The morphology has shown the presence of Gram-positive cocci within macrophages, but not polymorphonuclear cells. Such intracellular bacteria are sequestered away from systemic, topical and intracameral antibiotics. The outcome is 'parasitised' macrophages that have given rise to an inflammatory response, rather than a purulent one, which has been suppressed by corticosteroids. This finding is particularly important for satisfactory therapy because older antibiotics, such as cephalosporins and aminoglycosides, do not penetrate intracellularly.[4] The new azilide derivative of erythromycin, azithromycin, and the semi-synthetic macrolide, clarithromycin, are concentrated intracellularly up to 400 times more than cephalosporins.[4] They have been found highly effective against intracellular organisms such as *Chlamydia* sp. and *Legionella* sp.

Release of bacterial protein may not be the sole explanation for recurrent inflammation. Macrophages can be transformed into antigen presenting cells by IL (interleukin)-1, produced by B lymphocytes, polymorphonuclear cells or macrophages themselves. They can then process antigenic peptides, enzymatically degrading them to oligopeptides with an unfolded secondary structure. These peptides are expressed at their surface, bound to MHC class II molecules, for presentation to Th1 lymphocytes to stimulate a cell-mediated hypersensitivity response,[4] normally absent from the anterior chamber. This immunological response would be suppressed by corticosteroids. Our patient responded well to the removal of the IOL, and the associated capsular fragment, as described by others,[1] after the focus of antigen production within the eye had been excised. In addition, three similar cases have been reported recently when the IOL required to be removed and in which organisms were present (but not reported) within macrophages.[5]

The reason why bacteria did not multiply within the thioglycolate broth is not clear. It may be that the specimen should have been processed for the release of intracellular bacteria. Others have found it difficult to culture bacteria, in particular CNS, from plastic foreign-body specimens, when it has been suggested that a biofilm has been inhibitory for *in vitro* culture and prior ultrasonic shock (20 kHz for 10 min) has been advocated.[6] Our observations suggest that future culture of IOL and capsular fragment specimens should use techniques that will release intracellular bacteria. In addition, investigation is warranted by PCR.[2,3]

Late-onset, culture-negative pseudophakic saccular endophthalmitis has been demonstrated to be due to macrophage-associated Gram-positive cocci resembling staphylococci. The recognition that the inflammation is probably due to intracellular multiplication of bacteria is important, not only for possible expression of macrophage-processed antigen and immunological consequences, but also because cephalosporin and aminoglycoside antibiotics do not penetrate intracellularly. Use of the new macrolide antibiotics, in particular azithromycin and clarithromycin, is indicated as they penetrate phagocytic cells and macrophages and are highly active against Gram-positive bacteria.

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Sir,

Soemmering's ring presenting as an iris tumour

Soemmering's ring is a complication of cataract surgery first described by Soemmering in 1828.[1] It is a doughnut-shaped proliferation of lens epithelial cells in the periphery of the lens capsule, which have been left at the end of extracapsular cataract extraction. Electron microscopy shows it to consist of the fused remnants of the dissected anterior and posterior lens capsule, enclosing the equatorial part of the former lens which contains a proliferation of vacuolised, irregularly arranged lens epithelial cells in various stages of degeneration.[2] This proliferation is thought to be due to the protective effect of the anterior leaf of the lens capsule, which folds back upon itself to protect the remaining lens fibres from the lytic effects of aqueous humour.[3]

Posterior chamber lens implantation has been shown to decrease the formation of Soemmering's ring,[4] presumably by keeping the leaves of capsule separate and allowing aqueous to dissolve the remaining cells. Soemmering's ring must be differentiated from the now more commonly seen Elschnig's pearls, which are

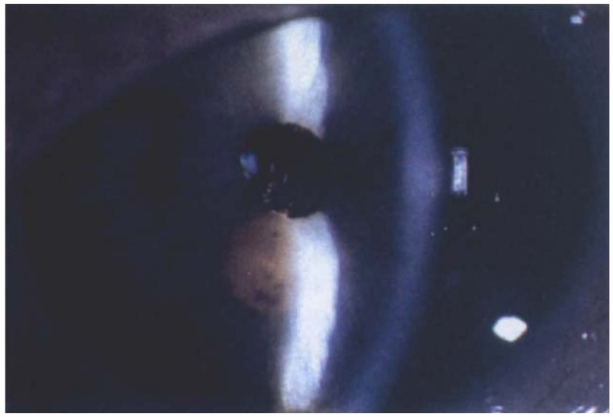

Fig. 1. *Slit-lamp photograph of the raised lesion in the inferior iris stroma.*

individual subcapsular lens fibres which have swollen dramatically to form separate pale globular opacities arising from the lens capsule.

