Sebaceous carcinoma of the eyelid: a rarity worth considering

The sebaceous carcinoma is a very rare malignant tumour primarily found in the area of the eyelid. Most of these carcinomas originate in the tarsal meibomian glands although they may in extremely rare cases originate in the glands of Zeis of the eyelashes or the sebaceous glands of the caruncle. The peribulbar primaries are reported to behave aggressively with the tendency to metastasise early with a significant mortality in most series. In many cases, correct diagnosis of a sebaceous carcinoma of the eyelid is delayed not only as a result of the rarity of this tumour but also because of its ability to masquerade as a variety of other eye conditions such as chalazion or chronic blepharoconjunctivitis. A high index of suspicion is vital if these tumours are to be adequately treated.

We present a case of sebaceous carcinoma and discuss the clinical behaviour, the diagnosis, and the differential diagnosis difficulties as well as the therapy.

Case report

A 78 year old patient presented with a localised inflammation in the centre of the right upper eyelid. Under local antibiotic therapy for 6 weeks the lesion increased in size and showed purpuric secretion on the surface. The patient refused further treatment and presented 22 months later with no healing of the lesion on the upper lid and a visible increase in size. The clinical examination revealed an ulcerating tumour measuring 3 cm in diameter at the right upper lid with a bloody encrusted lid margin (Fig 1A) and an enlarged lymph node on the right preauricular area of the parotid gland. The ocular examination revealed no conjunctival or corneal involvement. A biopsy of the eyelid tumour revealed a carcinoma of a meibomian gland with complete infiltration of the upper lid. Conjunctival map biopsies were negative.

Two weeks later a total resection of the upper lid with rapid section examination of the resection margins was carried out as well as the extirpation of the lymph node and an underlying metastasis beneath the parotid gland. Because the rapid section examination from the lateral mucosal border did not show any infiltration with tumour tissue, we decided to do a three layered primary reconstruction of the upper lid with a pedicled temporal island flap covered with a full thickness skin graft from the contralateral upper lid. The reconstruction of the conjunctiva was achieved by an oral mucosal graft. In order to make the raising of the lid possible, the flap was fixed on the fascial residue of the superior levator palpebrae muscle. The histopathological reappraisal revealed tumour stage T3 N1 (Fig 2) and a R0 resection.

Two weeks after the surgery a neck dissection was performed and an adjuvant radiation therapy of the right orbit as well as the cervical lymph draining was begun in 25 cycles with a dose of 50 Gy.

A local relapse or further metastasis 15 months after the surgery did not occur (Fig 1B).

Comment

The low incidence and the non-specific clinical symptoms led us to conclude that the diagnosis of a sebaceous carcinoma of the eyelid often occurs very late. One warning sign is the loss of the eyelashes resulting from a tumour infiltration of the follicle. Every therapy refractive, one sided, tumour-like eyelid lesion has to be clarified histologically to rule out a sebaceous carcinoma. A full thickness eyelid biopsy combined with conjunctival map biopsies is the appropriate approach to the diagnosis. In our case we found the typical pagetoid infiltration of the overlying epidermis in the margins of the widely excised carcinoma. It presented without sign of multicentric growth, which together with pagetoid spread indicates poor prognosis.

The therapy of choice for the sebaceous carcinoma is primarily a surgical one. If the tumour is very large or recurrent with demonstrated spread to bulbar conjunctiva, to the other eyelid, or to orbital tissue, a subtotal or complete exenteration may be necessary. If evidence of spread to regional lymph nodes is present a lymph node or radical neck dissection should be performed, usually combined with partial parotidectomy. An alternative to the surgical excision is the radiation therapy with a total dose of >50 Gy. Radiation therapy may be considered as an adjunct to local surgery. Recurrence of tumour usually occurs within 3 years following radiotherapy alone.

There are some techniques of eyelid reconstruction presently available. An ideal eyelid reconstruction should replace the missing tarsoconjunctival structures and skin, protect the globe, give a natural appearance with only minor donor defect morbidity, and should be done as a one stage procedure. The temporal island flap described in our case report has the advantage of being a one stage procedure, which is relatively easy and quickly done and provides well vascularised tissues. A disadvantage is that the overlying temporal skin of the island flap can be very heavy, which makes...
de-epithelialisation or excision of the relatively thick skin graft necessary. Postoperative patients must be followed up at short intervals as the tumour has a fast growth potential. The approximate guidelines are 1 monthly interval during the first year, 6 monthly during the second year, and then on a yearly basis for life.

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References

Dramatic regression of conjunctival and corneal acquired melanosis with topical mitomycin C

Conjunctival primary acquired melanosis is the most important precursor of conjunctival malignant melanoma.11 Primary acquired melanosis appears as flat, patchy, non-cystic pigmentation in the conjunctival epithelium and can remain dormant for years or show slow progression.11 Studies have shown that it leads to conjunctival melanoma in approximately 1% to 30% patients.11 Treatment of primary acquired melanosis includes observation, excisional biopsy, alcohol epithelioablation, cryotherapy, and topical chemotherapy.1, 12, 13 We illustrate a dramatic case where topical chemotherapy provided complete regression of advanced, aggressive primary acquired melanosis.

A 73 year old white man had noted slowly progressive pigmentation on the surface of his right eye for 5 years. A biopsy revealed intraepithelial conjunctival melanosis with atypia. The patient was referred to the Oculoncology Service at Wills Eye Hospital for evaluation and management. On examination, his visual acuity was 20/20 right eye and 20/40 left eye. Intraocular pressures were 13 mm Hg in both eyes. The interior of both eyes was unremarkable with mild nuclear sclerotic cataracts and mild retinal pigment epithelial mottling. The only abnormality on examination was the presence of patchy, flat, brown conjunctival pigmentation on the right eye for 360 degrees on the bulbar and fornical conjunctiva with involvement of the caruncle, upper tarsal conjunctiva, and entire surface of the cornea (Fig 1). There was no thickening or excessive vascularity to suggest malignant melanoma.

Figure 1 Before mitomycin C treatment. (A) The entire medial and lateral bulbar conjunctiva, limbus, and cornea are superficially infiltrated with brown pigment of primary acquired melanosis. A biopsy had been previously taken at the medial limbus where the pigment is absent. (B) Extensive primary acquired melanosis of superior conjunctiva with diffuse limbal and corneal pigmentation is shown. (C) Diffuse conjunctival melanosis inferiorly is demonstrated.

Figure 2 Ten months after mitomycin C treatment. (A) The corneal and conjunctival melanosis has completely resolved with minor granular pigment at the superotemporal limbus. (B) Dramatic resolution of superior conjunctival melanosis with no epithelial abnormality. (C) Impressive resolution of inferior melanosis.

One option for management of this precancerous condition was extensive conjunctival excision and 360 degrees of cryotherapy followed by complete alcohol induced corneal epithelioablation with anticipation of extensive postoperative scarring, possible synechiation, and likely conjunctival overgrowth onto the cornea because of the absence of corneal stem cells. The other options included topical chemotherapy with mitomycin C or low dose radiotherapy with a custom designed conformal plaque. Mitomycin C was selected and the patient was treated with a total of 6 weekly cycles of topical mitomycin C 0.04% four times daily interrupted by a week’s hiatus of no medication between each cycle.

