Gonoccocal Keratoconjunctivitis in Adult Patients

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ABSTRACT

Neisseria gonorhoeae is an agent of a highly contagious eye infection called Gonococcal keratoconjunctivitis. Gonococcal eye infection in adults is not very common, so the clinical diagnosis may be delayed without high suspicion index. Neonatal infection also known as gonococcal ophthalmia neonatorum affect babies during the passage through the birth canal of an infected mother, but sporadic cases observed in older children as well as adults typically has source as someone who has a genital infection with accidental infection of the eye. We hereby present two cases of bilateral purulent keratoconjunctivitis in adult patients with gram-negative intracellular diplococci, with a positive sexual history with a commercial sex worker in one of them.

Keywords: Adult, Gonoccocal Keratoconjunctivitis, High index suspicion, Antibiotics

INTRODUCTION

Neisseria gonorheae is the agent of a highly contagious eye infection called Gonococcal keratoconjunctivitis. A single case points to the possibility of an epidemic occurring, therefore an urgent notification must be done and investigation of the conditions of the infection with a public health response is fundamental. It is a notifiable disease[1] but due to the uncommon case of gonococcal eye infection, the clinical diagnosis may be delayed. Therefore, it is imperative that a rapid confirmatory culture for isolation of the organisms as well as early parenteral antibiotic treatment be instituted. This need to be done as the effect of gonococcal conjunctivitis is directly related to the severity of disease at the start of satisfactory therapy[2]. Usually, Gonococcal conjunctivitis is a localised, fairly severe infection of the conjunctiva with extreme inflammation and copious purulent discharge which may or may not be associated with periorbital oedema but corneal ulceration, perforation and blindness may occur if treatment is not commenced timely.[1] The causative agent, *Neisseria gonorrhea,* can penetrate both broken and intact cornea rapidly leading to endophthalmitis. *Neonatal infection* usually occurs during the passage of the baby through the birth canal of an infected mother, while s*poradic cases* seen in older children and adults usually occur in an individual with a genital infection. An individual with genital gonorrhoea can accidentally infects his or her eyes by touching them with contaminated fingers or fomites (e.g. clothes, towels, etc.) that are contaminated with the person's genital secretions. Also, a person may become infected by coming in contact with the contaminated fingers or fomites of another person who has genital gonorrhoea[1].

Epidemics may result from a person with gonococcal conjunctivitis when infection is passed by direct, non-intimate interpersonal contact; contact with infected fomites (e.g. clothes, towels, etc.) or transmission by flies. Such epidemics usually take place in rural communities and this has been linked to increased number of flies following heavy rainfall[1]. So it is possible for the infection to be quite mild lingering for several weeks or months.[1]

A case can be confirmed by culture of *N. gonorrheae* from conjunctival specimen or 2 positive Polymerase Chain Reaction (PCR) assay for same specimen or a case may be probable if there is clinically diagnosed illness and a gram negative intracellular diploccocci on conjunctival microscopy specimen. We report cases of two young unmarried men who reported in our hospital for treatment of bilateral purulent conjunctivitis.

CASE 1

A twenty three year old man reported in the hospital with a 2-day history of bilateral swollen lids, purulent discharge, difficulty in opening the eyes, photophobia, redness of both eyes, foreign body sensation and ocular pains. Patient denied any urinary symptoms and any form of unprotected sex. Examination showed visual acuity (VA) of right eye (OD) 6/24, left eye

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(OS) 6/36. Swollen lids with matted lashes, purulent discharge both eyes. Chemotic conjunctiva, flourescein staining of cornea showed punctuate epitheliopathy. Conjunctival swab taken for gram stain and culture came back positive for gram positive diplococci. Patient turned down admission because of financial constraints. He was placed on daily ceftriaxone 1.0g daily for three days, topical ciprofloxacin 0.3% and steroid ointment. Patient was reviewed the following day and noted that the discharge had reduced in quantity and by the third day, his vision was 6/9 both eyes (OU), conjunctival chemosis and lid oedema had reduced considerably. Patient was seen a week later and his vision had returned to 6/6 OU

