



Management of neurotrophic corneal ulcer.

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Abstract

Persistent or recurrent corneal ulcers, are among the most difficult ophthalmological conditions to treat, and may potentially result in blindness.

In the absence of healing, they progress toward corneal perforation or total de novo vascularization.

Although the clinical diagnosis may be made without difficulty, the management can be quite challenging.

Novel therapies recently being investigated are beginning to show promise in the treatment of the nonhealing corneal epithelium.

Keys words: neurotrophic corneal ulcer, traitement.

Neurotrophic keratopathy is a degenerative corneal disease induced by an impairment of trigeminal nerve. Impairment of loss of corneal sensory innervation is responsible for corneal epithelial defects, ulcer, and perforation.

Early diagnosis, severity-based treatment, and careful monitoring of NK patients are mandatory to achieve epithelial healing and prevent progression of corneal damage. We report a case of an oropharynx carcinoma extension revealed by persistent neurotrophic corneal ulcer.

CASE REPORT

A 46 years woman was referred to Bicetre University Hospital on 30 July 2014 for a persistent corneal ulcer despite the use of preservative-free lubricants (artificial tears, gels and ointments of varying viscosity). The patient was treated for advanced oropharynx carcinoma by combination of radiotherapy and Erlotinib (inhibitor of epidermal growth factor receptor (EGFR)). On physical examination, our patient's best corrected visual acuities were 2/10 in the right eye and 10/10

in the left. Slit lamp examination showed conjunctival injection and inferior corneal ulcer. There was no inflammatory chamber reaction in either eye (Figure 1). Corneal sensitivity, tested with a piece of cotton, was found reduced. Corneal reflex was absent. Intraocular Retinas of both eyes were normal.

The recent event of corneal neurotrophic ulcer led us to performed cranial magnetic resonance imaging (MRI), which revealed a massive extension to the cranial base, through which the trigeminal nerve passes (Figure 2).

We started to treat her with matrix therapy agent (calicicol) in association with preservative-free artificial tears, vitamin A and corticosteroid pomade. But the corneal epithelial defect remained unchanged. 5 days later we added topical autologous serum applied every two hours to the right eye. The mean ulcer area decreased significantly in the first week.

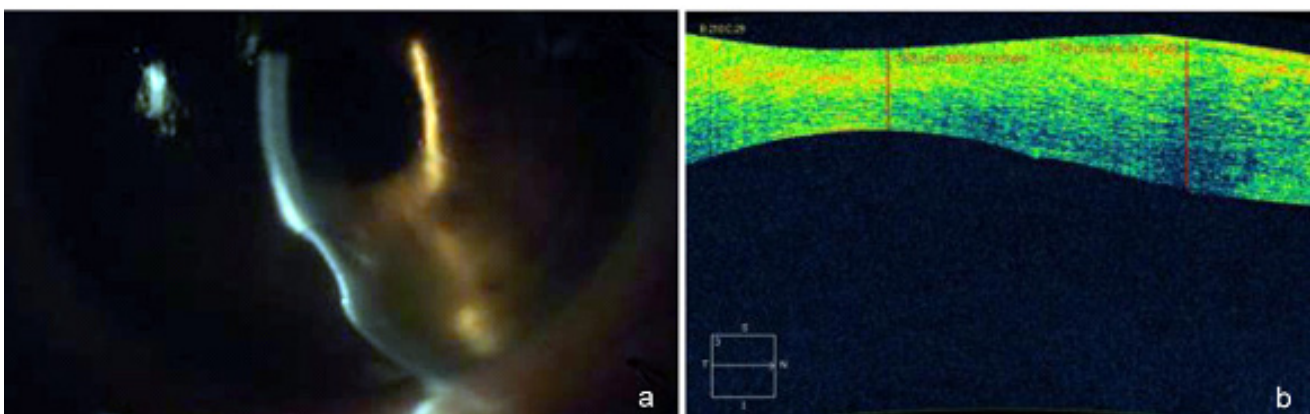


Figure 1: Slit lamp photography (a) and OCT image (b) showing circular corneal ulcer with regular edges.

