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Acanthamoeba Keratitis: An Eye to Watch

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Abstract **Case Report**

Acanthamoeba are free-living protozoa parasite found in fresh water, well water, brackish water, and soil[1]. These protozoa have been increasingly recognized as a worldwide cause of painful keratitis associated with contact lens use, although trauma to eye followed by washing with contaminated water has been implicated leading to loss of vision in untreated cases[2]. This case reports a 46-year male patient farmer by occupation presenting to ophthalmology OPD with complaints of pain, redness and diminution of vision since 20 days in the left eye which was gradual in onset and progression. He gave a history of foreign body contact with subsequent eye wash with water from a nearby source. Corneal scrapings were sent for culture, saline and KOH mount. Wet mount showed motile trophozoite forms along with occasional double walled cyst forms. Trophozoite forms of Acanthamoeba were also demonstrated from Non nutrient agar culture plates lawned with E coli (ATCC 25922). Appropriate treatment was initiated for 8 weeks post diagnosis and followed up weekly. Patient showed improvement and gain in vision after the treatment. Acanthamoeba keratitis is a growing clinical problem in developed as well as developing countries. Use of contact lens is the single most important factor in the development of the disease in developed countries. Contact lens wearing, fall of dust particles, trauma due to vegetable matter, contact with contaminated water etc. have been found to be predominant risk factors of AK in developing countries[3].

Keywords: Keratitis, Acanthamoeba, Non-Nutrient agar, Corneal scrapings, Trophozoites, Cysts.

INTRODUCTION

Acanthamoeba are free-living protozoa parasites found in fresh water, well water, brackish water, and soil [1]. They are usually resistant to killing by freezing, desiccation, and chlorination which are commonly used methods for disinfecting municipal water supplies, swimming pools, and hot tubs. They exist as mobile trophozoites or dormant cysts. These protozoa have been increasingly recognized as a worldwide cause of painful keratitis, resistant to many forms of treatment, and ultimately responsible for loss of vision or even loss of the eye in untreated cases [2]. Most reported cases of Acanthamoeba keratitis have been associated with contact lens use, although trauma to eye followed by washing with contaminated water has been implicated.

CASE REPORT

A 46-year male presented to ophthalmology OPD with complaints of diminution of vision since 20 days in the left eye, which was sudden in onset and gradually progressive, followed by a entry of foreign body in the left eye. The patient also complained of pain and redness in the left eye which was sudden in onset and gradually progressive. With a point to note, patient said that he washed his eyes with water from a nearby source when he felt some foreign body had entered his eye. There was no history of trauma to eye. There was no associated swelling in the eye. For these complaints, he had consulted a local doctor. With no subsequent relief, he was referred to Minto ophthalmic hospital (MOH), Bengaluru.

We received corneal scrapings in sterile containers from the Dept of Ophthalmology, MOH, to investigate any bacterial, fungal or amoebic cause of the patient's condition. The sample was directly inoculated onto culture media (Mac Conkey agar, Chocolate agar, Saboraud's dextrose agar (SDA) and non-nutrient agar with lawn culture of ATCC Escherichia coli 25922) and on a slide for microbiological examination. We prepared a normal saline mount of the sample and observed 15–30-micron sized trophozoites with spiny pseudo pods, with prominent nucleus and vacuole and sluggish motility. Double walled round cysts and trophozoites

were photographed. (Fig 1and 2 Shown below respectively). Mac Conkey agar, chocolate agar grew nothing at Day-2. Saboraud's dextrose agar (SDA) grew nothing on Day-5. There was a zone of clearing in non-nutrient agar on Day-5. We prepared a normal saline wet mount from the periphery of the cleared zone and observed few trophozoites and many double walled cyst forms. The non nutrient agar was incubated further and observed till Day-10. Serial wet mounts showed increased number of cysts and tracks on non-nutrient agar. We tried staining the mount with LPCB (Lacto Phenol Cotton Blue) which showed blue stained cysts. With the above clinical picture and microbiological findings, we reported this case as suspected Acanthamoeba infection.

Patient was started on Chlorhexidine eye drops, Neomycin eye drops, PHMB (Polyhexamethylene Biguanide) eye drops, Pain killers, Tablet Doxycycline 100mg. The eyedrops treatment continued for around 8 weeks. Patient was followed weekly. Patient showed improvement and gain in vision after the treatment.