Soemmering's ring usually remains fixed behind the iris, and may remain undiagnosed unless it is dislodged, as the posterior capsule at the centre of the ring is often clear. Cases of migration into the pupil, the vitreous[5] or the anterior chamber have been described and these rings can cause difficulties during aphakic retinal detachment surgery.[6] However, in a study of 200 cases of iris tumours, Soemmering's ring did not appear in the differential diagnosis.[7] We present an unusual presentation of Soemmering's ring 50 years after cataract surgery.

Case report

A 61-year-old woman was referred with a lesion in the left iris. The patient had a past ophthalmic history of congenital cataracts that were needled when she was a child, and a past medical history of breast carcinoma treated by mastectomy aged 41 years. She had presented to the ophthalmologist complaining of blurred vision and irritation in both eyes, and was noted to have posterior capsule thickening; she was treated by YAG laser capsulotomy.

She was incidentally noted to have a raised lesion inferiorly in the left iris. This was suspected to be an iris cyst, but in view of the history of breast carcinoma or the possibility of iris melanoma, she was referred to the Sheffield Ocular Oncology Service for investigation.

Slit-lamp biomicroscopy revealed a pale elevated lesion in the inferior iris stroma with speckles of pigmentation, which showed no transillumination, and no ectropion uveae (Fig. 1). Gonioscopy was normal. The pupil did not dilate well, and it was not possible to visualise the posterior border of the lesion. The cornea showed an old needling scar, and the patient was wearing aphakic correction.

Ultrasound biomicroscopy (Humphrey Instruments Ultrasound Biomicroscope model 840) of the lesion revealed the mass to arise from a large asymmetrical Soemmering's ring, indenting through the iris inferiorly (Fig. 2). This lesion required no treatment.

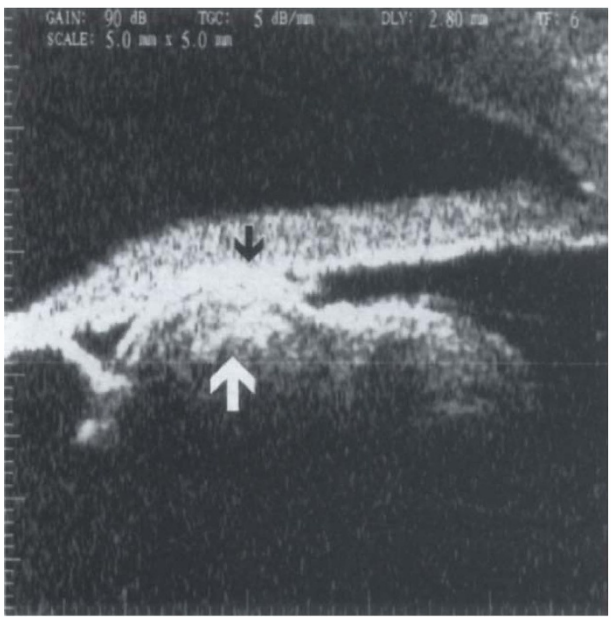

Fig. 2. *Ultrasound biomicroscopic image of large Soemmering's ring (white arrow) indenting the iris stroma (black arrow).*

Comment

Soemmering's ring has become less common with the trend toward more thorough aspiration of soft lens matter and posterior chamber lens implantation, but it may still be seen in many patients, particularly in the aphakic or those with anterior chamber intraocular lenses.

In this case, ultrasound biomicroscopy allowed the diagnosis to be made without resource to more invasive procedures. The effects of previous surgery, no matter how long ago, must always be considered in the differential diagnosis of ocular tumours.