Three months after therapy, the primary acquired melanosis was 80% resolved and at 10 months’ follow up, the melanosis had nearly completely disappeared with minor granular pigment near the limbus (Fig 2). During the weeks of topical chemotherapy, the patient had occasional symptoms of ocular irritation and periorcular cutaneous erythema and minor oedema. The ocular surface was injected during treatment but, on follow up, there was no chronic ocular surface disease or skin or cilial abnormality.

Topical mitomycin C ophthalmic preparation has been found to be safe and effective for conjunctival squamous neoplasia.11, 14 Its usefulness for conjunctival melanocytic neoplasia is debatable and not yet proved in a large series of patients. A recent study on a small number of patients with conjunctival melanoma and...
melanoma indicated a possible role for topical chemotherapy, but the authors advised further investigation. In this regard, we prefer to reserve mitomycin C therapy for patients with biopsy proved primary acquired melanosis with atypia. An important observation in our case was the effectiveness of topical chemotherapy for corneal melanosis where other methods of treatment could have led to scarring, conjunctival overgrowth, and ultimate visual loss. We emphasise, however, that patients should be monitored biometrically while taking the medication as overuse could lead to corneal oedema and scotopic damage. The recommended duration of treatment has not yet been established in a randomised study. We prefer to limit treatment to two to four cycles with a non-treatment weekly hiatus between cycles to avoid complications. In summary, we report a dramatic case that supports the value of topical mitomycin C for primary acquired melanosis.

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References

Recurrent corneal ulceration as late complication of toxic keratitis
Abuse of topical anaesthetic agents is a rare but potentially dangerous cause of toxic keratitis. Persistent use of topical anaesthetics may result in corneal epithelial defects, stromal infiltrates with oedema and neovascularisation, and even hypopyon or hyphaema. Permanent corneal scarring and visual loss may lead to penetrating keratoplasty and enucleation. Patients have obtained anaesthetic drops from eye care practitioners and pharmacists, from theft of the practitioners’ offices, and over the counter in some developing countries. We present a case of toxic keratitis secondary to topical anaesthetic abuse that is unique in two aspects. Firstly, the patient received the drops directly from an emergency department physician and, secondly, the patient developed an ulcerative keratitis months after the cornea had received epithelialised.

Case report
A 24-year-old woman presented with complaints of decreased vision and severe eye pain bilaterally. Two weeks before presentation, she had a history of intensely pruritic allergic conjunctivitis. She was examined by a community hospital emergency department physician, who reportedly treated her for a corneal abrasion in the right eye. Two ophthalmologists subsequently treated her for presumed bilateral bacterial keratitis that worsened despite aggressive topical antibiotic therapy, and the patient was referred to theUMDNJ-New Jersey Medical School ophthalmology department. The patient was not a contact lens wearer, and she denied tap or pool water exposure. Past medical history was unremarkable.

On examination, visual acuity was hand movements in both eyes. The eyelids were edematous and the palpebral and bulbar conjunctiva were severely hyperaemic. The corneas had relatively symmetrical 5 by 7 mm epithelial defects with underlying dense stromal ring infiltrates (Fig 1). The stromas were mildly thinned, and endothelial folds and fine keratic precipitates were noted. Anterior chamber examination revealed a mild cell and flare reaction, but no hypopyon. Iris, pupils, and lens examinations were unremarkable, and retinal examination revealed normal macula, disc, and blood vessels in both eyes.

Initial differential diagnosis included bacterial, fungal, viral, and Acanthamoeba infection. However, after repeated review of the history, the patient admitted that the initial emergency department physician had given her a bottle of topical anaesthetic and told her “not to tell anyone.” The patient confessed to using the oxybuprocaine (proparacaine) drops every hour in both eyes over the previous 2 weeks. The anaesthetic drops were discarded, and treatment with erythromycin ointment, diflucanac drops, and homatropine 5% was instituted. A bandage soft contact lens relieved the patient’s pain. Corneal cultures, performed to rule out concurrent or subsequent infection, were negative. Over the next week, visual acuity improved to 20/80 in the right eye and 20/40 in the left, though residual bilateral 4 mm epithelial defects with stromal rings remained. The patient was then lost to follow up for 2 months.

Follow up examination revealed a residual epithelial defect in the right eye, and healed epithelium in the left eye. Over the next month, the epithelial defect resolved in the right eye, but bilateral ring-like stromal haze persisted. Four months later the patient presented with a new 2 by 3 mm epithelial defect with underlying stromal infiltrate and neovascularisation in the left eye (Fig 2). The patient vehemently denied any further use of topical anaesthetic drops. Cultures were performed, and treatment with oloxicam and erythromycin was instituted. The cultures were negative, and the epithelial defect slowly resolved. The underlying corneal stroma remained opacified and neovascularisation progressed. At last examination, visual acuities were 20/40 in the right eye, and counting fingers at 1 foot in the left eye.

Comment
Topical anaesthetic agents are routinely used in ophthalmic examinations and procedures. The most commonly used preparations include oxybuprocaine and amethocaine (tetracaine). They are topical ester anaesthetics with fast onset of action (10–20 seconds), and relatively short durations of action (10–15 minutes). The agents act by interfering with sodium transmission through neuronal membranes, thereby stabilising the transmembrane potential, inhibiting the generation of action potentials, and blocking the sensation of pain.

The toxic effects of topical anaesthetics are both direct and indirect. Epithelial cell organelles, desmosomes, and cytoskeletal elements can be directly damaged by these agents, altering cellular metabolism and function. Indirectly, loss of epithelial microvilli can cause tear film instability, promoting corneal desiccation and inhibiting re-epithelialisation. Secondary neurotrophic changes may then occur.

Electron microscopy of corneal endothelial cells exposed to topical anaesthetics shows loss of the normal mosaic of hexagonal cells and abnormalities of the intercellular junctions and apical attachments. Immune complexes released from the cornea may be
recognised by the body as antigen, causing the Weil-Felix immune ring infiltrate seen clinically. A combination of these mechanisms may result in the clinical manifestations presented in our case. Patients who have abused topical anaesthetic agents often present in extreme pain. There may be eyelid oedema with mucopurulent discharge and conjunctival hyperaemia. Like our patient, large chronic corneal epithelial defects with underlying stromal infiltrates are often initially misdiagnosed as Acanthamoeba or Gram negative bacterial infection. The stroma may become oedematous or thinned. Keratitic precipitates and an anterior chamber flare are common. Culture is most often negative, but superinfection may occur. Inflamatory crystalline keratopathy, which is usually associated with concomitant use of topical corticosteroids, has been reported in association with topical anaesthetic abuse. In that report, Kintner et al described Streptococcus viridans by corneal biopsy. Concurrent or subsequent infection with Pseudomonas and Bacillus has also been reported. Stromal neovascularisation and scarring complicate the healing and may be affecting permanently decreased visual acuity. Patients may undergo conjunctival flaps, penetrating keratoplasty, and even enucleation for intractable pain after anaesthetic abuse.

We are unaware of previous reports of a late occurring corneal ulcer after resolved toxic keratitis, and could find no reference to it in a computerised search utilising Medline. While the initial visual acuity improved to 20/40 in the left eye, late ulceration resulted in stromal scarring and neovascularisation that ultimately led to the poor visual acuity. The patient experienced penetrating keratoplasty and eventual enucleation for intractable pain after anaesthetic abuse.

