

Severe corneal ulcers: a case report of 78 patients

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I. Introduction

Severe corneal ulcer is an erosion of the epithelial layer and the corneal stroma associated with one or more local or general criteria of gravity. It is a frequent and serious pathology involving the functional and anatomical prognosis of the eyeball. It poses a problem of etiological diagnosis.

It is a public health problem because corneal ulcer is one of the main causes of visual impairment in sub-Saharan countries¹.

The aim of our study is to describe the characteristics of severe corneal ulcers encountered in our context.

II. Materials And Methods

Retrospective study of 78 patients hospitalized for severe corneal ulcer in our center between January 2013 and December 2016. We included in this study all patients with a corneal ulcer with one or more local or general severity criteria. All patients received a corneal swab for microbiological study.

III. Results

The average age was 53 ± 16 years (17-83 years) with a predominance of male (sex ratio of 2.5/1). Sixteen patients were diabetic (20%) and 10 patients were followed for dry eye syndrome (12%). The etiologies were dominated by infectious ulcers (29%), post-traumatic ulcers (25%), post-ocular surgery (18%) and lens wear (18%). The microbiological study of the corneal sample revealed *Streptococcus pneumoniae* in 9 cases (11.5%), *Klebsiella* in 4 cases (5%), *Staphylococcus* in 4 cases (5%), *Pseudomonas* in 2 cases (2.5%) and *fusarium* in 1 case (1.2%). Among the patients, 84% were initially put on probabilistic antibiotherapy (Ceftazidime and vancomycin in reinforced eye drops), locally and a systemic antiviral probabilistic treatment with valaciclovir in 18% to cover corneal herpes. Evisceration was performed in 10 cases (13%), keratoplasty in 4 cases (5%), amniotic membrane grafting in 2 cases (2.5%) and biological glue in 2 cases (2.5%). The evolution was favorable in 43 cases (55%), unfavorable in others, marked by a worsening of the local condition with a decrease in visual acuity in 25 cases (24%) and endophthalmitis in 7 cases (9%).

IV. Discussion

Severe corneal ulcers are corneal ulcers associated with one or more local or general severity criteria. The main severity criteria are abscess with a Tyndall of more than one cross, and/or a diameter greater than 2 mm, and/or located less than 3 mm from the optic axis, associated scleritis, associated endophthalmitis, corneal perforation, suspicion of *Pseudomonas*, *Neisseria*, aggravation despite 24 hours of antibiotic treatment, bilateral involvement, corneal transplantation, post refractive surgery, monophthalmos, child, immunocompromised, poor compliance with treatment².

It is a serious pathology representing a diagnostic and therapeutic emergency. Indeed, in the acute phase, they can be complicated by corneal perforation, while in the chronic phase they can lead to disabling sequelae such as axial opacities that may require keratoplasty³.

1) ¹ Bourcier T. Abcès de cornée: que faire ou ne pas faire en urgence? *Réalités Ophtalmologiques*. 2012;191(1):1-3

2) ² Mahjoub, A., Gayed, N., Krifa, F., Knani, L., & Hachemi, M. (2021). Severe corneal abscess: epidemiology and clinic bacteriological aspect. *La Tunisie Medicale*, 99(6), 632-637.

3) ³ Schaefer F, Bruttin O, Zografos L, Guex-Crosier Y. Bacterial keratitis : a prospective clinical and microbiological study. *Br J Ophthalmol* 2001;85:842—7

Our study included 78 eyes, which is similar to the study of Bourcier et al. which included 67 eyes. The average age of our patients was 53 ± 16 years (17-83 years) with a male predominance (sex ratio of 2.5/1), whereas in Ancele⁴ et al the average age was 46 years with extremes ranging from 2 to 95 years and a sex ratio of 1.16.

The main risk factors were ocular surface pathologies which were found in 29% of the cases in our series against 39.6% in the series of A. Darugar et al⁵ (N=105; Paris), against 16% in the series of E. Ancele et al (N=67; Toulouse) and 18.6% in the series by G. Dethorey et al (N=268, Paris). Ocular trauma was found in 25% of the cases in our series, compared with 27.9% in the series by A. Darugar, 12% in the series by E. Ancele and 5.2% in the series by G. Dethorey. Contact lenses were used in 18% of the patients in our series, compared with 39.6% in the series of A. Darugar et al, 49% in the series of E. Ancele et al and 48% in the series of G. Dethorey et al. Ocular surgery was found in 11.7% of the cases in our series, compared with 7% of the cases in the series of A. Darugar et al, and 17.5% of the cases in the series of E. Ancele et al and 18% in the series of G. Dethorey et al. The germs most frequently found in the literature are staphylococcus and pseudomonas, and the same is true in our series. Gram-positive cocci bacteria are the most frequently found germs in the literature⁶.

The germs were unidentified in 74.8% of cases, which is much higher than in the literature, where the germs are unidentified in 18% to 22.5% of cases. In practice, microbiological samples must be taken as a matter of urgency. This is due to poor sampling conditions, late delivery of the sample to the laboratory and a lack of collaboration between the ophthalmologist and the biologist. It seems useful to us to be able to perform corneal scrapings in the same laboratory under optimal conditions in order to increase the chances of positivity⁷.

Conclusion

Severe corneal ulcers are a diagnostic and therapeutic emergency. They rarely occur without risk factors. It is important to appreciate this risk in order to act upstream. Patient education in contact lens handling is part of the responsibility of the prescribing ophthalmologist. Trauma is a frequent and preventable cause in our context and should be prevented according to age.

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