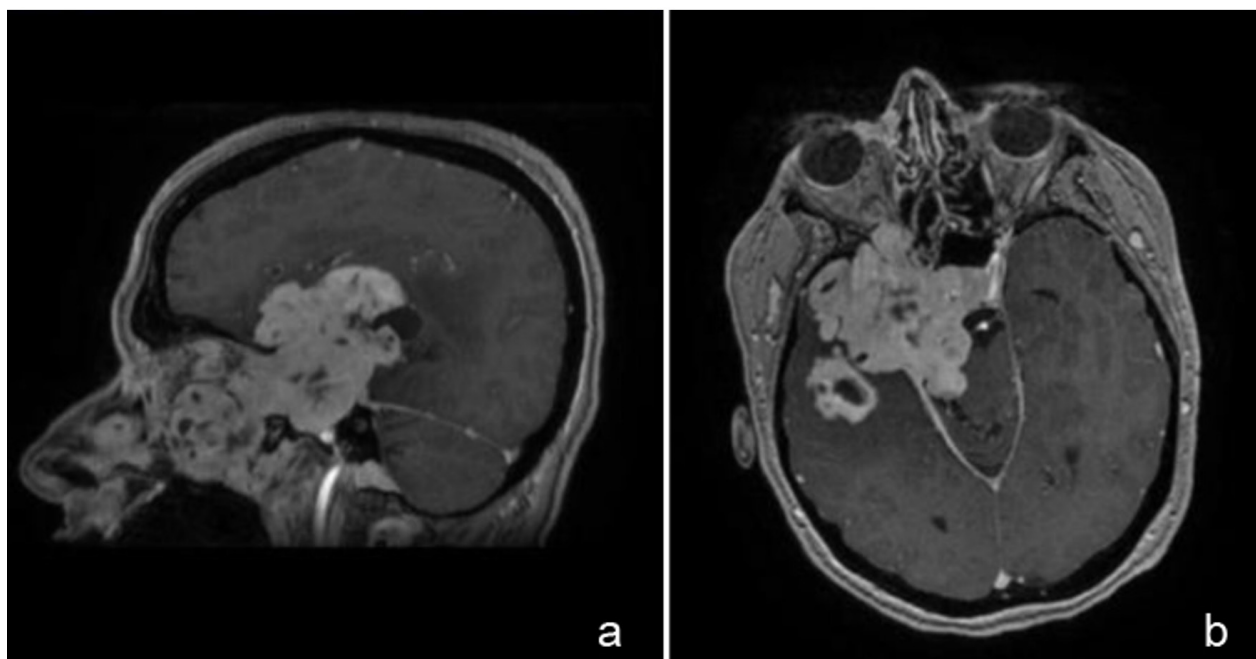


Figure 2: Sagittal (a) and axial (b) post-contrast T1-weighted MR image with fat suppression revealing intra-cranial tumor extension from the nasopharynx.

6 days later, we were surprised by real aggravation; the ulcer was deeper with imminent risk of perforation (Figure 3).

We decided to perform amniotic membrane transplantation over the corneal epithelial defect in the left eye. Before surgery, informed consent was obtained from our patient. Fresh frozen amniotic membrane was transplanted over the whole cornea with an on-lay technique, and was sutured to the conjunctiva with 10-0 nylon (Figure 4).

At three weeks after the amniotic membrane transplantation, the corneal epithelial defect in our patient's right eye had almost healed.

DISCUSSION

Neutrophic keratopathy is a rare degenerative corneal disease induced by an impairment of trigeminal nerve leading to a reduction (hypoesthesia) in or loss (anesthesia) of corneal sensitivity, development of persistent epithelial defects that may progress to corneal ulcer, melting and perforation [1].

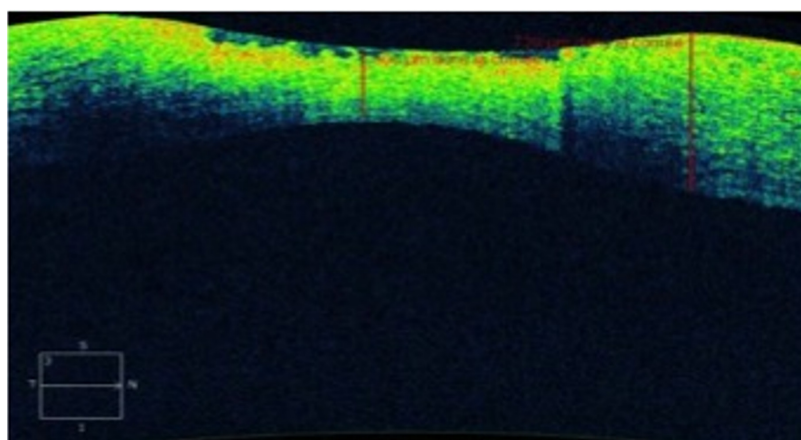


Figure 3: Cross sectional OCT scan demonstrating the ulcer aggravation.



Figure 4: Amniotic membrane transplantation.

The process of reepithelialization dependent on innervation of cornea and it's involving cellular interaction and various molecules (proteases, growth factors, and epithelial and stromal cytokines) [2].

Hypoesthesia and anesthesia may be due to viral infection, chemical burns, surgical or laser treatment, corneal dystrophy, and diabetes... Additionally, conditions that may damage the fifth cranial nerve or its nucleus, such as neoplasms of the brain, neurosurgery, or vascular accident, should be considered [1].

In our case, the patient had not only trigeminal damage; she was also treated by inhibitor of epidermal growth factor receptor, leading to even worse corneal healing.

There Management should be based on clinical severity, aimed at promoting healing and preventing progression of the disease to stromal melting and perforation.

Many persistent ulcers are of iatrogenic origin (non-steroidal anti-inflammatory drops..), cessation of the treatment in question may improve the situation.

Amniotic membrane patching and grafting have been shown to decrease inflammation, vascularization, and scarring of the cornea while promoting the re-epithelialization by covering the exposed zone and releasing certain growth factors and proteins [3]

Autologous serum (AS) formulated from a patient's own centrifuged serum is gaining popularity, and studies continue to report favorably on its efficacy [4]

Unfortunately, its use may be difficult due to the requirement for weekly blood sampling, a specific preparation procedure and risk of contamination for

patients and care staff.

Other approaches are also being studied, including the application of growth factors such as NGF, and matrix therapy agent has provided encouraging results [5]. If perforation has already occurred, glue may be applied if the defect is less than 2 mm [6]; otherwise a lamellar or penetrating keratoplasty is needed [7].

CONCLUSION

The management of recurrent or persistent corneal ulcer is a challenge for ophthalmologists.

The currently available treatments aim to promote healing, prevent disease progression, and avoid corneal perforation.

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