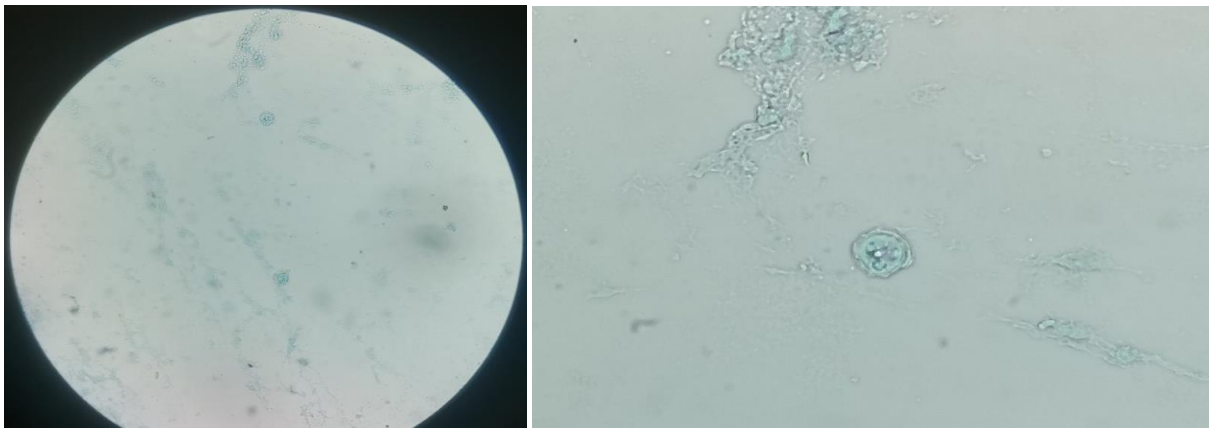

Fig. 1: showing cyst of Acanthamoeba (LPCB)

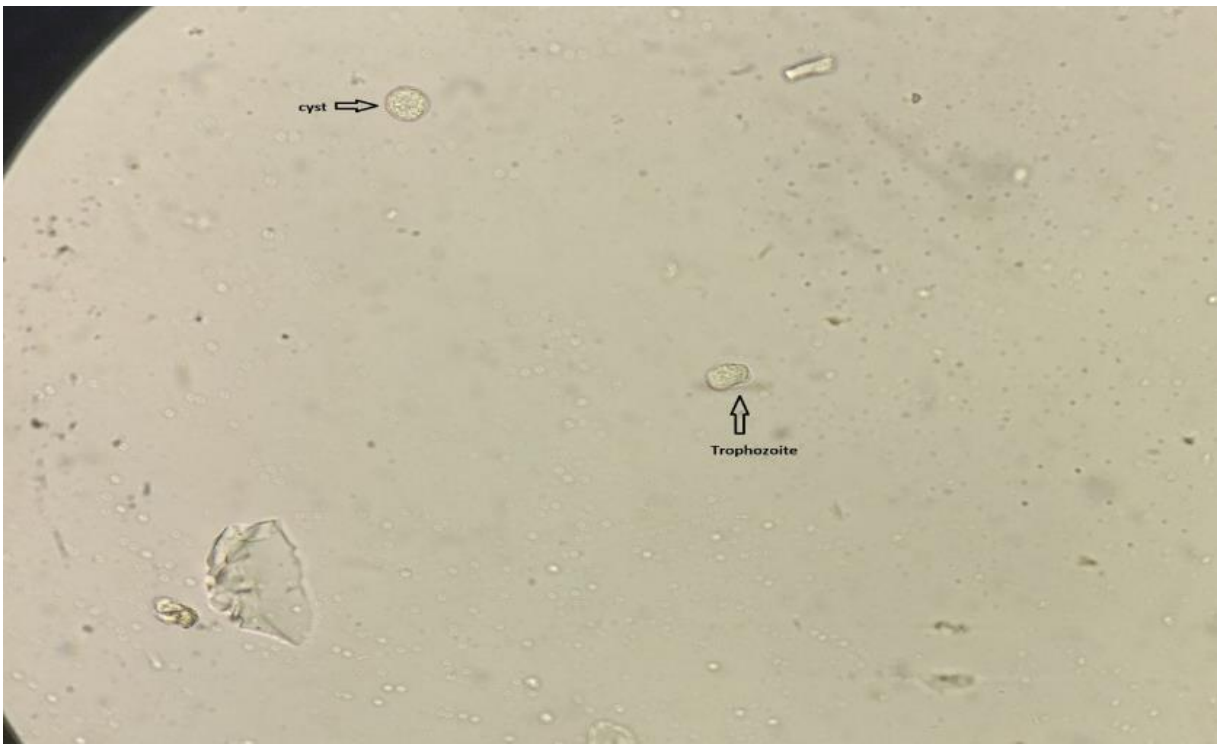

Fig. 2: showing Cyst and Trophozoite in wet normal saline mount prepared from periphery of zone of clearing on non-nutrient agar

DISCUSSION

Acanthamoeba keratitis is a growing clinical problem in developed as well as developing countries. Use of contact lenses is the single most important factor in the development of disease in developed countries. It is associated with 75% to 93% cases of Acanthamoeba keratitis (Jeanette et al, 1989; Cherry et al, 1998; Illingworth et al, 1995). Contact lens wearing, fall of dust particles, trauma due to vegetable matter, contact with contaminated water etc. have been found to be predominant risk factors of AK in developing countries

[3]. It also causes multifocal encephalitis called granulomatous amoebic meningoencephalitis (GAE) and pneumonitis. A. castellani, A. culbertsoni and A. polyphaga are the most associated with keratitis and GAE.

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