CASE 2

A 28 year old bricklayer single male reported in the hospital with a one week history of purulent discharge both eyes. There was associated ocular pains, redness, photophobia and reduction in vision. He described the purulent discharge as 'running like tap water'. The above symptoms occurred 2 days after instilling his own urine into the eyes as treatment for red eye “Apollo”. Patient said he had earlier been managed for inflamed nasal pterygium. He also admitted to a previous episode of pain on micturition about 2-3 days prior to unset of eye symptoms which he treated with some unknown drugs from a patent medicine dealer. He had also used various topical medication (which he could not name) including chloramphenicol. Patient was involved in unprotected sex with a prostitute while on duty in another town outside his town of residence 2 weeks prior to unset of symptoms. Examination showed VA 3/60 both eye (OU). Swollen, hyperaemic lids with matted lashes, chemotic conjunctiva, pseudomembrane, copious purulent discharge. Flourescein stain showed punctuate epitheliopathy. Conjunctival swab taken for culture came back negative. Patient was asked to screen for HIV but refused. Ocular toileting with normal saline was done. Patient could not be admitted into the ward because of the challenge in the health sector at that time and so was treated on out- patient basis. Intravenous ceftriazone 2.0gm daily for 3days, topical ciprofloxacin 0.3%, and topical corticosteroid was administered. Patient was encouraged to bring sexual partner. Day following start of treatment, there was marked decrease in discharge, chemosis and vision improved. By the third day discharge had stopped and vision improved to 6/12, but still injected because of the bilateral nasal pterygia. Vision further improved to 6/9 by 1 week and he was lost to follow up.