Patients who abuse topical anaesthetic agents obtain the drugs in various ways. In a report from Saudi Arabia, several patients sustained toxic keratopathy after the anaesthetic was dispensed over the counter. In countries where dispensing is more restricted, patients have been inappropriately prescribed topical anaesthetics by optometrists, ophthalmologists, and even ophthalmologists. Theft of the drugs from practitioners’ offices may also contribute to the abuse. An association between topical anaesthetic abuse and psychiatric disturbances has been reported. In our case, the patient vehemently insisted that an anaesthetic agent was responsible for the corneal ulcer, but no chorioretinal lesions were noted on ophthalmoscopy. A magnetic resonance image (MRI) with contrast demonstrated multiple well defined, enhancing lesions of varying size located at the grey-white matter junction consistent with either metastatic neoplasia or lymphoma (Fig 1). Pars plana vitrectomy was performed and an unindulged and dilute vitreous specimen was sent for cytology. The patient recovered a BCVA of 20/16 right eye and 20/40 left eye.

The diluted vitreous was analysed by flow cytometry using three colour gating (light scatter versus CD45) to optimise lymphoid yield. Approximately 58% of the total gated events were composed of abnormal B cells as evidenced by expression of surface antigen CD 19, a pan-B cell marker (Fig 2). The cells showed monoclonal lambda light chain restriction and did not express CD20, CD5, CD10, or CD23 surface antigens (Fig 2). These cytological findings combined with cytological features of large cell size, moderately abundant amphophilic cytoplasm, and large irregular nuclei with coarse, clumped chromatin and conspicuous nucleoli seen in the undilated vitreous were consistent with a high grade B cell non-Hodgkin’s lymphoma. The patient declined chemotherapy and underwent whole brain external beam radiotherapy consisting of a total of 30 Gy administered over 4 weeks and adjunctive intravenous dexamethasone, 1.5 mg twice daily tapered off over 3 weeks. Treatment resulted in a reduction in the size of the cerebral lesions on follow up MRI.

### Ataxia and vision loss: flow cytometric diagnosis of primary central nervous system lymphoma

Approximately 20% of patients with primary central nervous system lymphoma will have eye involvement, which often precedes diagnosis by a number of months. The diagnosis of intraocular and/or CNS lymphoma depends on histological evidence in tissue obtained from a CNS biopsy or cytological demonstration of malignant cells in the vitreous or cerebrospinal fluid (CSF). Cytological differentiation of reactive lymphoid cells from well differentiated lymphoma using morphological characteristics depends on observer skill and the preservation of adequate numbers of cells. Immunochemistry of the tissue stains can rapidly identify abnormal B and T lymphoid cells.

**Cytological differentiation of reactive lymphoid cells from well differentiated lymphoma**

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### Case report

A 53 year old woman was diagnosed with bilateral panuveitis. Best corrected visual acuity (BCVA) was 20/30 right eye and 24/40 left eye. Bilateral mild anterior uveitis and vitritis was present. Diagnostic tests for uveitis were negative. The patient was treated with topical (1%) and oral prednisolone (35 mg) over 16 weeks resulting in a BCVA of 20/30 right eye and 20/25 left eye, resolution of the anterior uveitis, and marked reduction in the vitreous cells bilaterally.

Three months later, the patient presented to the Beth Israel Deaconess Medical Center emergency room with ataxia and vision loss. She had recurrence of her bilateral panuveitis, but no chorioretinal lesions were noted on ophthalmoscopy. A magnetic resonance image (MRI) with contrast demonstrated multiple well defined, enhancing lesions of varying size located at the grey-white matter junction consistent with either metastatic neoplasia or lymphoma (Fig 1). Pars plana vitrectomy was performed and an unindulged and dilute vitreous specimen was sent for cytology. The patient recovered a BCVA of 20/16 right eye and 20/40 left eye.

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### Comment

This case highlights typical features of intraocular lymphoma including uveitis of unknown aetiology presenting before evidence of CNS-NHL, bilateral involvement, and an initial response to steroids. Decisions regarding the method of diagnosis weigh the lower morbidity and mortality of vitrectomy and lumbar puncture compared to CNS biopsy, against a lower diagnostic yield using cytology. Flow cytometry is a semi-automated method of immunocytochemistry and can rapidly identify abnormal B and T lymphocyte subsets. Other benefits include easier cell preparation and multiparameter analyses of specimens. Earlier shortcomings including blood contamination, errors introduced by non-viable cells, difficulty in identifying monoclonality, and slow, single cell suspension analysis, have been overcome.

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Figure 2 Multivariable, three colour flow cytometric histogram of vitreous lymphocytes showing a cluster of cells (upper right quadrant, 20% of the lymphocyte gate) coexpressing CD 19 and kappa light chain (A). However 58% of the B lymphocytes express surface lambda light chains (B). The pattern of dot plots indicates the presence of a monoclonal, lambda light chain restricted B cell population.

However, correlation of flow cytometry analysis with morphological examination of the tissue section or cytology preparation is still required. Although two early reports did not find flow cytometry helpful in diagnosing intraocular lymphoma, three recent cytfluorography studies detected malignancy in 100% of 13 cases and 70% of 10 cases usually with one vitrectomy.

While primary CNS-NHL is initially extremely sensitive to radiotherapy or corticosteroids, tumours will recur in 90% of patients within 1 year. Combined treatment with radiotherapy, corticosteroid and chemotherapy may double median survival time, but the 5 year survival rate is only 4% to 30%.

In the minority of patients with this rare disease who have eye involvement, early vitrectomy using cytology and flow cytometry can provide a prompt diagnosis.

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References


Intravitreal triamcinolone acetonide for macular oedema due to central retinal vein occlusion

No proved treatment exists for macular oedema secondary to central retinal vein occlusion (CRVO) despite the potential for significant visual loss in affected eyes. We report a patient with bilateral non-ischaemic CRVOs and macular oedema treated with intravitreal triamcinolone acetonide.

An 80 year old woman presented with a 2 week history of acute visual loss in her left eye (LE). She had a 9 month history of poor vision in her right eye (RE). On examination, visual acuity was counting fingers RE and 20/400 LE. Intraocular pressures were 12 and 14 mm Hg, respectively. Anterior segment examination showed bilateral pseudophakia with no evidence of neovascularisation. Dilated fundus examination revealed bilateral CRVOs with macular oedema. Collarette disc vessels were present in the RE. Fluorescein angiography showed diffuse leakage and blockage from intraretinal haemorrhages in both eyes with no areas of non-perfusion (Fig 1). OCT measured a central macular thickness of 715 µm in the RE and 589 µm in the LE (Fig 2A). Owing to the poor visual outcome in the RE with observation, the patient was offered an intravitreal injection of triamcinolone acetonide (Apothecon, Princeton, NJ, USA) in the LE. Topical 0.5% amethocaine (tetracaine, Novartis, Atlanta, GA, USA) was used for anaesthesia. Two drops were applied three times, 5 minutes apart. Betadine (povidone-iodine) 5% (Alcon, Ft Worth, TX, USA) was then applied to the conjunctiva. An injection of 4 mg (0.1 ml) triamcinolone was performed using a sharp 27 gauge, half inch needle through the inferior pars plana, 3.5 mm from the corneal limbus appropriate for her pseudophakic status.

