CORRESPONDENCE

Corneal transplantation and infectious hepatitis

EDITOR,—I enjoyed reading the insightful review by Badenoch on the risks of transmission of the hepatitis virus in corneal transplantation.¹ Among his conclusions, he pointed out that in geographical areas where there is a high prevalence of hepatitis B virus (HBV) infection and a scarcity of corneal graft material, an eye bank might be tempted to offer corneas from hepatitis B surface antigen (HBsAg) positive donors to HBV antibody (anti-HBs) positive recipients. He recommended that these tissues should only be used in an absolute emergency because of the as yet inadequate understanding of the transmission and pathogenesis of HBV and hepatitis D virus (HDV) infection.

In Hong Kong, as well as in some other places, the risk of transmitting HBV from HBsAg positive donors to HBsAg or anti-HBs positive recipients is considered to be so small that kidneys from HBsAg positive donors are frequently used for transplantation.^{2,3} Good long term results have been reported in HBsAg negative patients who received kidneys from HBsAg positive donors.³

Furthermore, the chance of viral transmission in transplantation of the avascular corneal tissues is much lower than that of the vascular organs. For example, AIDS is readily transmitted in the transplantation of vascular organs such as liver, kidney, and heart but no cases of transmission of the disease via corneal transplantation have been reported.⁴

The recommendation from Badenach must be treated with caution in places like Hong Kong, Taiwan, the southern part of China, and the Philippines where there is a high prevalence of HBsAg carriers (about 10–15%)⁵ and a low cornea donation rate. Implementation of such a policy would further exaggerate the delay of corneal transplantation in blind patients. The chance of HBV infection through corneal transplantation is so small that the risk is probably outweighed by the prolonged suffering endured by patients with poor vision and poor quality of life.

For patients who have not been exposed to HBV, transplantation of corneas from HBV positive donors is best avoided. Nevertheless, vaccination and seroconversion of these patients to anti-HBs positive status may allow them to take the option of receiving HBsAg positive donor tissues. In patients who are already anti-HBs positive, a booster dose of HBV vaccine to enhance their immune response, just before the corneal transplantation, may further minimise the chance of getting HBV infection.

In geographic areas where the corneal tissues are abundant, I agree that corneas from donors positive for HBV should not be used for transplantation. However, before the results of a large and well designed study to evaluate the actual risks of using corneal tissues from HBsAg positive donors to HBsAg or anti-HBs positive recipients are available, it is premature to recommend that these corneal tissues should be routinely discarded in all centres.

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- 1 Badenoch PR. Corneal transplantation and infectious hepatitis. *Br J Ophthalmol* 1995; 79: 2.
- 2 Bedrossian J, Akposso K, Metivier F, Moal MC, Pruna A, Idatte JM. Kidney transplantation with HBsAg+ donors. *Transplant Proc* 1993; 25: 1481–2.
- 3 Cheng IK. Special issues related to transplantation in Hong Kong. *Transplant Proc* 1992; 24: 2423–5.
- 4 Simons RJ. HIV transmission by organ and tissue transplantation. *AIDS* 1993; 7: S35–8.
- 5 Yeoh EK. Hepatitis B: the Asian threats. In: Douglas RG, ed. *Assessment and management of risks associated with hyperlipidemia, osteoporosis and hepatitis B: effectiveness of intervention*. Philadelphia: J. R. Hanley & Belfus Inc, 1990: 209–23.

Orbital lymphoma in systemic sarcoidosis

EDITOR,—Sarcoidosis is a systemic granulomatous disease of unknown origin, which may affect the lacrimal gland. The onset of a bilateral lacrimal gland enlargement in a patient with histology proved sarcoidosis is, therefore, generally considered as a sign of orbital involvement.

However, sarcoidosis is also characterised by a higher incidence of lymphoma ('sarcoidosis lymphoma syndrome'),¹ and the omission of biopsy can considerably delay the recognition of an associated lymphoma.