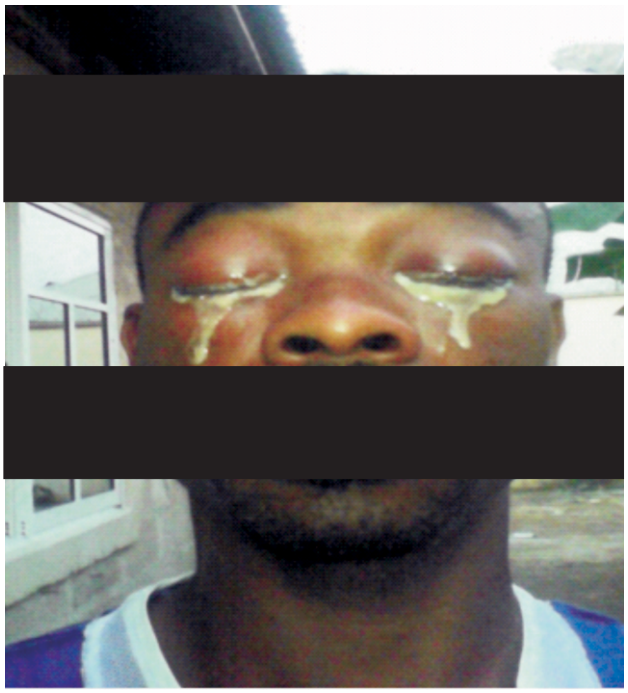

Figure 1: Before Treatment

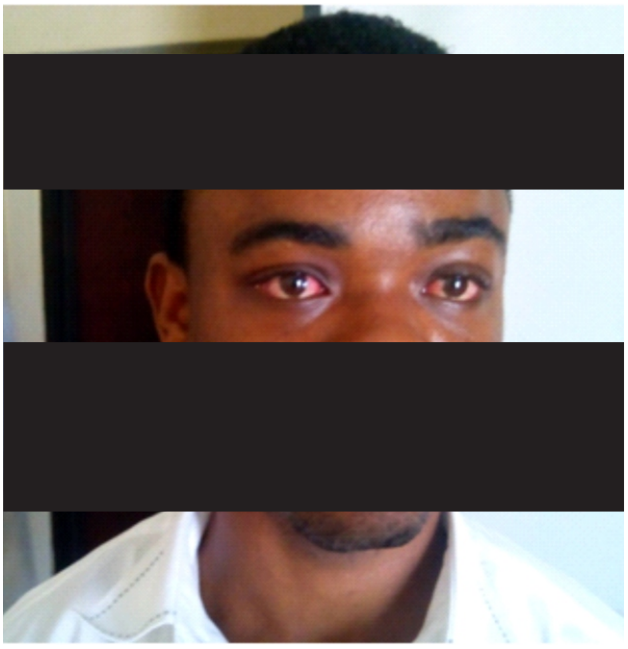

Figure 2: After Treatment

DISCUSSION

Gonoccocal keratoconjunctivitis in adults is rare when compared to neonatal keratoconjunctivitis. Presentation is with very profuse hyperacute discharge, lid swelling, severe conjunctival chemosis and hyperaemia; epithelial or stromal keratitis. The period of incubation of gonoccocal ocular infection generally has a range from 3-19 days, and urethral symptoms most of the time precede ocular symptoms for one to several weeks.[3] Gonoccocal ophthalmic infection should always be considered in the differential diagnosis of purulent conjunctivitis in both adults and neonates. The genital symptoms may be absent and even if present, the patient may not readily link the present ocular complaint to the genital infection. The degree to which the cornea is involved is highly variable, but common presentations like marginal corneal melt, subepithelial or stromal infiltrates and a discrete oedema of the entire surface of the cornea are often seen.[4] Infection usually results from autoinoculation from infected urethral discharge as in our second case where infected urine from patient was used as traditional eye medication (TEM). It can also result from making contact with fingers that are contaminated or fomite of someone with genital gonorrhea.[1] This may be the possible route of infection in the first presented case. Prompt initiation of adequate antibiotic therapy will affect the final outcome. Complications from ocular gonoccocal infection can be prevented where there is high index of suspicion and so, prompt parenteral antibiotic that will cover both the penicillin-sensitive and penicillinase-producing strains of *N. gonorrhoeae* (PPNG) should be instituted.

The Centres for Disease Control and Prevention (CDC) at present approves combination therapy with a single intramuscular (IM) dose of ceftriaxone 250mg in addition to either a single dose of azithromycin 1g orally or doxycycline 100mg orally twice daily for 7 days for cases of uncomplicated urogenital, anorectal, and pharyngeal gonorrhea.[5-8] This is because most gonococci infection in United States are susceptible to doxycycline and azithromycin. Where ceftriaxone is unavailable, cefixime 400mg orally, in addition to either azithromycin 1g orally or doxycycline 100mg twice daily for 7 days should be given. For those patients who are allergic to the cephalosporins, the CDC recommends use of a single 2g dose of azithromycin orally. In these two circumstances, a test of cure for these patients should be carried out a week after treatment. Furthermore, the CDC recommended that every patient with adult gonococcal conjunctivitis be hospitalised and a 5-day course of high doses of parenteral antibiotics like penicillin or cephalosporin be administered.[5-8]. For the treatment of PPNG conjunctivitis, the CDC recommends the administration of 1.0g of cefoxitin or 500mg of cefotaxine intravenously (iv) four times a day or 1.0g of ceftriaxone intramuscularly (im) daily for five days. WHO recommends cefotaxime 1.0g iv four times a day for 5 days or im spectinomycin 2.0g for 3 days. Recently, oral norfloxacin 1200g for 3 days has been suggested as a helpful substitute for adult gonococcal keratoconjunctivitis (AGK) particularly for PPNG strains[8].

In our case series, we used 1.0g ceftriaxone daily for 3 days in the first case and 2.0g daily for three days in the second case because of suspected corneal involvement as recommended by Basic and Clinical Science Course, Section 8[9].

CONCLUSION

Adult gonoccocal keratoconjunctivitis, though rare when compared with neonatal cases, is still seen as sporadic cases in our environment, therefore clinicians should adopt a high index of suspicion since prompt appropriate therapy is the key to prevention of grave sequelae.

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