Six weeks post-injection, visual acuity was 20/80 in the LE. Central macular thickness measured 160 µm with a normal foveal contour (Fig 2B). Visual acuity was 20/30 after 3 months. Central macular thickness remained normal by OCT. Six months post-injection, visual acuity declined to 20/400 because of recurrence of macular oedema.

Figure 1 Mid-phase fluorescein angiography of the left eye shows a central retinal vein occlusion with diffuse leakage and blockage secondary to retinal haemorrhage.

Figure 2 (A) Optical coherence tomography of the left eye before first intravitreal triamcinolone acetonide injection demonstrating marked macular oedema with intraretinal cysts. (B) Resolution of macular oedema with restoration of normal foveal contour 6 weeks after intravitreal triamcinolone injection.
measuring 834 µm by OCT. A second injection was performed in the LE. One month later, visual acuity was 20/50; central macular thickness measured 158 µm with restoration of a normal foveal contour. Given the significant response in the LE, an intravitreal triamcinolone injection was performed in the RE. The macular oedema responded promptly (735–195 µm central macular thickness) with restoration of normal macular anatomy, but no visual benefit was appreciated. There was no significant elevation in IOP in either eye during the follow up period.

Macular oedema due to CRVO generally carries a poor visual prognosis. After 3 years, 58% of eyes will have vision worse than 20/100. Less than 20% of eyes will gain two or more lines of visual acuity. In addition, there are no proved treatment options. The Central Vein Occlusion Study demonstrated that grid photocoagulation had no significant impact on the final visual acuity of eyes with CRVO and macular oedema.

In this case, a patient with an acute CRVO and macular oedema had significant improvement in visual acuity and complete resolution of macular oedema after each of two intravitreal injections of triamcinolone. A chronic CRVO with macular oedema in the other eye showed an anatomical response without visual improvement. Thus, early treatment may be necessary for visual improvement, before longstanding macular oedema results in irreversible photoreceptor damage. The mechanism by which this modality induces resolution of macular oedema in eyes with CRVO is unclear, though stabilisation of the blood-retinal barrier may play a significant part. 1,2

The safety and efficacy of intravitreal triamcinolone has been well studied in animal models. 1,3 It has also been used in humans for the treatment of choroidal neovascularisation and cystoid macular oedema due to uveitis. 3 IOP elevation may occur in up to 25% of eyes after corticosteroid injection. 3 Other potential risks of the procedure include cataract development, retinal detachment, and endophthalmitis.

This case suggests that the use of intravitreal triamcinolone acetone for the treatment of macular oedema due to CRVO warrants further study.

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References

Should active CMV retinitis in non-immunocompromised newborn babies be treated?

Cytomegalovirus (CMV) retinitis in children with congenital CMV infection is known to differ from that described in immunocompromised subjects, because it is present at birth and does not progress postnatally if the child is otherwise immunocompetent. Regarding treatment, there are limited data in infants with symptomatic congenital CMV infection and it is not known whether antiviral drugs alter the prognosis. We describe a case of congenital CMV retinitis that progressed postnatally and our treatment regimen.

Case report
A 9 day old baby was referred to the eye clinic after having been diagnosed with congenital symptomatic CMV infection. During pregnancy, at 34 weeks, poor growth and ventriculomegaly were noted and a scan at 35 weeks showed bilateral cysts in the occipital horn of the lateral ventricles. He was born at 40 weeks by emergency caesarean section. The mother was a healthy 18 year old woman. His birth weight was 2.1 kg and his head circumference 31.5 cm, both of which were below the 0.4th centile. Brain magnetic resonance imaging confirmed the presence of bilateral occipital cysts and periventricular calcification. Serology and urine tests showed congenital CMV infection. The child had a normal immune system for his age.

Eye examination revealed sheathing of the retinal vessels and haemorrhages, which involved the arcades and were more marked in the left eye (Fig 1A, B, C). Exudates were present in both eyes superior to the disc (Fig 1A). The following day the exudates in the left eye had progressed and was involving the macula. Treatment with ganciclovir 5 mg/kg day intravenously was started in view of the active retinitis. One week after treatment the haemorrhages and exudation in both eyes were resolving and 2 weeks after treatment complete resolution of the ocular infection occurred (Fig 1D). The macula of the right eye remained unaffected, but scarring occurred in the periphery of both eyes and the left macula. Ganciclovir was stopped 3 weeks after initiation.

Electrodiagnostic tests were performed at 4 months and suggested moderate vision in the right eye and poor vision in the left. On last examination at 5 months the baby would not fixate with the left eye and had developed a divergent squint while he was fixing on bright objects with his right eye. Fundus examination revealed a pale optic disc on the left, vascular attenuation in the left eye, pigmented scars superiorly in both eyes, and right macular gliosis. There was no gross refractive error.

His growth followed a centile just below the 0.4th with delayed development and microcephaly.

Comment
Cytomegalovirus is the most common cause of congenital and perinatal viral infections throughout the world. The incidence of congenital infection ranges from 0.2–2.4% of all live births, with higher rates in populations with a lower standard of living. The fetus may become infected as a consequence of primary and recurrent maternal infection. The risk of fetal infection is greatest with maternal primary CMV infection (40%) and much less likely with recurrent infection (1%). Only 5% of all congenitally infected children will develop severe disease, another 5% have mild involvement, and 90% are born with subclinical but chronic CMV infection. 1 The most characteristic signs include intrauterine growth retardation, prematurity, hepatosplenomegaly and...
jaundice, thrombocytopenia and purpura, and microcythemia and intracranial calcifications. Neurological problems include mild increase in cerebrospinal fluid protein, sensorineural hearing loss, and choreorretinitis. Among the most severely affected infants, mortality may be as high as 70% and death may occur in the neonatal period or months later. The likelihood that infants who survive symptomatic congenital CMV infection will have normal hearing and intellectual development is small. In infants with subclinical infection, the outlook is much better.

Active CMV infection is best demonstrated by virus isolation from urine, saliva, bronchoalveolar washings, breast milk, cervical secretions, and tissues obtained with biopsy. The definitive method for diagnosis of congenital CMV infection is isolation of the virus in urine or saliva. This must be done shortly after birth. Intrauterine, perinatal, or early postnatal acquisition of CMV characteristically causes a more chronic infection with regard to virus excretion than does infection acquired later in life. Virus is shed into the urine for approximately 5 years and frequently into the nasopharynx for 2–4 years. The quantity of virus excreted in these sites is much greater than that found in infected older children and adults. Immaturity of the immune response of the fetus and of young infants is believed to be the major determinant of virulence of the congenital and early postnatally acquired infection. Still, the extent and exact nature of the immune defect in congenitally infected infants have yet to be resolved. CMV can also be diagnosed in utero by isolation of the virus in the amniotic fluid.

CMV retinitis is known to occur in immunosuppressed adults and its incidence has increased in the last years as a result of acquired immunodeficiency syndrome (AIDS). 

The occurrence of CMV retinitis in immunocompromised children is unusual and only few cases have been reported in the literature. 

Congenital CMV infection may also be associated with retinitis. The precise incidence of CMV retinitis has been reported to be up to 25% of infants with severely symptomatic congenital CMV and in approximately 1% of infants who are asymptomatic and congenitally infected. The retinitis in congenitally infected children differs from that described in immunocompromised subjects because it usually does not progress after birth if the child is otherwise immunocompetent. 