In September 1992, an 82-year-old woman was referred for the evaluation of painless proptosis, with bilateral lacrimal gland enlargement, which had arisen in 1987, with no inflammatory signs (Fig 1). As the patient had suffered since 1977 from biopsy proved pulmonary sarcoidosis, the orbital masses had been ascribed presumptively to sarcoidosis. Computed tomography scan revealed in both orbits well defined masses, moulding to the orbital walls, to the optic nerve, and to extraocular muscles, involving both lacrimal glands and enhancing after contrast administration (Fig 2). Left orbital biopsy revealed a small cell diffuse lymphocytic lymphoma (low grade). Systemic staging was negative. Orbital radiotherapy (3500 cGy) obtained complete remission at last follow up (April 1995).

The present report is the first regarding an orbital lymphoma complicating sarcoidosis. The relation between these two affections

Figure 1 Clinical photograph at presentation. Axial proptosis, superotemporal and inferior masses are apparent in both orbits.

Figure 2 Axial computed tomogram reveals well delimited masses in both orbits, moulding to the orbital walls, to the optic nerve and extraocular muscles, and involving lacrimal glands.

is unclear. Both diseases are characterised by immunological abnormalities and, in sarcoidosis, an increased activity and a polyclonal growth of T cells is demonstrated.² Although orbital lymphomas are generally constituted by monoclonal B cell proliferations, orbital reactive lymphoid hyperplasia is, in fact, a polyclonal lesion characterised by a majority of T cells (60%), which may finally evolve into a B-cell lymphoma.³

As the present case shows, lymphoma may mimic lacrimal gland sarcoidosis and biopsy is needed for differential diagnosis. The computed tomogram finding of extralacrimal masses is very uncommon in sarcoidosis, and represents a stronger indication for biopsy.

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- 1 Brincker H. The sarcoidosis-lymphoma syndrome. *Br J Cancer* 1986; 54: 467–73.
- 2 Lawrence E, Brousseau KP, Berger MB, Kurman CC, Marcon L, Nelson DL. Elevated concentration of soluble interleukin-2 receptors in serum samples and bronchoalveolar lavage fluid in active sarcoidosis. *Am Respir Dis* 1988; 137: 759–64.
- 3 Jakobiec FA, Neri A, Knowles DM II. Genotypic monoclonality in immunophenotypically polyclonal orbital lymphoid tumors. A model of tumor progression in the lymphoid system. *Ophthalmology* 1987; 94: 980–94.

Reducing bias during intraocular pressure measurement

EDITOR,—Intraocular pressure (IOP) measurement may be subject to a previously undescribed source of measurement bias. A simple modification of the Haag-Streit 900 slit-lamp will remove this source of error.

The existence of bias during IOP measurement has been documented already. Digit preference, especially for even numbers, was demonstrated for Goldmann applanation tonometry by Hollands and Graham.¹ They also described the decision effect – that is, when an observer has to choose between normal and abnormal leading to a relative deficiency of 21 mm Hg readings. We suggest a simple method to reduce one source of measurement bias.

When using the Goldmann tonometer, measurement bias can occur not just at the

final reading of the IOP from the dial but also during the adjustment of the tonometer dial. It is possible for the examiner to observe both the prism mires through the microscope and the IOP scale on the tonometer by a simple movement of the eyes, without movement of the head. Observation of our colleagues has shown that this manoeuvre of alternating viewing of the prism head and IOP scale occurs commonly in clinical practice, and that the final IOP recorded is frequently influenced by the observation of the tonometer scale during the process of adjusting the mires. Most ophthalmologists, of all grades, when questioned were unaware that this movement of their eyes occurred. All, when informed, however, felt that this was a source of error and bias.

Evidence of the importance of measurement bias also comes from blood pressure studies where digit preference, the decision effect, and bias towards the norm for 'unblinded' measurements have all been reported.² In systemic hypertension the muddled zero sphygmomanometer has become an essential instrument for clinical trials.³ We suggest that the Goldmann applanation tonometry technique could

also be modified to reduce the risk of bias.

