LETTERS TO THE EDITOR

Severe intraocular infection: complications of β irradiation induced scleral necrosis following pterygium removal

EDITOR,—It was with interest that we read Dr Plowman's excellent article in your journal recently.[1] We would like to raise one important point, however. The author states that pterygia respond well to radiotherapy; however, our experience in Australia, where this condition is more common, suggests that following such treatment, there are recurrence rates of 20%.[2]

Tarr and Constable[3] highlighted the potential hazards of scleral necrosis following β irradiation with strontium plaques. Since then the practice in western Australia has been to limit the number of treatments, but even with doses as low as 800–1600 cGy we have had 12 severe cases of intraocular infection over the past 5 years referred to our institution. The condition may remain undiagnosed or masquerade as marginal keratitis, herpetic disease, posterior scleritis, or serous retinal detachment for some time. *Pseudomonas, Streptococcus* and *Candida* are commonly implicated, but rare ocular pathogens such as *Petriellidium boydii* and *Scedosporium inflatum* may be causative. Visual handicap is severe and only one patient has retained good visual acuity, with one patient requiring enucleation. Generally the ocular complications have been devastating.[4]

Typically a long latency between radiotherapy and ocular sepsis occurs (usually 15–20 years) and removal of calcific plaques at the base of the ulcer commonly precipitates sepsis.[4]

We no longer employ radiotherapy following removal of pterygia. In our institution last year we treated 114 patients with pterygia and there is no doubt that conjunctival autografting is our treatment of choice to reduce recurrences.

Though the incidence of pterygia is low in temperate latitudes,[5] an increasing migrant and itinerant population may mean more consultations for pterygia will occur in the United Kingdom. If radiotherapy is to be used at all, we would stress the necessity for limited treatment, and only in skilled hands dealing frequently with this mode of therapy, to avoid these devastating sequelae.

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1 Plowman RN. Radiotherapy and ophthalmology: time for a friendly re-acquaintance. *Br J Ophthalmol* 1992; **76**: 307–9.
2 Sebban A, Hirst LW. Pterygium recurrence rate at the Princess Alexandra Hospital. *Aust NZ J Ophthalmol* 1991; **19**: 203–6.
3 Tarr KM, Constable IJ. Late complications of pterygium treatment. *Br J Ophthalmol* 1980; **64**: 496–505.
4 Moriarty AP, Crawford GJ, McAllister IL, Constable IJ. Infective corneoscleritis complicating scleral necrosis following beta irradiation. *Aust NZ J Ophthalmol* (in press).
5 Cameron ME. *Pterygium throughout the world*. Springfield, IL: Thomas, 1965.

Reply

EDITOR,—The Royal Perth Hospital experience with complications from β irradiation of resected pterygia is of great interest as it is at marked variance with our own, using higher doses with strontium plaques after excision of conjunctival tumours. Actinic changes in the conjunctiva contribute to the development of pterygia. Is it possible that this prior damage is the major factor in the development of post-operative complications rather than the radiation dose prescribed?

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BOOK REVIEWS

Repair and Reconstruction in the Orbital Region. 3rd edn. Edited by JC Mustardé. Pp 566. £95.00. Churchill Livingstone: Edinburgh, 1990.

This book contains a wealth of detail and it must serve both to stimulate any interested ophthalmic surgeon and to enrich the experience of those surgeons already involved in periorbital reconstruction. The gift of lucid teaching, so characteristic of Mr Jack Mustardé, is evident throughout the work; the basic anatomy and physiology of tissues, especially the eyelids, is applied throughout to the problems of oculoplastic surgery.

After introducing the concepts of eyelid structure and function, the repair of partial thickness eyelid lesions is dealt with in a logical sequence – the primary repair, secondary complications and treatment, loss of superficial or deep tissues, and the loss of conjunctiva. The text then covers the primary and secondary repair of full thickness defects of the eyelids and periorbital tissues. Most of the techniques available for reconstruction of the upper, lower, or both eyelids are clearly described and the merits and disadvantages of each method are discussed in detail. The systematic approach is completed by two chapters about reconstruction surgery of the medial and lateral canthi.

The second part of the book deals with the management of various groups of ophthalmic conditions or particular aspects of reconstructive surgery. It contains chapters by co-authors of the highest international standing – lacrimal disease (Welham), socket surgery (Vistnes), craniofacial malformations and trauma (Jackson), eyelid malpositions (Collin), and ptosis (Beard). Other chapters, by Mr Mustardé, cover eyebrow reconstruction, congenital and acquired anophthalmos, some aspects of ptosis, medial canthal anomalies, colobomas, exenteration, and also practical details for the harvesting of tissue grafts.

It is evident throughout that the surgical techniques have been evaluated thoroughly and much practical advice is given; this advice also includes examples of techniques which should be avoided! There are a large number of excellent illustrations which complement the text and demonstrate the efficacy of the methods presented.

The book is of the highest quality, well bound, and has only a handful of minor errors. Though some of the more recently introduced surgical methods are not described there can be no doubt that it is an essential reference text for surgeons who deal with periorbital reconstruction; the clarity of ideas and the detail in this work will delight this group. Browsing through such a well-written and beautifully illustrated work, however, will benefit any ophthalmologist or other medical practitioner.

GEOFFREY E ROSE

Night Vision: Basic, Clinical and Applied Aspects. Edited by R F Hess, L T Sharpe, K Nordby. Pp 550. £65. Cambridge University Press: Cambridge, 1990.

This volume provides a welcome overview of human scotopic visual function at a time when major advances are being made in understanding the underlying mechanisms of loss of night vision in retinitis pigmentosa and other retinal dystrophies which can selectively target rod mediated vision. In their preface the editors note Sir Stewart Duke-Elder's praise of the previous resumé of work about night vision. The same praise could be expressed for this work which succeeds in bringing together biochemistry, electrophysiology, and psychophysics in an intellectually challenging field.

The chapters are uniformly of high standard and cover basic mechanisms from the rod photoreceptor, photochemistry, receptor physiology, five detailed chapters about the important findings in that rare condition of achromatopsia (based heavily on extensive investigations of the visual function of one of the editors), to clinical aspects and mainly theoretical and research aspects of night vision devices.

One of the strengths of a collection like this is that it provides a forum for leading scientists to discuss issues in greater depth, revealing areas where clinicians can apply new basic research findings to interpreting physiological mechanisms of disease. Particularly interesting in this respect is the chapter on dark adaptation by Lamb where he re-examines the classical thinking about the role of bleached rhodopsin and neural mechanisms in adaptation. For those clinicians who are interested in age-related macular degeneration, where abnormalities of dark adaptation have been found, this provides important clues to understanding potential mechanisms. In addition since in retinitis pigmentosa the molecular biological findings of abnormalities in rhodopsin are now being discovered, we can begin to consider how these changes in the structure of the molecule result in the loss of function. These highly selective changes in retinitis pigmentosa (often single amino acid substitutions) with their devastating visual consequences provide important models for understanding the underlying physiology and this chapter discusses relevant considerations.

The chapter about clinical manifestations gives an excellent introduction to this aspect of night vision and would perhaps better be read before the other chapters by clinicians. It explains clearly the importance of considering underlying physiological mechanisms as well as putting in perspective the issue of selectivity and the potential these conditions have for furthering our understanding of normal vision. This chapter necessarily omits reference to the latest molecular biological findings since it was written before these were known and it will be exciting to see these included in the next resumé of night vision when the recent results in this fast moving field can be incorporated.

In summary, this volume provides excellent background on the physiology and psychophysics of night vision. It will be of interest to vision scientists and basic researchers studying