Delayed onset and reactivation of chorioretinitis in children with congenital CMV infection has been described in a series of seven patients. Progression occurred later in life, the age ranging from 3 to 11 years. Only one child had a positive urine culture for CMV and no treatment was administered. 

The baby we treated presented to us at 9 days of age with active progressive bilateral CMV retinitis and congenital symptomatic CMV infection. He was not immunosuppressed. Diagnosis was made by the clinical picture and blood and urine cultures, from which the virus was isolated. The optimal treatment for CMV retinitis in children has not yet been established. There are limited data regarding ganciclovir treatment in infants with symptomatic congenital CMV infection and it is not known whether antiviral drugs alter the prognosis. We prescribed the currently recommended therapeutic regimens of ganciclovir which are identical to those used in adults, with drug doses adjusted for body weight. In our case dramatic improvement of the retinitis occurred within 1 week of treatment and ganciclovir was started when such a profound improvement of the disease and help in establishing the best way to manage its complications. 

Figure 1 Photographs taken at (A) 6 years, (B) 8 years, (C) 9 years, and (D) 11 years, showing inferonasal displacement of the right globe, right ptosis, and superolateral orbital swelling present for at least 2 years before presentation.

Pleomorphic adenoma of the lacrimal gland in a 10 year old girl

Pleomorphic adenoma is the most common epithelial tumour of the lacrimal gland, representing 12% of lacrimal fossa lesions. It typically presents in middle age and is rare in children under the age of 16 years, with only a few previously reported cases. We present an additional case in a 10 year old girl with photographic documentation of longstanding orbital asymmetry.

Case report

A 10 year old girl was referred with a 3 month history of painless right eyelid swelling, presumed to be allergic in nature. The unaided right visual acuity was 6/24, improving to 6/9 with correction of astigmatism (+1.00/-2.25 x 020) and the unaided left visual acuity was 6/5. Pupil responses and colour perception were normal. Ocular motility was normal but there was 3 mm of right proptosis, with inferonasal globe displacement, and a non-tender lacrimal gland mass. Periorbital sensation was intact and ocular examination was otherwise unremarkable. Family photographs demonstrated an asymmetry in appearance of the two eyes for at least 2 years previously (Fig 1).

Computed tomograph (CT) scan demonstrated a well defined 1.8 x 1.8 cm mass arising from the right lacrimal gland with mild smooth boney erosion of the lacrimal fossa, consistent with a pleomorphic adenoma. Lateral orbitotomy was performed under general anaesthetic with intact excision of the orbital lobe of the right lacrimal gland. Histology confirmed benign pleomorphic adenoma with intact pseudocapsule.

Comment

Pleomorphic adenoma of the lacrimal gland is rare in children with only few previously reported cases.
reported cases. Nevertheless, even in the pediatric age group, it is important to consider the diagnosis in the presence of a painless, gradually progressive lacrimal gland mass. A published system for evaluation of lacrimal gland masses scores the duration of symptoms, presence of persistent pain or sensory loss, as well as radiological features, in order to determine the appropriate surgical management. The case described scored the maximum 8 points, where a score higher than 3 suggests pleomorphic adenoma requiring excision without previous incisional biopsy. Complete excision with an intact pseudocapsule has prognostic importance in avoiding later recurrence and malignant transformation.

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Accepted for publication 15 August 2001

Results
Thirty nine patients underwent 41 biopsies, yielding an average of 19.5 per year or 1.6 per month. Of these, six were positive. This implies a 14.6% positive biopsy rate. Of the two re-biopsies, one revealed a repeat negative result and the other a positive result. The five departments performing surgery were: ophthalmology—14 biopsies (34%) from 13 patients; neurosurgery—14 biopsies (34%); maxillofacial surgery (MFS)—six biopsies (14.6%) from five patients; general surgery (GS)—five biopsies (12.2%); and vascular surgery (VS)—two biopsies (4.9%). For analysis, MFS, GS, and VS are grouped together as they performed relatively few biopsies. Analysis of biopsy rates is depicted in Table 1. Overall, 14 biopsies were done in year 1, with an average length of 13.8 mm, and in year 2, with an average of 13.1 mm. Regarding specimen lengths, ophthalmology averaged 15 mm in year 1 and 16.4 mm in year 2. Total average was 16.1 mm. This ranged from 5 mm to 30 mm. The 5 mm specimen was deemed too short and re-biopsy yielded a specimen of 23 mm. There were no failed biopsies. Neurosurgeons averaged 10.8 mm in year 1 and 9 mm in year 2, with a total average of 9.6 mm. Specimens ranged from no artery to 20 mm. No re-biopsy of the unsuccessful sample took place. The last group averaged 15.7 mm in year 1 with one specimen containing no artery and 13.1 mm in year 2, also with one unsuccessful procedure. Total average length was 14.3 mm with a range of no artery to 28 mm. The average length of the 35 negative results was 12.9 mm.

Comment
It would appear that our ophthalmology unit is best suited to perform the majority of biopsies. They already perform one third of all biopsies and achieve the longest average length. They also re-biopsy when specimen length is long. They already perform one third of all biopsies and achieve the longest average length. They also re-biopsy when specimen length is long.

Table 1 Annual biopsy rates per department

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>3</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Maxillofacial</td>
<td>15</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>General surgery</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Vascular surgery</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>27</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 2 Performance indicator—average arterial length (mm)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>15</td>
<td>16.4</td>
<td>16.1</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>10.8</td>
<td>9</td>
<td>9.6</td>
</tr>
<tr>
<td>Maxillofacial</td>
<td>15</td>
<td>11.8</td>
<td>12.4</td>
</tr>
<tr>
<td>General surgery</td>
<td>15</td>
<td>11</td>
<td>12.4</td>
</tr>
<tr>
<td>Vascular surgery</td>
<td>none</td>
<td>22.5</td>
<td>22.5</td>
</tr>
<tr>
<td>Total</td>
<td>13.8</td>
<td>13.1</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Surgical performance for specialties undertaking temporal artery biopsies: who should perform them?

The management of temporal arteritis carries a large burden on resources and commits the patient to long term anti-inflammatory medication with its concomitant side effects. We undertook a retrospective survey of the recent surgical practice at King’s College Hospital, London. This was to compare performance for the specialties involved in biopsying temporal arteries. We are unaware of any previous publication specifically addressing surgical efficiency. Biopsies of long specimens could help reduce morbidity and mortality associated with false negative results and avoid further unnecessary and expensive investigation. Information was obtained by cross referencing clinical, surgical, and histopathological records for all the temporal artery biopsies done during a 2 year period from March 1998 to March 2000. Arterial specimen length was taken as the performance indicator. Analysis of the biopsy rates for years 1 and 2 was done and then individual lengths were compared.
For quite some time there has been a plethora of problem oriented approach learning texts available in medicine. They are liked enormously because of their practical approach, often excellent illustrations, readability, and because they can be a great text for quick reference and, indispensably, revision for membership examinations. Ophthalmology has also created similar textbook approaches except that they have been more didactic and nearly always skewed to surgical conditions. John Ferris is to be congratulated in providing a first class book, which I am sure, is eagerly awaited.

I can imagine the book could become essential for the ophthalmology exams as well as being very useful for the MRCP short cases. The book bravely, and in the main successfully, covers the broad spectrum of medical ophthalmology, including neurology. What is exciting is that he brings in systemic features—for example, the hands and face, into ophthalmic learning, further emphasizing that ophthalmologists need to look outside the eye. I particularly like the chapters on laboratory tests and radiology, essential for problem oriented approach to learning.

