Case Record 14

Herpes Simplex Keratitis

Patients
7a Dendritic Keratitis
7b Geographic Keratitis
7c Neurotrophic Keratitis

December 2008

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INTRODUCTION

The Royal College of Ophthalmologists has expressed reservations about allowing independent prescribing for optometrists (The Royal College of Ophthalmologists). Within primary care, optometrists should ensure patients are treated more promptly, more conveniently, more appropriately (Department of Health 2006).
The diagnosis of herpes simplex keratitis, for example, is made at a slit lamp and misdiagnosis or inappropriate treatment can lead to sight threatening sequelae (Scott 2008). Community based GPs do not have access to this technology and optometrists are ideally situated to work with ophthalmology and GPs to improve patient care. The comparison community optometrists must make is not with ophthalmology, which constitutes the 'Gold Standard', but with community GPs who need to identify self-limiting ocular conditions from those potentially sight threatening.

Herpes Simplex Keratitis

Herpes simplex keratitis encompasses a variety of disease processes (Wang 2007); active viral infection, immunologic and neurotrophic aetiologies (Graham 2006) affecting every level of the cornea. Recurrence and chronic ocular morbidity are likely if not treated promptly.

Case 7a – Early Dendritic Epithelial Ulcer

Earliest detection of epithelial disease is important. Treatment will be less protracted, most lesions resolving within one week (Wang 2007), the risk of developing stromal disease is low for patients with only epithelial disease and reoccurrences are less likely without stromal involvement (HEDSG 2001). While the Herpetic Eye Disease Study Group (2000) and Barker (2007) report that prophylactic use of oral acyclovir for a year is beneficial in preventing both epithelial and stomal recurrences, Laitson, Begley, Reynolds and Wilhelmus (2005) did not find this to be cost effective.

Ray-Chadhuri (2005) recommends Oc acyclovir 5 times daily, for early dendritic processes; debridement is not mentioned. Barker (2007) suggests there is no evidence that debridement helps, but, if not conducted correctly carries significant risk (Graham 2006). Prompt intervention for Case 7a meant a short course of topical acyclovir alone

resolved the presentation, minimising toxic effects (Wang 2007), the need for concomitant therapies or chronic management.
The form of recurrence is strongly linked to previous episodes, prolonged and costly prophylaxis being more suited to the prevention of stromal disease because of the higher risk of ocular scarring and morbidity (HEDSG 1998). Involvement of the epithelium in isolation, as in this case, is unlikely to cause permanent scarring (HEDSG 1998) and prophylaxis is therefore not considered appropriate. Patient education is important however to ensure prompt presentation if symptoms return. This was done and no recurrences have occurred (last review May 2008).

Case 7b - Geographic Marginal Ulcer
An unopposed dendritic ulcer will develop into a larger, more amorphous form (Kaufman 1999); as such this still represents active virus (Graham 2006). Graham further suggests this presentation is more likely in immunocompromised patients. In this case, however, it was misdiagnosed in an otherwise healthy patient and treated, initially as bacterial conjunctivitis and then, due to its' less pathognomonic appearance and marginal location, as a corneal lesion.

Once a viral aetiology was considered likely, more aggressive treatment was required due to the more protracted disease process. Both topical and oral acyclivir were prescribed, at high therapeutic levels. Therapeutic dosages for oral acyclovir are stated as 200mg 5 times per day (BNF 2008, emc 2008) for the immunocompetent, although these are recommendations for general skin and mucous membrane lesions. Graham (2006) and Wang (2007), specifically considering viral keratitis, recommend 400mg 5/day for the immunocompetent.
In this case the higher doses were prescribed to ensure therapeutic titres; considered prudent due to the more advanced disease state, the fact that the patient was going on holiday and in case the less diagnostic geographic nature represented zoster rather than simplex.

Case 7c – Neurotrophic Keratitis
This patient, while only known to have had a single acute episode of herpes simplex dendritic keratitis, which was promptly resolved, showed signs of more protracted viral disease.
The lack of ocular pain, a key to diagnosis (Wang 2007), and the oval, negatively stained area in the superio/nasal cornea suggested neurotrophic keratopathy (Liesegang 1999). It is generally accepted that neurotrophic keratopathy results from impaired corneal innervation and resultant decrease in tear production (Holland and Schwartz (1999), although Wang (2007) suggests that active viral replication may occur in persistent

epithelial defects. Chronic exposure and ulceration can lead to stromal scarring (Holland and Schwartz 1999). This must be distinguished from necrotizing keratitis or interstitial keratitis, which require specific and aggressive interventions; Liesegang (1999) does make the cautionary note that these different clinical entities can merge together. Careful monitoring is therefore essential. Both necrotizing keratitis, active viral invasion of the stroma, and interstitial keratitis, an immune response to viral antigen (Liesegang 1999), would be expected to have associated signs/symptoms of active pathology such as anterior chamber reactions, significant conjunctival injection and more significant discomfort.
The positively stained dendrtitic/geographic ulcer in the inferior cornea was considered an active HSV lesion. Treatment was therefore aimed at initial control of the active infection, followed by prohylaxis, as the corneal appearance strongly suggested previous untreated episodes, with long-term chronic management of the neurotrophic corneal state.

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