatropine 3 times daily for cycloplegia. Post-operatively after 3 months; sutures were removed alternatively. After removing of all sutures, patient had under gone refraction and BCVA was 6/18 in left eye and 6/6 in right eye (aided). (Figure. 5)

### Discussion:

*Nocardia asteroides* is an acid-fast and filamentous gram-positive bacillus. It produces corneal ulcer in minor trauma, especially when it is contaminated with soil.<sup>1</sup> This type of keratitis characteristically shows raised, pinhead like infiltrates involving superficial corneal layer in wreath like pattern in the mid periphery region of the cornea with multiple satellite lesions which mimics as fungal keratitis but they are fluorescent stain negative.<sup>2</sup>

Keratitis by *Acinetobacter* can be presented with flu like symptoms, pain in the eye and hypopyon after trivial trauma, treatment with immunosuppressive, bed ridden and use of contact lenses specially in tropical climate as it is a very common commensal of conjunctival pathogens.<sup>3</sup> They are also associated with exposure keratitis.<sup>4</sup>

In our case patient had symptoms which are highly suggestive of bacterial keratitis like severe pain, photophobia, lacrimation but signs and descriptions of acute phase of ulcer was highly suggestive of mycotic keratitis ( like feathery edges, satellite lesion, hypopyon) which was a very confusing picture to clinically distinguish whether it is bacterial, mycotic or mixture of both in origin. This led us to go for a definitive investigation which was scraping and identifying the pathogen.

But the microbiology result was also very uncommon to get *Nocardia* and *Acinetobacter* as causative agent, because the patient neither had trauma, contaminated with soil nor he was immune-compromised.

From the above discussion it can be seen that the patient who presented with keratitis as a mycotic in origin is actually a combination of symptoms of two different

bacterial keratitis. The keratitis was treated with proper antibacterial i.e. topical Amikacin (1.0%) and oral Doxycycline (100mg) after culture sensitivity testing and after healing the infection definitive treatment was penetrating keratoplasty for visual rehabilitation.

### Conclusion:

A mixed bacterial keratitis especially uncommon bacterial keratitis can also mimic as fungal keratitis in unusual circumstances and for that scraping of corneal ulcer and microbiological culture is the definitive test to be done to get away from the dilemma.

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