In general, the illustrations are good and the text apt for this stage in learning, although by no means complete, as I am sure each subspecialist may argue unnecessarily. Nevertheless, for exam purposes, I find that this book fulfills its requirements and I would recommend it to all trainees for their exams.

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Glucoma

The latest issue of Community Eye Health (No 39) discusses the glaucomas, with an editorial by Professor Gordon J Johnson, director of the International Centre for Eye Health. For further information please contact: Journal of Community Eye Health, International Centre for Eye Health, Institute of Ophthalmology, 11-43 Bath Street, London EC1V 9EL, UK (tel: +44 (0)20 7608 6910; fax: +44 (0)20 7250 3207; email: eyeresource@ucl.ac.uk; website: www.jech.co.uk). Annual subscription (4 issues) UK£23.50/US$40. Free to workers in developing countries.

International Centre for Eye Health

The International Centre for Eye Health has published a new edition of the Standard List of Medicines, Equipment, Instruments and Optical Supplies (2001) for eye care services in developing countries. It is compiled by the Task Force of the International Agancy for the Prevention of Blindness. Further details: Sue Stevens, International Centre for Eye Health, 11-43 Bath Street, London EC1V 9EL, UK (tel: +44 (0)20 7608 6910; email: eyeresource@ucl.ac.uk).

Second Sight

Second Sight, a UK based charity whose aims are to eliminate the backlog of cataract blind in India by the year 2020 and to establish strong links between Indian and British ophthalmologists, is regularly sending volunteer surgeons to India. Details can be found at the charity website (www.secondsight.org.uk) or by contacting Dr Lucy Mathen (lucymathen@yahoo.com).

Specific Eye Conditions (SPECS)

Specific Eye Conditions (SPECS) is a not for profit organisation which acts as an umbrella organisation for support groups of any conditions or syndrome with an integral eye disorder. SPECS represents over fifty different organisations related to eye disorders ranging from conditions that are relatively common to very rare syndromes. We also include groups who offer support of a more general nature to visually impaired and blind people. Support groups meet regularly in the Boardroom at Moorfields Eye Hospital to offer support to each other, share experiences and explore new ways of working together. The website www.eyeconditions.org.uk acts as a portal giving direct access to support groups own sites. The SPECS web page is a valuable resource for professionals and may also be of interest to people with a visual impairment or who are blind. For further details about SPECS contact: Kay Parkinson, SPECS Development Officer (tel: +44 (0)1803 524 238; email: k@eyeconditions.org.uk; website: www.eyeconditions.org.uk).

4th International Conference on the Adjuvant Therapy of Malignant Melanoma

The 4th International Conference on the adjuvant therapy of malignant melanoma will be held at The Royal College of Physicians, London on 15–16 March 2002. Further details: Conference Secretariat, CCI Ltd, 2 Palmerton Court, Palmerston Way, London SW8 4AJ, UK (tel: + 44 (0)20 7720 0600; fax: + 44 (0)20 7720 7177; email: melanoma@confcomm.co.uk; website: www.confcomm.co.uk/Melanoma).

EUPO 2002 Course Retina

A course on retina will be held on 15–17 March 2002 at Erlangen, Germany, where European professors will teach European residents. Further details: Priv Doz Dr Ulrich Schoenherr, Friedrich-Alexander-University of Erlangen-Nuernberg, Department of Ophthalmology, Schwabachanlage 6 (Kopflinikum), D-91054 Erlangen, Germany (tel: +49 9131 853 4379; fax: +49 9131 853 4332; email: ulrich-schoenherr@augen.imed.uni-erlangen.de).

XXIXth International Congress of Ophthalmology

The XXIXth International Congress of Ophthalmology will be held on 21–25 April 2002 in Sydney, Australia. Further details: Congress Secretariat, C/- ICMS Australia Pty Ltd, GPO Box 2609, Sydney, NSW 2001, Australia (tel: +61 2 9241 1478; fax: +61 2 9251 3552; email: ophthal@icsmaust.com.au; website: www.ophthalmology.aust.com).

12th Meeting of the European Association for the Study of Diabetic Eye Complications (EASDEC)

The 12th meeting of the EASDEC will be held on 24–26 May 2002 in Udine, Italy. The deadline for abstracts is 15 February 2002. Three travel grants for young members (less than 35 years of age at the time of the meeting) are available. For information on the travel grants, please contact Pr CD Agardh, President of EASDEC, Malmö University Hospital, SE-205 02 Malmö, Sweden (tel +46 40 33 10 16; fax: +46 40 33 75 66; email: carl-david.agardh@endo.mas.lu.se). Further details: NORD EST CONGRESSI, Via Aquilea, 21–33100 Udine, Italy (tel: +39 0432 21391; fax: +39 0432 50687; email: nordest.congressi@ud.netuno.it).

International Society for Behçet's Disease

The 10th International Congress on Behçet's Disease will be held in Berlin 27–29 June 2002. Further details: Professor Ch Zouboulis (email: zoubbere@zedat.fu-berlin.de).

Singapore National Eye Centre 5th International Meeting

The Singapore National Eye Centre 5th International Meeting will be held on 3–5 August 2002 in Singapore. Further details: Ms Amy Lim, Organising Secretariat, Singapore National Eye Centre, 11 Third Hospital Avenue, Singapore 168751 (tel: (65) 322 8374; fax: (65) 227 7290; email: Amy_Lim@snec.com.sg).

BEAVRS Meeting

The next BEAVRS meeting will be held in the Dalmahoy Hotel near Edinburgh on 31 October to 1 November 2002. Further details: Susan Campbell, Medical Secretary, Garnetville General Hospital (email: susan@campbell.wg@northglasgow.scot.nhs.uk).
Treacher Collins syndrome with novel ophthalmic findings and visceral anomalies

Treacher Collins syndrome (TCS) (mandibulofacial dysostosis (MFD) or zygoauranomandibular dysplasia) is one of a group of congenital malformation syndromes that have in common maldevelopment of the first and second branchial arches. Clinical features typically include hypoplasia of the mandible and zygoma; a complex variety of ear abnormalities including malformed pinnae, atresia of the external auditory canals and anomalies of the middle ear ossicles; cleft palate; receding chin; and sinus and choanal atresia. We present a pair of twins that possessed not only classic features of TCS but also unusual visceral and previously unreported ophthalmic anomalies.

Case reports

A 32 year old, gravida 3 para 2-0-0-2 woman underwent elective abortion after fetal death and major fetal malformations were diagnosed during pregnancy. Ultrasonic examination at 20 weeks of gestation displayed monozygotic, diamniotic twins. Fetus A, noted alive at 16 weeks, was dead and surrounded by minimal amniotic fluid. Fetus B was alive with several anomalies including bilateral infraorbital cystic masses, protruding tongue, and large median facial cleft. Amniocentesis revealed a 46XY karyotype without numerical or structural chromosomal abnormalities. The parents denied any significant medical history, family history, of congenital anomalies, or use of drugs or alcohol. Their two other children, ages 17 and 33 months, were normal. No family members exhibited features of TCS on visual examination.

