Primary orbital fibrosarcoma developing in the scleral stroma

Erdos, — Fibrosarcomas are thought to be malignant tumours developing from fibroblasts. Primary fibrosarcoma of the orbit is very rare. For example, only five cases were reported among a total of 986 orbital tumours in adults. Recently we encountered the case of primary orbital fibrosarcoma attached to the posterior pole of the globe, the posterior wall of which was encapsulated with fibrous tissue similar to the sclera, although the tumour had infiltrated the posterior pole of the globe and the optic nerve sheath. The fibrosarcoma in this case is thought to have developed in the scleral stroma.

CASE REPORT

A 56-year-old woman was first referred to our clinic for examination of an intracanal tumour of the left eye. On admission her visual acuity was 20/20 in the right eye and 2/200 in the left eye, with correction. There was no record of previous radiation therapy and no history of orbital injury. The main ophthalmoscopic findings were the presence of marked choroidal folds, disc oedema, and optociliary shunt vessels in the left eye. Systematic and haematological investigations revealed no abnormalities. Results of computed tomography of the orbit showed a relatively well defined intrascleral mass attached to the posterior pole of the globe (Fig 1). In axial T1 weighted magnetic resonance images, the posterior wall of the tumour was thought to be encapsulated (Fig 2). The tumour was not invasive towards the retrobulbar space; however, it had partially infiltrated the scleral stroma. The posterior pole of the globe was compressed and flattened by the tumour. In sagittal T1 weighted images, it was observed to compress the optic nerve; its boundary towards the optic nerve sheath was partially blurred. Pathologically, the tumour was composed of interlacing bands of spindle-shaped cells forming a herringbone pattern (Fig 3). The number of mitoses was three per ten high-power fields (× 450). Immunohistochemical staining for vimentin was positive, indicating that the tumour had originated from mesodermal cells. The tumour was infiltrated into the sclera and into the optic nerve sheath. Up to about 1 year after the exenteration, no recurrence of the tumour had been detected.
COMMENT

Microscopic analysis of the tumour indicated that it was a fibrosarcoma. Many fibrosarcomas in previous reports were described as non-encapsulated or poorly circumscribed. In contrast, the tumour in this case had unique radiological and pathological features. Results of computed tomography of the orbit showed a related well-defined mass attached to the posterior pole of the globe. The magnetic resonance imaging and pathological findings indicated that the fibrosarcoma in this case developed primarily in the scleral stroma and was invasive in the sclera.

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CORRESPONDENCE

A new mounting bracket for donor eye holder

ERRORS.— Morphology of corneal endothelial cells is now recognised as indispensable for evaluation of corneal function in many clinical and research situations. It may be performed by quantitative counting of endothelial cells within a rectangular boundary from specular photomicrographic negatives, or with digitisers and image analysers which require manual tracing of the cell boundaries or their spires after end-on axial section for photomicrography. These methods are time consuming, tedious, and liable to human error and bias. Advances in instrumentation and computer technology have resulted in new contact and non-contact semi-automatic clinical specular microscopes which feature an autofocus system for instant acquisition of endothelial images. In addition, some have an inbuilt semi-automatic image analysis program, while yet others have been adapted for use with separate computers which provide rapid and comprehensive analysis of cell variables. These improvements have eased the tedious and drudgery of the earlier methods, and minimised the elements of human error and bias.

Furthermore, evaluation of the corneal endothelium in the presence of significant stromal oedema has become a practical reality with the advent of the confocal microscope. It would be desirable to take advantage of these advances in the context of donor cornea assessment and morphometry. Donor eye holders for supporting the intact globe for specular microscopy have been designed to particular instruments, and are, therefore, not interchangeable. In addition, they may not fit the new semi-automatic contact and non-contact specular microscopes. This makes it difficult to harness the advantages of the various specular microscopes and to compare them. A universal holder for supporting the intact globe which can be attached to most clinical microscopes would be useful and desirable.

Given the limitations of the donor eye holders which have been dedicated to particular specular microscopes, and the need to take advantage of recent advances in morphometric analysis with the new semi-automatic specular microscopes, in the context of donor cornea assessment and morphometry, I have designed, produced, and tested a new and simple mounting bracket for the Nartey donor eye holder.

The mounting bracket (Fig 1) is made of brass and consists of flat horizontal and vertical limbs. The horizontal limb bears two holes at its distal end. The vertical limb is inclined slightly backwards at its upper two thirds, and angled forwards at its proximal end for attachment to a headrest. Either hole on the horizontal limb can be aligned with that for a thumbscrew halfway up the side of the eye holder. The mounting bracket is attached to the eye holder by first engaging the aligned holes with the thumbscrew. Tightening the thumbscrew secures the mounting bracket firmly to the side of the holder.

This permits the holder, without its base plate, but with a donor eye in situ, to be attached horizontally to the headrest of contact and non-contact specular microscopes (Fig 2) for visualisation, assessment, photography, and/or morphometric analysis of the donor corneal endothelium in the intact globe.

A smaller mounting bracket of similar design, but with a narrower angle at the proximal end of its vertical limb, can be used with the Haag-Streit slit-lamp and the tandem scanning confocal microscopes which have a plastic headrest. It is believed this innovation is an advance and should facilitate research and objective assessment of the donor cornea in the intact globe.

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BOOK REVIEWS


Here is a textbook which seeks to guide the novice trainee ophthalmologist on the path to success in primary professional examination(s). It tackles, in a simple didactic style, the rudiments of anatomy, embryology, genetics, cytology, histopathology, physiology, pharmacology, immunology, microbiology, and pathology. Candidates will find it a concise review of information learnt in medical school and not long forgotten.

By far the most useful chapters are those on biochemistry, pharmacology, and immunology. These are clearly written, and are pitched at exactly the right level. Topics of contemporary research have been dealt with in an admirably lucid manner, such as integrins, extracellular matrix proteins and proteoglycans, adhesion molecules, ligand/receptor/second messenger systems, retinal neurotransmitters, cytokines, immunoglobulin genes, cluster of differentiation (CD) numbers, and T cell receptors.

The sections on biochemistry and immunology make good use of a format which has been common in American books: `boxes' demarcate from the main text a number of detours which provide helpful glossaries and encyclopedia-type entries on supplementary and background information. In the pharmacology section, and in an attractive and concise chapter on microbiology, the boxes...