LETTERS TO THE EDITOR

Corneal amyloidosis

SIR,—In their recent interesting paper Watts and Frank¹ reported a case of secondary localised amyloid of the cornea, due to chronic irritation from a scarred lid. Referring to Yanoff and Fine,² they stated that primary localised amyloidosis is found in the form of small red nodules in the conjunctiva and lids and as lattice corneal dystrophy.

It is worth pointing out that primary localised corneal amyloid deposits can also occur in polymorphic amyloid degeneration,³ gelatinous drop-like dystrophy,⁴ and primary familial amyloidosis of the cornea⁵ (though this condition is probably an occidental description of gelatinous drop-like dystrophy, first described in the Japanese literature).

In this department a 61-year-old man recently underwent penetrating keratoplasty in the left eye for corneal scarring and central thinning which progressively occurred over the previous 13 years. Over this time his visual acuity in the affected eye diminished from $\frac{6}{18}$ to $\frac{1}{60}$. This was presumed to be due to long-standing and recently quiescent herpes simplex keratitis. His visual acuity and cornea of the right eye are normal, he has no family history of eye disease, and he has no evidence of systemic disorder. Histological examination showed a dense central subepithelial deposition of amyloid, which stained positively with Congo red and gave an apple green birefringence with polarised light. The pattern of distribution was reported as being morphologically similar to gelatinous drop-like dystrophy, though such a diagnosis is unlikely because this autosomal recessive condition is bilateral, the initial changes tend to occur in the first decade of life, and early on in the disease changes similar to band keratopathy occur.⁶ Whether this is a case of secondary localised corneal amyloid secondary to long-standing herpes simplex or primary localised corneal disease of unknown aetiology remains to be elucidated, though it has suggested that such changes can be age related.⁷

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- 1 Watts J, Frank H. Corneal amyloidosis. *Br J Ophthalmol* 1989; 73: 674–6.
- 2 Yanoff M, Fine BS. *Ocular pathology: a text and atlas*. 2nd ed. Philadelphia: Harper and Row, 1982: 287–8.
- 3 Mannis MJ, Krachmer JH, Rodrigues MM, Pardos GL. Polymorphic amyloid degeneration of the cornea. *Arch Ophthalmol* 1981; 99: 1217–23.
- 4 Takahashi M, Tadaaki Y, Yamashita Y, et al. Unusual inclusions in stromal macrophages in a case of gelatinous drop-like corneal dystrophy. *Am J Ophthalmol* 1985; 99: 312–16.
- 5 Stock EL, Kieler RA. Primary familial amyloidosis of the cornea. *Am J Ophthalmol* 1976; 83: 266–71.

- 6 Kanai A, Kaufmann HE. Electron microscopic studies of primary band-shaped keratopathy and gelatinous, drop-like dystrophy in two brothers. *Ann Ophthalmol* 1982; 14: 535–9.
- 7 Garner A. Amyloidosis of the cornea. *Br J Ophthalmol* 1969; 53: 73–81.

SIR,—Thank you for pointing out that there are other reports of primary localised corneal amyloid deposits, which have been reported in the literature, mostly several years ago, and about which we were aware. The case that we reported was particularly interesting, as we were not aware that there had been any previous reports of corneal amyloidosis developing secondary to a lid defect. My comment on the case that Mr John Bell reports is that, as this describes the development of amyloid in one eye, it is unlikely that this represents a primary amyloid degeneration. In all the reports quoted by Mr Bell four cases of primary amyloidosis affected both corneas, as would be expected in any dystrophic condition.

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BOOK REVIEWS

Movements of the Eyes. 2nd Edn. By R H S Carpenter. Pp 593. £59.50. Pion: London, 1988.

The second edition of this textbook, the first edition of which was produced in 1977, is divided into three sections. The first section is on the function of eye movements and covers in a clear and easy-to-understand fashion, the purpose of eye movements and the characteristics of vestibular, optokinetic, pursuit, and saccadic movements. In addition there are useful sections on vergence and on miniature movements.

Section 2 is on structure of the ocular motor apparatus and includes sections on the statics and dynamics of the eye, on the extraocular muscles and their innervation, and on the central pathways controlling ocular movement.

Section 3 is on the system as a whole and concerns proprioception and its role in the control of eye movements, the role of vision in modification and control of eye movements, adjustments to the ocular motor system, and then a synthesis of all the understanding currently available as to how the eye movement control system actually works in a biophysical fashion.

This is an excellent book. It is notably clear in its explanations and is quite comprehensible to the non-specialist, who will find much in it to appreciate and understand. The diagrams are clear and the book is well written in an informal and engaging style. The tendency is to approach structure from the point of view of comparative anatomy rather than from the point of view of neurological lesions, which is perhaps more the way in which ophthalmologists have tended to be taught this information in the past.

There are several useful appendices. There is one up-to-date and very helpful section on the methods of measurement of eye movements. There is also what appears to be an excellent introduction to systems analysis, which seems clear and well written and has the minimum of mathematics, but I am sorry to say that it was somewhat wasted on this reviewer. Finally there is a simple glossary and index of terminology. The bibliography runs to 94 pages of references and the index is very good.

This may not be a book for the individual ophthalmologist, but I cannot imagine any ophthalmological or indeed physiological library which could manage without it, for it deals with an ever expanding field of medical and basic science research.

J P LEE

Wenner-Gren International Symposium Series. Vol 49. **Strabismus and Amblyopia.** Eds Gunnar Lennerstrand, Gunter K von Noorden, Emilio C Campos. Pp 438. £50. Macmillan: Basingstoke, Hants. 1988.

This book contains the proceedings of an international symposium held in Stockholm in June 1987 to which an international group of experts, both basic scientists and clinicians, were invited. The editors refer in the introduction to the workshop character of the meeting, and the very full discussion is printed alongside the papers.

The book is divided into three sections. The first is on ocular motor control and strabismus, and among the topics considered are the aetiology of infantile esotropia, developmental abnormalities in strabismus and amblyopia, vergence mechanisms, and extraocular muscle abnormalities in strabismus. The second section is entitled 'Normal and abnormal visual development' and is chiefly concerned with aspects of amblyopia and its pathophysiology. The third section is entitled 'Psychophysics related to strabismus and amblyopia'. Among other things this contains interesting material on proprioception, both from an experimental and clinical point of view. There are also parts within this section on stereopsis and clinical aspects of amblyopia and the book ends with a review by Julesz on stereopsis.

The symposium provides up-to-date clinical and basic science of interest to the specialist in the field, but not to the generalist. Basic science and clinical workers have a long way to go in this field before each understands what the other is saying, and this matter is alluded to wittily in the introduction by Professor Tengroth. His point is that we still do not have a synthesis, but we have made considerable strides since the last of these symposia was held in 1974, and I would be inclined to agree with him.

J P LEE

Correction

In the recent paper by Williams and Mieler (*Br J Ophthalmol* 1989; 73: 985–90), Figures 3A and 3C were unfortunately transposed, and Figure 3C (which should have been 3A) was printed upside down.