Necropsy measurements were consistent with 16 weeks of gestational age for twin A and 21 weeks for twin B. Both twins had bilaterally hypoplastic zygomas, maxillae, and related muscles; severely hypoplastic and misplaced pinnae; bilaterally agenetic external auditory canals; bilateral lateral facial clefts, and severe micrognathia (Fig 1). Twin A exhibited left sided choanal atresia, agenesis of the hard and soft palate, and multiple visceral anomalies, including dual superior vena cava, bilobed right and unilobed left lungs, bilateral renal and ureteral agenesis, rudimentary urinary bladder, and absent epididymides. Twin B was noted to have right sided choanal atresia, soft palate aplasia, hard palate hypoplasia, and a left sided cleft; twin B had no visceral anomalies. Ocular pathologic cal dissection of twin A illustrated bilateral microphthalmia; corneal scleralisation; and maldevelopment of the uvea, lens, and retina. Ocular dissection of twin B revealed microphthalmia, aniridia, congenital cataracts, and bilateral vascularisation of the corneas.

Comment

These twins had multiple features characteristic of TCS, most notably hypoplastic zygomas, maxillae, and related muscles—perhaps the most characteristic features of TCS. In contrast, visceral anomalies, such as those of twin A, are rare. Only two cases have been previously reported: one with tracheoesophageal fistula, rectovaginal fistula, and anal atresia; another with achalasia. Renal agenesis, found in twin A, has not been previously described in association with TCS. While ophthalmological features in TCS are often extensive, they seldom involve the intraocular structures. Common findings include a defective inferior lateral angle of the orbit, caudal displacement of the superolateral orbit, true and pseudocollaborations of the lids, lateral canthal dystopia, orbital lipodermoids, corneoscleral dermoids, and microphthalmos. Cataracts, lenticular duct atresia, pupillary ectopia, distichiasis, and uveal colobomas have been reported less commonly. Bronchial or gastrointestinal involvement in these twins is rare in TCS. Furthermore, aniridia, corneal scleralisation, and uvea, lens, and retinal maldevelopment are previously unreported.

TCS is an autosomal dominant disorder affecting one in 50,000 live births. The disorder appears to have arisen in these twins with no relevant family history, as occurs in 60% of cases. Expressivity is highly variable, ranging from clinically normal to a perinatal death secondary to airway compromise; the disease severity that resulted in the fetal death of twin A is highly unusual. The responsible gene, TCOF1, has been mapped to 5q32–33.2 and the structure of its protein product, treacle, elucidated. To date, 51 disease causing mutations have been identified, nearly all resulting in a premature termination codon. Significantly, no relation has been found between any single mutation and phenotype severity. The ophthalmic pathology observed in these twins may have resulted from a focal TCOF1 mutation and a yet to be defined role treacle may have in eye (and renal) development. Considering the number and severity of abnormalities, the failure to identify a single “genetic hot spot,” and the novel ophthalmic features, an alternative and perhaps more likely explanation is that a second gene, itself involved in ophthalmic embryology, was affected along with TCOF1. This unidentified gene may have been disrupted from a translocation involving 5q32–33.2 or from a deletion large enough to result in a contiguous gene syndrome. A final consideration is that these twins may not have had TCS but rather a new though closely related syndrome. Further genetic investigation may shed light upon these speculations.

Acknowledgements

JLP and GB contributed equally to this work.

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References


hexafluoride (SF6) gas to support an incident vitrectomy and required 30% sulphur vitreous haemorrhage. She underwent (CF), whereas the left eye, at best, had vision opic and had visual acuity of counting fingers.

argon laser panretinal photocoagulation proliferative retinopathy had undergone result of a change of posture following vitrectomy.

We report the case of an insulin dependent diabetic autonomic neuropathy.

Acute postural drop in optic nerve perfusion after vitrectomy and gas in a patient with diabetic autonomous neuropathy

We report the case of an insulin dependent diabetic who suffered transient blindness as a result of a change of posture following vitreoretinal surgery but will rarely have NPL unless there is also optic nerve compromise.

Comment

Judging by the severity of the visual loss we believe that it was due to obstruction of both the central retinal artery and optic nerve perfusion. The precipitating factor in this case would appear to have been the change in posture from supine to standing. The presence of gas in the operated eye had raised the intraocular pressure to a level such that the perfusion pressure to the eye was effectively eliminated resulting in a period of no light perception. Restoring the patient to the supine position was sufficient alone to reverse the condition and improve the perfusion of the eye. When the IOP was reduced to normal she was out of this critical situation and was able to maintain the ocular perfusion, even when sitting.

Collapse of the central retinal artery is known to occur in conditions of high IOP but vision does not fluctuate with posture. However, it is known that raised IOP also reduces orthograde axonal transport and compromises nerve head perfusion.1

Postural hypotension in diabetics is secondary to autonomic neuropathy. The pathophysiology is not clear but it seems the main factor is blunted catecholamine response to standing and failure of the lower limb vascular resistance to increase adequately.2,3 Systemic hypotension can cause slower optic nerve blood flow as illustrated by numerous reports in the literature of non-arteritic anterior ischaemic optic neuropathy (NA-AION) occurring following acute blood loss.4,5 Patients with NA-AION have a significantly greater postural pressure change in IOP compared with healthy subjects as shown by James and Smith.4 In the same study they demonstrated a higher pulsatile ocular blood flow (POBF) on standing compared with supine. In this patient with autonomic neuropathy it is likely that the normal increase in POBF on standing was inadequate.

We advise particular caution in diabetics undergoing ocular surgery in which there may be a significant postoperative pressure rise. Similar problems can occur during surgery if hypotensive anaesthesia is either deliberately or inadvertently employed in diabetics. Beware of assuming poor postoperative vision to be purely the result of the presence of haemorrhage or gas; patients may have quite poor vision immediately after vitreoretinal surgery but will rarely have NPL unless there is also optic nerve compromise. We also suggest one should aim for a lower postoperative IOP in diabetics.

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References


Optical coherence tomography imaging of severe commotio retinae and associated macular hole

Commotio retinae results in retinal opacification following blunt trauma. Mild commotio retinae usually settles spontaneously with minimal sequelae but more severe cases are associated with visual loss. We are not aware of any previous reports describing optical coherence tomography (OCT) imaging of severe commotio retinae with an associated full thickness macular hole (FTMH).

Case report

A 15 year old boy presented 24 hours after blunt trauma from a football striking his right eye. On examination his best corrected visual acuity was counting fingers right eye and 6/6 left. Biomicroscopic examination revealed extensive commotio retinae over the posterior pole, no posterior vitreous detachment (PVD), and a FTMH. Colour photography and OCT imaging (OCT 2000 scanner, Zeiss-Humphrey) were performed (Fig 1). OCT confirms a FTMH and demonstrates extensive disruption of photoreceptor outer segments and retinal pigment epithelium (RPE).

![Figure 1](www.bjophthalmol.com)
He was treated conservatively with a short course of topical steroids. The colour fundus and OCT appearance at 1 month are shown in Figure 2. Despite spontaneous macular hole closure, visual acuity remained at counting fingers at 1 year follow up.

**Comment**

The major site of retinal trauma appeared on OCT to be at the level of the photoreceptor outer segment/RPE interface. The OCT images are consistent with fragmentation of photoreceptor outer segments and damaged cell bodies, as suggested by Sipperley et al in their study of the histological changes in commotio retinae in primates.

