

CASE REPORT

Corneal Perforation And HIV: A Great Challenge. A Case Series

Authors

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Abstract

Non traumatic corneal perforations come as a result of tissue destruction from infectious and non infectious causes. Immunosuppression from HIV can lead to thinning of the cornea and can also cause sterile and non-sterile spontaneous corneal perforations. It is a risk factor of corneal perforation and such patients need a good monitoring in order to keep the best eye prognosis. We are reporting a series of 4 cases of corneal perforation in HIV immunosuppressed patients. The HIV status was discovered in 3 of the 4 cases during the follow up of the corneal perforation. This illustrates the difficulty of management of such cases in our milieu, the worse prognosis and the necessity of prevention and the awareness of corneal perforation in countries with HIV prevalence.

Key words: Perforation, HIV, cornea.

Introduction:

Non-traumatic corneal perforations are rare and serious conditions that involve the anatomical and functional prognosis of the eye. They are the result of a tissue degradation process from inflammatory or infectious cause. HIV immunosuppression can lead to corneal thinning and spontaneous sterile or non-sterile corneal perforation. Isolated cases of corneal perforations on HIV immunosuppression have been described in the literature by Raina and al in 2004 (1), Epee and al in 2014 (2), Baranwal and al in 2015 (3). We are reporting a case of 4 corneal perforations following HIV immunosuppression.

Observation:**Case 1:**

Mrs F E, a 27 years old farmer, consulted on the 20/06/2016 for itchy and left eye discharges of one week duration. There was no history of previous eye disease.

On Eye examination: visual acuity was 9/10 in the right eye and counting fingers at 1 m in the left eye.

On Slit lamp examination: we found in left eye, a conjunctiva hyperemia, a 360° cornea thinning of 4mm width with fluorescein staining, a clear central cornea, deep anterior

chamber and purulent discharges in the fornix. Anterior segment of right eye was normal.

The diagnosis of severe bacterial keratoconjunctivitis in left eye was made.

The following investigations were requested: full blood count (FBC), Erythrocytes sedimentation rate (ESR), TPHA-VDRL serology for syphilis, HIV serology, conjunctiva swab (*Neisseria Gonorrhoea* was positive).

The initial management was based on administration of eye drops: Ciloxan, Indocollyre, Atropine, Gentamycin, thoroughly eye hygiene by washing or flushing, and systemic treatment: oral ciprofloxacin and intravenous ceftriaxone.

The evolution was marked 4 days later by a worsening condition with an inferonasal perforation by a ruptured descemetocoele at 5 o'clock.

The results of investigations showed: RB at 6200/ mm³, Hb at 12.3 g/dl, a high ESR 25 mm at 1st hour and 55 mm at 2nd hour, positive HIV serology for HIV 1.

The current treatment was continued with adjunction of oral Antimycotic drugs, vitamin A ointment and consultation to a day hospital for management of the HIV status requested.

The management of descemetocoele was conservative and the hole sealed 3 weeks later and the patient lost follow up.

Case 1 :**Left inferonasal corneal perforation****Case 2:**

Mr M D, 26years old artist musician, consulted on the 03/03/2016 for sudden onset of reduced vision in the left eye of 6 days duration associated to redness, pain, and photophobia. Self-medication with oral Ofloxacin and Neomycin+ Prednisolone eye drop with no improvement. He had no history of previous eye disease.

Eye examination reveals a visual acuity in right eye of 10/10 and counting fingers at 1 m in left eye.

Slit lamp examination showed in the left eye an eye lid edema, abundant mucopurulent discharges, diffuse hyperemia, a conjunctiva injection and chemosis, a hazy cornea with a wide inferior ulcer with dirty aspect, irregular (rough) edges, ovoid in shape with a large horizontal axis measuring 8mm×8,5mm involving the visual axis and extending up to the stroma. Seidel test was negative, an anterior chamber with 3+ cells and fibrin, a mild dilated

pupil with no view to the lens. The anterior segment and fundus of right eye was normal.

The diagnosis of severe bacterial keratoconjunctivitis of left eye was made.

Work up was Full blood count (FBC) with elevated white blood cell count of 11000/mm³, an Hb of 12 g/dl, and a positive HIV serology.

The initial management was started by eye irrigation/flushing, oral sparfloxacin, ciprofloxacin eye drop, Atropine 1% eye drop.

The course of the disease at day 4 was marked by a decreased of the hyperemia and chemosis, a shallow anterior chamber, to a left unilateral corneal perforation evident by a positive siedel's test.

The perforation was managed by use of a bandage contact lens and we planned to do a conjunctiva graft once the inflammation resolved.

At day 20, the patient was started on antiretroviral therapy (initial CD4 count was 412/mm³) with improvement of the eye lesions.

Case 2 :**Left super nasal corneal perforation****Case 3:**

Breastfeeding baby boy aged 13 months, brought in by the mother complaining of bilateral swelling and purulent eyes discharges associated with eye lid edema for one month. The diagnosis of conjunctivitis was made and treated as such. The course of the disease was marked by a generalized skin rash suspected to be varicella zoster, with no improvement of the eye symptoms. In the past medical history we noticed a good milestone development and an up to date vaccination book according to the expanded program of immunization (vaccination).

Eye examination found a visual acuity in both eyes not fixing and not following light (NFNFL or NCNSNM). The right eye had an

infer temporal perforation with iris prolapse and positive seidel test while the left eye had a central corneal abscess with a « leaking descemetocoele » and a 360° pannus.

