Successful medical treatment of long-standing atypical Herpes Simplex Virus endotheliitis

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Introduction

- Herpes Simplex Virus (HSV) endotheliitis presents with stromal oedema, keratic precipitates (KPs), anterior chamber (AC) inflammation and elevated intraocular pressure (IOP).[1]
- Corneal endotheliitis can lead to irreversible impairment of corneal endothelium and corneal dysfunction, requiring corneal transplantation.[2]
- We present an atypical case of long-standing HSV endotheliitis that was successfully treated conservatively.

Case presentation

A 75-year-old male patient was referred for persistent corneal oedema of his right eye (OD) for the past 7 years. Previous regimens included topical steroids and antibiotics, without clinical improvement. Past ocular and medical history were unremarkable. Visual acuity (VA) was counting fingers OD and 20/25 on the left eye (OS). Slit-lamp examination revealed central corneal oedema, bullae and few KPs OD, also evident on Anterior Segment Optical Coherence Tomography (AS-OCT). Corneal epithelium was intact, AC deep and quiet (D&Q) and IOP 18mmHg. No pathology was found OS. Corneal pachymetry OD was 735μm OD. Specular microscopy was not feasible OD due to overlying oedema. PCR analysis of aqueous sample was positive for HSV-1. Topical ganciclovir gel (1.5mg/g) t.d.s., oral valacyclovir (1,000 mg) daily and topical dexamethasone (0.1%) 6 times daily were started. Two weeks later, VA was 20/200 OD alongside bullae resolution and oedema reduction on slit-lamp exam, AS-OCT and pachymetry. Endothelial cell density on specular microscopy was 1016/mm^2.Treatment was gradually tapered over a 2-month period. At six-months follow-up, VA improved to 20/63, cornea remained clear, without oedema and ECD 1323/mm^2 on specular microscopy.

Figures

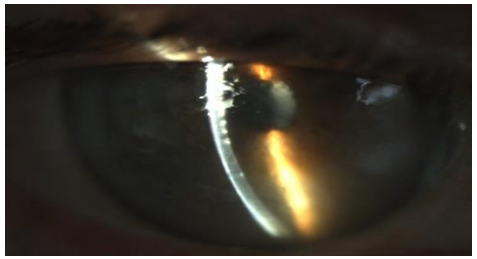

Fig.1: Central corneal oedema, KPs, AC D&Q OD

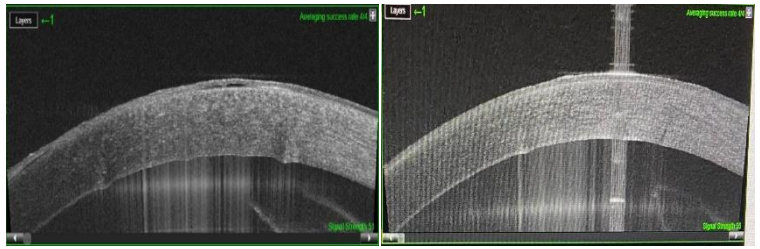

Fig.2: Bullae and corneal oedema OD on presentation on AS-OCT (left). Significant improvement at 2-weeks of treatment (right).

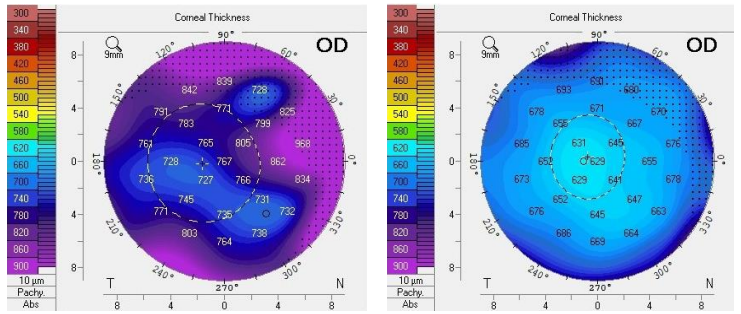

Fig.3: Significant resolution of corneal oedema after antiviral therapy. Pachymetry on presentation (left) and two weeks later (right).

Discussion

- Atypical HSV endotheliitis treated conservatively has been described in the literature, with a duration of days before treatment initiation.[3]
- To date, this is the first case report of atypical long-standing HSV endotheliitis that was managed successfully with medical treatment, 7 years after initial symptom presentation.
- The patient regained satisfactory VA avoiding the need for penetrating keratoplasty thanks to an impressive recovery of EC function.
- The pathogenesis of HSV endotheliitis is presumed to involve both direct infection and immune reaction against the endothelium.[4]However, cytolytic EC infection is not a proved endotheliitis mechanism.[5] A reversible decrease in the density of Na+/K+ ATPase pump on EC surface has been described, which is responsible for preserving normal corneal thickness and transparency.[5]
- It is important to keep in mind insidious corneal endotheliitis caused by HSV in cases of chronic corneal oedema of unknown etiology and perform a prompt aqueous PCR analysis to confirm the diagnosis.

References:

1.Holland EJ, Schwartz GS. Classification of herpes simplex virus keratitis. Cornea. 1999 Mar;18(2):144-54.

2.Inoue Y. Review of clinical and basic approaches to corneal endotheliitis. Cornea. 2014 Nov;33 Suppl 11:S3-8.

3.Papaioannou L, Tsolkas G, Theodossiadis P, Papathanassiou M. An atypical case of herpes simplex virus endotheliitis presented as bullous keratopathy. Ocul Immunol Inflamm. 2013 Dec;21(6):475-7.

4.Zheng X, Ohashi Y. Understanding corneal endotheliitis: an animal model approach. Int Ophthalmol Clin. 2002 Winter;42(1):151-6.

5.O'Brien WJ, Palmer ML, Guy J, Taylor JL. Endothelial barrier function and Na+/K(+)-ATPase pump density in herpetic stromal disease. Invest Ophthalmol Vis Sci. 1996 Jan;37(1):29-36.