The Haag-Streit 900 slit-lamp has a clear perspex breath shield (reference 5702019). When this is made opaque, drifting of the eyes to the measurement scale on the tonometer is prevented and reading of the IOP scale needs an active decision by the observer, requiring a small head movement away from the microscope eyepiece. We have made the breath shield opaque by painting it matt black and found no hindrance to the use of the slit-lamp (Figs 1 and 2). We suggest this simple modification will reduce the risk of bias during adjustment of the measurement scale, and should be used particularly when clinical trials using applanation tonometry are being conducted.

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- 1 Hollows FC, Graham PA. Intraocular pressure, glaucoma, and glaucoma suspects in a defined population. *Br J Ophthalmol* 1966; 50: 570-86.
- 2 Perry IJ, Beevers DG. Measurement of blood pressure in epidemiological surveys. In: O'Brien E, O'Malley K, eds. *Handbook of hypertension*. Amsterdam: Elsevier Science, 1991: Vol 14.
- 3 Wright BM, Dore CF. A random zero sphygmomanometer. *Lancet* 1970; 1: 337-8.

The end stage of birdshot retinochoroidopathy

EDITOR,—The long term visual prognosis for birdshot retinochoroidopathy is not entirely certain; the disease has been reported to stabilise after the initial active stage. However, in other series 40% of patients experienced a loss of useful vision in one or both eyes.^{1 2} We report an untreated case of birdshot retinochoroidopathy associated with poor visual acuity and retinal abnormalities resembling tapetoretinal dystrophy.

A 65-year-old white man from Germany suffered for more than 20 years from bilateral chorioretinal disease which was diagnosed in 1989 as birdshotretinochoroidopathy. He was found to be HLA A29 positive. A fundus photograph taken 15 years ago revealed scattered ovoid cream-coloured lesions in the midperipheral retina, which were typical of birdshot retinochoroidopathy (Fig 1). Local or systemic anti-inflammatory drugs had never been given; however, climatic therapy in Davos (a mountain resort in Switzerland) and a low voltage therapy (treatment modality not known to us) in Germany were thought to be indicated. Multivitamin preparations were also prescribed. For a second opinion, the patient consulted another ophthalmologist in 1994 in Germany; he raised the possibility of the diagnosis of tapetoretinal degeneration based on the fundoscopic findings and electroretinograms (absent in the right eye and residual potentials in the left eye).

Ophthalmic examination in December 1994 revealed a visual acuity of finger counting for the right eye and 0.2 for the left eye. The anterior segments were normal; lens and vitreous contained no opacities. Funduscopy demonstrated optic disc pallor, very thin vessels, and peripheral reticular pigment deposits, resembling the features of tapetoretinal degeneration (Fig 2). The former choroidal spots in the posterior pole had become atrophic scars. Fluorescein angiography revealed extreme atrophy of the

Figure 1 Left fundus in 1979. Multiple ovoid lesions deep in the retina which are hazily demarcated and clustered in the midperiphery of the retina. Peripapillary lesions are also visible. Visual acuity of the left eye at that time was 0.3.

Figure 2 Left fundus in 1994. Atrophic birdshot lesions. Attenuated retinal vessels and optic disc atrophy. Peripheral pigment clumping resembles alterations usually seen in retinitis pigmentosa. Visual acuity of the left eye was 0.2.

Figure 3 Fluorescein angiogram in 1994. Left eye, early phase documents atrophy of choriocapillaris and pigment epithelium.

choriocapillaris and pigment epithelium (Fig 3) and in the late phase slight macular oedema was noted. Family history of ocular diseases was negative and his general medical history was unremarkable. Previous laboratory investigations for uveitis were within normal limits.

On the basis of photographic evidence from the earlier stage of the disease and the presence of HLA A29, we believe that the present clinical features represent the extreme cicatricial end stage of birdshot retinochoroidopathy. For our patient the diagnosis of retinitis pigmentosa is not likely because of

Figure 1 When the observer is positioned to view through the eyepieces the modified breath shield obscures the tonometer scale.

Figure 2 A purposeful head movement away from the eyepiece is required to read the tonometer scale.