Systemic examination by a pediatrician revealed patient was chronically ill looking, with oral thrush (candidiasis), erythematous buttocks. A mild protein energy malnutrition

The diagnosis of bilateral corneal perforation and oral candidiasis in HIV immunosuppression probably was made

Biological work up revealed a moderated microcytic normochromic anemia at 9.1 g/dl, a positive HIV serology, a negative IgM varicella zoster virus serology. Microscopy and culture of eye discharge was positive for *Staphylococcus aureus*.

Case 3 :**Bilateral corneal perforation**

Case 4:

Mr B D, 50 years old man presented with redness of left eye since December 2017 (3 months and half duration); the initial diagnosis was Mooren's ulcer treated by ciprofloxacin, framycine+Dexamethasone. In the past medical history, he is HIV immunosuppressed since 23 years on ART (last CD4: 400/mm³) and a traditional eye medication was used (onion).

Eye examination revealed a visual acuity of 10/10 in right eye and a decreased visual acuity to light perception in left eye. The anterior segment examination of the left eye showed a diffuse bulbar conjunctiva hyperemia, corneal changes with inferior descemetocoele with fluorescein staining and a negative seidel test, a

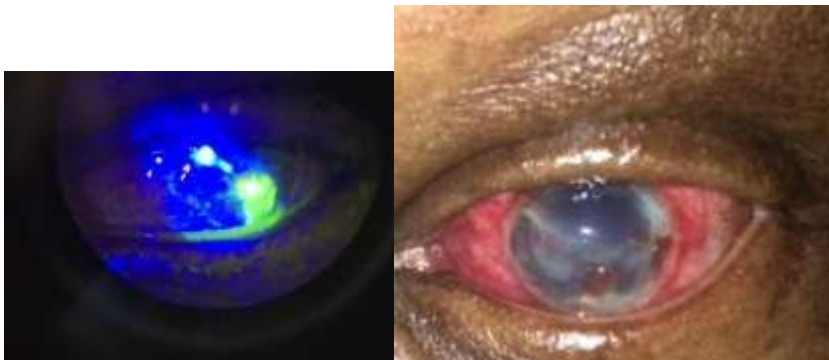
deep ulcer of the inferior $\frac{3}{4}$ of limbus with pannus, a collapsed anterior chamber with no view to the rest of structure. Right eye examination is normal.

The diagnosis of left eye cornea perforation with advanced keratopathy was made.

The initial treatment was administration of vitamin A ointment, Atropine 1%, diclofenac Na eye drop, moxifloxacin and artificial tears.

The evolution was not favorable and an evisceration of the left eye was done.

Four month later, he presents a marginal ulcer in the right eye at 5 O'clock, hypervascularized. We advise for corticotherapy and a sanitary evacuation for a better care.

Case 4:

Left inferior corneal perforation+ super infected marginal limbus ulcer

Discussion:

Corneal perforations and descemetocoele are ophthalmic emergencies. Necessitating an immediate management to avoid visual sequelae, various causes have been implicated:

infectious, vitamin A deficiency, and malnutrition in children, the use of traditional medicine, and HIV immunosuppression status. In 27-55% of cases, when the cause is

infectious, it is from a bacterial agent according to Honig and al(4)

The Human immunodeficiency virus is a risk factor for corneal ulceration following a sicca keratoconjunctivitis which is colonized by bacteria. A cornea thinning and silent perforation have been reported in HIV patients (1)

Several cases of spontaneous bilateral corneal perforations have been described in the literature (1, 3).

The risk factors are the use of traditional medicine, HIV immunosuppression, sicca keratitis, and Neisseria gonorrhoea keratoconjunctivitis. The use of traditional medicine is common in our context, and remain the mode of propagation of microorganisms and a risk factor for corneal blindness in developing countries with 44% in Tanzania(5). The patient number 4 in fact used traditional medicine.

The level of CD4 count is an aggravating factor for the perforation which may be due to an autoimmune mechanism by activation of the delayed cellular mediated immunity (2). Patients 2 and 4 had CD4 respectively of 412 and of 400/mm³. Only one of the 4 patients was known HIV immunosuppressed and already on anti-retroviral therapy by the time of diagnosis.

Sicca keratitis should equally be looked for in HIV patients and can be the cause of a

corneal perforation (3). It can be difficult to appreciate in our context where many etiologies have been implicated.

Gonorrhoea Neisseria keratoconjunctivitis is a well-established cause of corneal perforation and is frequently associated to HIV. It was found in the conjunctiva swab of patient 1. Severe gonococcal keratoconjunctivitis can arrive with or without HIV infection, although HIV infection negatively influence the prognosis (6).

The usual therapeutic aim is to avoid seeding and to preserve the eye ball by use of antibiotic, administration of vitamin A, artificial tears and anti-inflammatories. A Conjunctival graft or the administration of fibrin glue has been described to seal perforations of about 2 mm (7). For those patients, the treatment was conservatively except for patient 4 who had evisceration. Vasseneix in 2006 realized an evisceration on a series of 56 patients presenting a non traumatic corneal perforation (8).

Conclusion:

Corneal perforations on HIV immunosuppression is frequent and high chances of reoccurrence. They carry poor visual prognosis because of late diagnosis and management in our setting. We recommend screening of HIV immunosuppressed who are high risk patients for corneal lesions. This is by

conducting a systematic eye examination
regularly.

Conflict of interest: None

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