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CASE REPORT

A 30-year-old male with corneal opacity and a rapidly progressing ulcer

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KEYWORDS
Gonococcal keratoconjunctivitis;
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Abstract Gonococcal keratoconjunctivitis is a rapidly progressing and aggressive infection caused by *Neisseria gonorrhoeae*. We report a case of a patient who presented keratoconjunctivitis with an opacity in the left cornea that progressed into an ulcerative lesion despite initial treatment with antibiotic eye drops. Gram stains from the purulent discharge of the left eye showed gram-negative diplococci, and the culture from the ocular discharge was positive for *Neisseria gonorrhoeae*. Resolution was achieved with the administration of 2 g of intramuscular ceftriaxone in a single dose, and the patient had no sequelae.

PALABRAS CLAVE
Queratoconjuntivitis gonocócica;
Conjuntivitis;
Neisseria gonorrhoeae;
Opacidad corneal

Hombre de 30 años con opacidad y úlcera corneal de rápida progresión

Resumen La queratoconjuntivitis gonocócica es un infección agresiva y de rápida progresión causada por *Neisseria gonorrhoeae*. Reportamos el caso de un paciente quien presentó queratoconjuntivitis con opacidad corneal izquierda, la cual progresó a lesión ulcerativa a pesar del tratamiento inicial con antibiótico en gotas oftálmicas. La tinción de Gram y el cultivo a partir de la secreción purulenta del ojo izquierdo mostró diplococos gramnegativos y crecimiento de *Neisseria gonorrhoeae*, respectivamente. La curación del paciente se logró tras la administración de 2 g de ceftriaxona intramuscular en dosis única; el paciente no presentó secuelas.

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Introduction

Gonococcal keratoconjunctivitis is a rapidly progressing and aggressive infection caused by *Neisseria gonorrhoeae*.[1] Clinical course typically causes acute pain, conjunctival injection, chemosis and a profuse purulent discharge that can progress to perforation and vision loss.[1] Treatment must be initiated as soon as possible, even before the result of the culture due to the aggressive nature of the infection; this includes intramuscular antibiotics, in addition to topic ones.[1]

We report a case of a patient who presented keratoconjunctivitis with an opacity in the left cornea that progressed into an ulcerative lesion.

Case description

A 30-year-old white male, professional soldier, with no relevant previous medical history, presented to the emergency room in July 2013 with decreased visual acuity, photophobia and purulent discharge in left eye for 5 days; the patient denied other symptomatology, history of recent travel, ocular trauma or immersion in pools or lakes. He referred monogamous sexual activity.

On physical examination the patient had a temperature of 37.3 °C, blood pressure of 118/75 mmHg, heart rate of 85 bpm, respiratory rate of 22 and Glasgow coma scale 15/15, left eye with conjunctival injection, purulent discharge and no visible foreign body, posterior segment examination showed no alteration; oral mucosa, genital and anal area had no alterations, there were no other relevant systemic findings.

He was evaluated by the service of ophthalmology who diagnosed keratoconjunctivitis and initiated topic ophthalmic treatment with antibiotic eye drops (Polymyxin B [5000 U], Gramicidin [0.025 mg] and Neomycin [1.75 mg]). Despite the established treatment, 48 h later the patient continued with impaired visual acuity and anterior ophthalmological examination showed an opacity in the left cornea that progressed into an ulcerative lesion (Fig. 1) in the following 24 h, for that reason the Infectious Diseases department was called upon for further evaluation and treatment.

Figure 1 Ulcerative lesion in the left eye of 72 h of evolution.

The patient's complete blood count showed a leukocyte count of 11,000 cells/μL with neutrophil count of 6421 cells/μL, erythrocyte count of 5,300,000 cells/μL and platelet count of 254,000 platelets/μL; HIV rapid test was negative.

Gram stain from the left eye purulent discharge showed Gram negative diplococci and the culture from the ocular discharge was positive for *Neisseria gonorrhoeae*, confirming the diagnosis of gonococcal keratoconjunctivitis. The patient was given 2 g of intramuscular ceftriaxone single dose as treatment, with a satisfactory resolution of his clinical course and no sequelae. We were able to reach the patient's sexual partner; she had no ocular, oral, genital or anal alterations, and the rest of her physical examination was completely normal, however, as they had sexual intercourse within the last 60 days before diagnosis, she received 250 mg of intramuscular ceftriaxone single dose; she had no other sexual transmitted diseases tested.

Discussion

Gonococcal keratoconjunctivitis typically occurs in males, especially with promiscuous life style[1] by direct inoculation with infected body fluids[1–3]; it is usually unilateral,[1] with an incubation period after contact between 3 and 19 days.[4]

Clinical course typically causes acute pain, conjunctival injection, chemosis and a profuse purulent discharge that can rapidly progress to perforation and vision loss.[1] Other findings at physical examination include keratitis, corneal thinning, anterior segment inflammation, periorbital edema and pre-auricular lymphadenopathy.[1]

The particular ability of *Neisseria gonorrhoeae* of invading intact corneal and conjunctival epithelium is due to the presence of pili in certain strains of the bacteria, as nonpiliated gonococci are not able to adhere to the corneal epithelium. Once the bacteria has successfully adhered to the epithelium, they are engulfed by epithelial cell protrusions; approximately after 8–24 h of exposure, the superficial infected cells tend to desquamate into the medium, facilitating the infection of deeper layer cells, as transcellular migration of the bacteria does not occur. The release of toxins does not seem to be an important factor in the initial stage of gonococcal infection of the human cornea.[5]

With ocular gonococcal infection in adults not being frequent, diagnosis can be delayed in many cases[2]; initially, conjunctival scraping samples can be taken for a Gram stain, in which intracellular diplococci may be evident, however the early realization of a culture of the ocular discharge for the isolation of this microorganism confirms the diagnosis.[3,4] A study conducted in a referral center in Bangkok, Thailand by Sirikul et al. with the objective of determining predisposing factors, demographic characteristics, and etiology of ulcerative keratitis, with a total of 130 isolates, obtained as a result that among the various pathogens capable of causing corneal alterations (i.e., bacteria, fungi, viruses, or parasites), *Pseudomonas* spp. was the most frequent bacteria isolated with 55% of bacterial isolates, followed by *Streptococcus* spp. with 15% of bacterial isolates; *Fusarium* spp. and *Aspergillus* spp. were the most common fungal pathogens isolated with 26.5% and 18%