

Bilateral Corneal Perforation in a Sexually Active Adult Male with Gonococcal Conjunctivitis

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Summary

A 41 year-old Malay man had been treated by general practitioners for bilateral red eyes with profuse discharge of three weeks' duration with no improvement. He then presented to an ophthalmologist who noted profuse purulent discharge, bilateral corneal perforation, lid swelling and chemosis. Culture of the ocular discharge grew *Neisseria gonorrhoeae*. Treatment with systemic and topical antibiotics prevented microperforations in the right eye from progressing to overt perforation and was able to control disease in the left eye.

Key Words: Gonococcal conjunctivitis, Bilateral corneal perforations

Introduction

Gonococcal and chlamydial infections are important causes of pelvic inflammatory disease and infertility¹. Overall prevalence of gonorrhoea in a large study of young adults in the United States was 0.43% in 2001-2¹. Gonococcal conjunctivitis is rare, involving only 0.19% of all patients with gonorrhoea in Germany². Gonococcal conjunctivitis typically occurs by direct inoculation and is usually unilateral. A case of bilateral gonococcal conjunctivitis with bilateral corneal perforation is therefore extremely rare.

Case Report

A 41 year-old Malay man presented with two week history of bilateral red eyes associated with discharge to the general practitioner who prescribed topical broadspectrum antibiotics which failed to alleviate his symptoms. The patient was married with two children.

Three days later, he noted increased swelling of his left eye with marked blurring of vision and discharge. On

presentation later to an ophthalmologist, his visual acuity (VA) was 6/60 in the right eye and counting fingers in the left. The left eye had a corneal perforation with abscess involving the superior cornea in association with hyphaema and hypopyon. The conjunctiva was markedly chemosed bilaterally with profuse purulent discharge.

Gram stain of the discharge did not demonstrate the organism. Presumptive therapy comprising intravenous ceftriaxone 1 g per day and hourly guttae penicillin and ceftazidime was commenced on a clinical diagnosis of gonococcal conjunctivitis (GCC). *Neisseria gonorrhoeae*, which was sensitive to third generation cephalosporins and chloramphenicol but resistant to Penicillin G, was later cultured from conjunctival swabs.

Relentless thinning of the left cornea nevertheless occurred with slow recovery. Uveal tissue was observed at the area of superior corneal thinning with a thin layer of epithelium five days after admission (Figure 1). Microperforations were observed in the right eye which did not progress to uveal prolapse.

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A dermatological consultation was obtained to screen systemically for associated sexually transmitted diseases including Human Immunodeficiency Virus and syphilis. These were negative. His wife was also screened with negative results.

Twenty days later, he had developed superior corneal guttering with vascularisation. Visual acuity was 6/18 in the right eye and hand movements in the left eye. His last follow-up was seven months after presentation. He had a sealed perforation in the left eye with superior corneal opacity and vascularisation (Figure 2). His best corrected visual acuity was 6/9+3 OD and 6/24 OS. His refractive correction was +1.25/-1.50x160 OD and plano OS. The refraction had been difficult to obtain due to scarring encroaching on the visual axis in the left eye. He defaulted further follow-up and repeat refraction.

Discussion

Common causes of bilateral red eyes in the adult population includes adenoviral conjunctivitis, allergic conjunctivitis and contact lens use. Bacterial conjunctivitis such as adult gonococcal conjunctivitis (GCC) is typically unilateral.

GCC is more common in males particularly those with promiscuous lifestyle. Innoculation with the organism probably occurs following direct contact with infected

body fluids. GCC typically causes pain, profuse purulent discharge and marked conjunctival injection. Other features on examination include keratitis, corneal thinning, anterior chamber inflammation, periocular oedema, tenderness and preauricular lymphadenopathy.

GCC has a significant morbidity and can lead to endophthalmitis and blindness. Unlike other bacterial causes of conjunctivitis, it behaves aggressively and may rapidly lead to perforation. Bilateral ocular involvement is extremely rare and was last documented in 1983 during an epidemic of GCC in Malawi³.

Although incidence of gonorrhoea has been declining, this is offset by an increasing rate of resistance to antibiotics. Therefore any conjunctivitis which fails to respond to broadspectrum antibiotics must raise a suspicion of GCC.

Treatment of perforated corneas following GCC is truly challenging. These eyes usually have a residual high astigmatism due to superior corneal guttering which interestingly, did not occur in this case. Apart from difficulties in refraction, it is possible that in this case the scarring did not produce significant astigmatism or that with-the-rule astigmatism produced had neutralised original against-the-rule astigmatism. Furthermore, the eye is an organ under dynamic structural changes even when scarring has occurred and hence, further refraction would be needed.

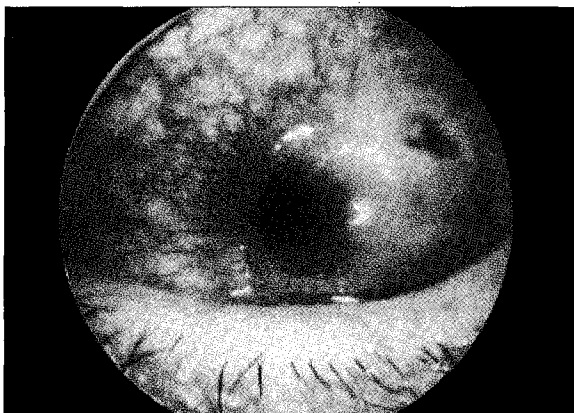


Fig. 1: Anterior segment photograph showing overt perforation with uveal prolapse at the superior aspect of the left cornea near the limbus three days after presentation.



Fig. 2: Anterior segment photograph showing superior corneal scarring and vascularisation of the left eye seven months later after successful therapy.

CASE REPORT

Surgical options in progressive corneal melting include deep lamellar keratoplasty⁴ or penetrating keratoplasty. Other temporising options include cyanoacrylate glue or soft bandage contact lens. However, prompt institution of medical therapy such as in this case is vision saving.

Visual prognosis for corneal perforation is poor. Majority of patients with severe keratitis had final VA of light perception despite antibiotic therapy and keratoplasty. Reduction of VA may also occur secondary to high astigmatism at the site of previous perforation. In fact an acceptable visual outcome was obtained and the eye was saved due to commencement of appropriate antibiotics at the right time.

The lessons to learn from this case are:

- Patients with chronic conjunctivitis who do not respond to medications after two weeks should be referred to an ophthalmologist.
- Gonococcal conjunctivitis is a rapidly progressive disease which can lead to corneal perforation, endophthalmitis and blindness and may be bilateral. Hence, there should not be delay in referral of suspicious cases of purulent conjunctivitis to the ophthalmologist.
- Gonococcal conjunctivitis responds well to prompt therapy, which includes screening for associated sexually transmitted diseases.

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