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Sir,

Fundal findings preceding retinal artery macroaneurysm

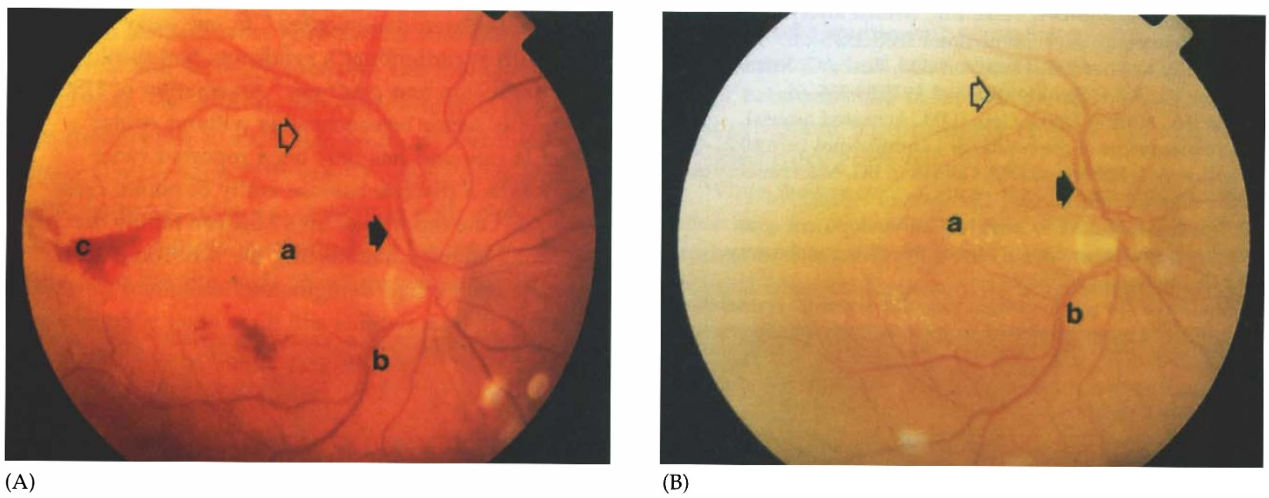
Retinal artery macroaneurysms typically affect the first three divisions of the central retinal artery in one eye of elderly hypertensive women.[1,2] Although the natural history of retinal artery macroaneurysms after first detection is well documented,[2–5] only two previous reports have commented on fundal findings prior to the development of a macroaneurysm.[4,6] We present a case report of the fundal findings in a patient with documented retinal artery macroaneurysm in one eye with subsequent development of another retinal artery macroaneurysm in her second eye.

Case report

Clinical review of a 78-year-old well-controlled hypertensive woman 10 weeks after laser treatment for a left retinal artery macroaneurysm revealed the development of a second arterial macroaneurysm in her right eye. Initial visual acuity in the right eye had been 6/12 but was reduced at this presentation to 6/24. Fundal examination demonstrated a retinal artery macroaneurysm at the first bifurcation of the superotemporal retinal artery associated with pre-retinal and intra-retinal haemorrhage and macular oedema confirmed by fluorescein angiography (Figs. 1A, 2A). In addition there was macular exudate, arteriovenous nipping and hyaline vascular change consistent with hypertensive retinopathy (Fig. 1A). Review of colour fundal photographs taken 10 weeks earlier demonstrated pre-existent macular exudate, arteriovenous nipping and hyaline vascular change with mild focal dilatations of the retinal arteries (Fig. 1B). The point where the macroaneurysm arose corresponded to one of these focal dilatations at the first bifurcation of the superotemporal retinal artery (Fig. 1B). Previous fluorescein angiography did not demonstrate pre-existent macroaneurysm or any areas of fluorescein leakage in the right eye (Fig. 2B). The macroaneurysm was treated with focal argon laser photocoagulation and visual acuity at 4 month follow-up was 6/18.

Comment

Retinal artery macroaneurysms are acquired dilatations of the first three orders of the retinal arteries that typically occur unilaterally in elderly hypertensive women.[1–5] As in this report two previous reports have demonstrated retinal arterial macroaneurysms developing on a background of generalised retinal artery damage characterised by pre-existent retinal exudate, generalised arteriovenous nipping and hyaline vascular change.[4,6] This report highlights that in the presence of generalised retinal damage, focal retinal arterial dilatation may be present and can progress to retinal artery macroaneurysm with associated haemorrhage and oedema in a matter of weeks. These clinical signs are supported by histological findings in retinal arteries of older people including thickening of the vessel walls and replacement of contractile elements with collagen.[7] The actual site of the macroaneurysm may be related to focal areas of damage such as previous occlusion secondary to a retinal embolus or areas of turbulent blood flow such as at arterial bifurcations.[4,6] The documented preponderance of retinal arterial macroaneurysms in the



(A) (B)

Fig. 1. *(A) Colour photograph of the right fundus demonstrating a retinal artery macroaneurysm arising from the first bifurcation of the superotemporal retinal artery partially obscured by intra-retinal haemorrhage (open arrow). There is also evidence of macular exudate (a), arteriovenous nipping (b) and hyaline vascular change (filled arrow) consistent with hypertensive retinopathy and pre-retinal haemorrhage (c). (B) Colour photograph of the right fundus taken 10 weeks preceding that in (A), demonstrating mild dilatation of retinal arteries one of which corresponds to the point of origin of the retinal artery macroaneurysm at the first bifurcation of the superotemporal retinal artery (open arrow). There is also pre-existent macular exudate (a), arteriovenous nipping (b) and hyaline vascular change (filled arrow).*