LETTERS TO THE EDITOR

Cowpox virus

EDITOR,—We read with interest the article by Dugmore and Dabir demonstrating the clinical features of a patient with ocular cowpox.¹ This patient was referred to the Manchester Royal Eye Hospital for investigation and we feel it would be useful to elaborate on the findings in their report.

The patient was a 15-year-old boy who presented with marked left upper and lower lid swelling (Fig 1), left preauricular lymphadenopathy and a left necrotising conjunctivitis associated with gross conjunctival chemosis. The patient was otherwise well and remained afebrile despite the extensive inflammatory signs. A previous report not mentioned by Dugmore and Dabir of follicular conjunctivitis with preauricular lymphadenopathy associated with cowpox infection also noted that the patient felt generally well during the illness.² A computed tomographic scan of the orbits was obtained (Fig 2) and was reported as showing a mass lesion encasing the anterolateral portion of the globe. It also suggested that an abscess cavity was present, probably in the subconjunctival space. A biopsy of pale rubbery tissue from the anteroinferior orbit was performed together with a repeat conjunctival biopsy. There was no evidence of an abscess cavity at surgery. The histology of both this and a subsequent biopsy showed extensive necrotic tissue with histiocytes and giant cells together with intense inflammatory infiltrate. This consisted mainly of plasma cells and lymphocytes. The appearances were therefore rather non-specific consistent with a necrotising granulomatous inflammatory process.

Figure 1 Appearance of patient at presentation.

Figure 2 Computed tomographic scan of the left orbit showing a mass lesion encasing the anterolateral aspect of the globe.

Figure 3 Slit-lamp photograph of the left cornea showing peripheral superficial and mid stromal corneal haze.

The inflammatory signs improved spontaneously and 9 months after the initial episode the patient was left with a moderate ptosis (probably due to a mild levator disinsertion), peripheral superficial and mid stromal corneal haze (Fig 3), and inferior symblepharon. Such corneal changes have not been reported previously.

A conjunctival swab taken at presentation was inoculated onto monolayers of Hep 2, human fibroblast, and primary monkey kidney cells. Cytopathic effect was seen 5 days later only in the monkey cells and provisionally attributed first to herpes simplex and then to adenovirus. The virus isolate was not neutralised by specific adenovirus or herpes simplex sera, and it was therefore sent 7 days after isolation for electron microscopy which revealed an orthopoxvirus. Inoculation onto the chorioallantoic membranes of a fertile chick embryo produced haemorrhagic pocks, and identification of cowpox was confirmed by the demonstration of conspicuous type A inclusion bodies in thin section electron microscopy.

Cowpox infection was first recognised in the domestic cat in 1978.³ Twenty to 30 new feline cases are seen annually by the Bristol and Liverpool University laboratories.⁴ There is therefore likely to be a large reservoir of infected cats in the United Kingdom. There were many cats living on a farm near the patient's home and these animals were thought to be the most likely source of infection.⁵ Patients presenting with follicular conjunctivitis are often diagnosed clinically as having adenoviral infection. Difficulty with early diagnosis is also likely in the laboratory if, because of its apparent rarity, cowpox is not considered when a cytopathic effect is first observed. It may be that some patients with presumed adenoviral infection have been infected by the cowpox virus. An increased awareness of this infection together with correct virological investigation may produce a more accurate assessment of the incidence of ocular cowpox in the United Kingdom.

We thank Dr D Baxby for formal identification of the cowpox isolate and for helpful advice and Mrs E Crosdale who kindly performed the egg inoculation work.

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- 1 Dugmore WN, Dabir ZM. Cowpox virus. *Br J Ophthalmol* 1992; 76: 510.
- 2 Hall CJ, Stevens JD. Ocular cowpox. *Lancet* 1987; i: 111.
- 3 Thomsett LR, Baxby D, Denham EM. Cowpox in the domestic cat. *Vet Rec* 1978; 108: 567.

- 4 Hoare CM, Bennett M. In: Grunsell C, Hill F, Raw M, eds. *Veterinary annual*. 25th ed. Bristol: Wright, 1985: 348–51.
- 5 O'Connor GM, Thiru AA, Caul OE. Ocular cowpox: transmission from the domestic cat to man. *Br J Ophthalmol* 1990; 74: 245–6.

Reply

EDITOR,—We wish to thank Simcock *et al* for drawing our attention to the report of the right follicular conjunctivitis with a necrotic ulcerated area of the lower lid margin.¹

O'Connor *et al* described necrotic ulcerated lesions of both left lids but no lesions of the conjunctiva.²

The distinctive features of the case described in our letter are the extensive conjunctival necrosis, the absence of necrotic ulcerated areas of the lids, the palpable fibrogranulomatous mass encasing the globe, and the initial lack of corneal involvement. We agree that the cowpox virus should be considered in patients with presumed adenoviral infection. It appears inconceivable that the present rarity of reported ocular cases represents the sum total of cowpox infection.

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- 1 Hall CJ, Stevens JD. Ocular cowpox. *Lancet* 1987; i: 111.
- 2 O'Connor GM, Thiru AA, Caul OE. Ocular cowpox: transmission from the domestic cat to man. *Br J Ophthalmol* 1990; 74: 245–6.

BOOK REVIEW

Principles and Practice of Clinical Electrophysiology of Vision. Edited by J R Heckenlively, G B Arden. Pp 830. £97. St Louis: Mosby, 1992.

At 830 pages this is a large book on the clinical applications of visual electrophysiology. The 114 chapters, however, cover the subject in a very readable as well as comprehensive way, with contributions from 72 eminent authorities in the field – the authors being drawn from all over the world.

Many of the chapters are quiet brief, and all of them are comprehensible to the clinician, reflecting the emphasis that the editors have placed on the clinical relevance of the material. The history of the subject is followed by a series of chapters on the origin of the electroretinograph and visual evoked cortical potential (VECP) components – for example, Karwowski and Kawasaki cover oscillatory potentials in three pages with 28 references.

The technical side of the discipline is fully addressed with valuable sections on equipment, data storage and analysis, and recording techniques – for example, Berninger and Arden cover the pattern electroretinogram, in eight pages with 65 references, with a combination of practical useful tips and a thorough theoretical analysis.

The basics of the electro-oculograph and the VECP are covered thoroughly, and there is a very interesting section, which illustrates the