The exact pathogenesis of macular holes remains uncertain. Ho et al outlined the three basic historical theories regarding aetiology—the traumatic theory, the cystic degeneration and vascular theory, and the vitreous theory. Of these, the latter has gathered the most support in the context of idiopathic macular holes.

In our case, the OCT imaging reveals that the edges of the macular hole are elliptical and irregular with no associated PVD, cortical vitreous condensation, or overlying prefoveal opacity. The characteristics suggest a different mechanism of hole formation from that proposed in idiopathic senile macular holes. We believe that mechanical distortion of the retina, relative to the vitreous and underlying sclera, created disruption of the photoreceptor outer segment level that the retina has the least support from Müller cells and is therefore likely to undergo greatest deformation.

In the only previous report of OCT imaging in traumatic macular hole, a case with mild commotio retinae was described in which extensive outer retinal disruption was not observed. There have been some encouraging reports suggesting that vitrectomy can success- fully close traumatic macular holes as well as improve visual function in many cases. However, it seems unlikely that cases with severe commotio retinae, and associated photoreceptor/RPE damage, as demonstrated in our cases, would gain any benefit from surgical as opposed to spontaneous closure of a traumatic FTMH. The final visual prognosis is severely limited by the extent of initial photoreceptor damage, and the excessive pigment atrophy and clumping that follows.

We believe OCT imaging provides additional information both on the pathogenesis of commotio retinae and in the assessment of outer retina disruption following ocular trauma. This information may help in the selection of patients likely to benefit from surgical intervention.

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**References**


**Acute ocular ischaemia and orbital inflammation associated with systemic lupus erythematosus**

We report a patient with systemic lupus erythematosus (SLE) who developed bilateral ocular ischaemic syndrome in association with orbital inflammation leading to devastating visual loss.

**Case report**

A 73 year old white woman presented with unilateral acute anterior uveitis and polyarthropathy of the hands, knees, and neck. Over the next 4 years she suffered recurrent anterior uveitis, marginal keratitis, and episcleritis, which were treated with topical steroids. She had bilateral age related cataract and underwent left cataract surgery. Postoperatively, her visual acuities were 6/60 right eye and 6/9 left eye.

She was admitted 7 months later with extensive erythematous, scaly plaques on sun exposed areas and a purpuric eruption over the abdomen, buttocks, and legs. Biopsy of a plaque showed changes consistent with SLE including follicular keratin plugging, epidermal atrophy, degeneration of the basal layer with collard body formation, basement membrane thickening, myxoid change in the dermis, and periappendageal lymphocyte infiltrates. Biopsy of the purpuric eruption was consistent with a leucocytoclastic vasculitis. Further investigations revealed positive rheumatoid factor (1/100), ANA (1/25), pANCA (1/100), and anti-EN antibodies (1/100). There was reduced C3 and C4, polyclonal increase in IgA and IgM, lymphopenia, thrombocytopenia, and reduced creatinine clearance but no proteinuria. Anticardiolipin antibodies were negative. A diagnosis of SLE was made and oral prednisolone (0.8 mg/kg) was commenced.

Three weeks later she developed a rapid onset of marked bilateral conjunctival and lid oedema, subconjunctival haemorrhage, and propptosis. Visual acuity deteriorated to perception of light in each eye. There was gross restriction of ocular movements. Signs of ocular ischaemia developed in both eyes with corneal oedema, iris neovascularisation, fibrin- nous anterior uveitis, hyphaema, and raised intraocular pressure (Fig 1). Computed tomography and B-scan ultrasonography of the orbits showed posterior scleritis, choroidal detachment, vitreous haemorrhage, and thickening of the extraocular muscles (Fig 2). She was treated with topical dexamethasone 0.1%, and corticosterol 1%, oral acetazolamide 500 mg daily, intravenous cyclophosphamide (10 mg/kg), and subsequently intravenous immunoglobulin (0.5 g/kg/day for 5 days). Over the following month there was regression of the propptosis, conjunctival and lid oedema, corneal oedema, and fibrinous uveitis. The intraocular pressure was controlled and the visual acuity remained perception of light in each eye. Subsequently, the patient developed pneumonia, VIIth nerve palsy, left sided hemiparesis, and died 7 weeks after admission. Postmortem examination revealed bronchopneumonia, lung abscess, pleural effusions, fibrinous pericarditis, cardio-megaly, and jejunal mucosal haemorrhages.

**Figure 1** Anterior segment of right eye showing conjunctival injection, corneal oedema, hyphaema, rubecosis iridis, and cataract.

**Figure 2** B-scan ultrasound of left eye showing marked posterior scleritis (crosses) and choroidal detachment (arrow).
The family did not consent to histopathological examination of the eyes.

Comment
Acute orbital inflammation and orbital myositis leading to proptosis are rare manifestations of SLE. To our knowledge acute ocular ischaemic syndrome with orbital inflammation is a novel complication of SLE. The ophthalmic manifestations may have resulted from a vasculitis involving the vessels supplying the globe and extraocular muscles. The limitation of ocular movements was most probably the result of mechanical restriction. Although the proptosis, lid and conjunctival oedema were improved with immunosuppression, the visual acuity did not recover. This may have been because of irreversible visual loss from optic nerve dysfunction due to ischaemia, compression from the acute orbital inflammation, or secondary to raised intraocular pressure. Close cooperation between ophthalmologist and rheumatologist is essential in the management of these patients, in order to try and prevent blindness.

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References

Chickenpox neuroretinitis in a 9 year old child
Chickenpox in children is usually thought of as a benign infectious disease with few ocular complications. Posterior segment involvement from primary varicella zoster infection has rarely been reported in children. We describe the clinical features and visual outcome of an unusual case of neuroretinitis presenting in a 9 year old child.

Case report
An immunocompetent 9 year old boy acquired primary varicella zoster virus (VZV) infection from his sibling and developed the characteristic exanthematous vesicular rash. Four days after the onset of the rash he woke with discomfort in his right eye and described his vision as being “all grey” on that side. He presented to the emergency department the same day and was found to have a visual acuity of 3/6 on the right and 3/3 on the left (logMAR). A relative afferent pupillary defect (RAPD) was present on the right. His anterior segment was quiet with no vitritis; however, he had slight macular thickening and a subtle cherry red spot on funduscopic examination, along with some mild peripapillary swelling and disc haemorrhage.

On review in the ophthalmology clinic 2 days later his vision had reduced to 1/60 (Sheridan Gardner singles) on the right. He had no new skin lesions and all those present had crusted. No lid lesions were present. He had a marked RAPD, red desaturation, and mild conjunctival injection. His anterior segment and vitreous remained clear. The right disc was hyperaemic with peripapillary swelling and haemorrhage. The macular area was pale and oedematous (Fig. 1). Examination of the left eye was completely normal.

Considering the onset of ocular symptoms and signs following the appearance of the typical VZV skin lesions, a presumptive diagnosis of chickenpox neuroretinitis was made. He was admitted and commenced on intravenous aciclovir (250 mg 3×3 per day). Confirmatory IgM titres for VZV were unfortunately not performed. No change in his acuity was observed over the next few days; however, his right disc was noted to become slightly pale after 2 days of treatment. At this point intravenous methyl prednisolone was instituted at a dose of 5 mg/kg per day. Despite a gradual resolution of the macular and peripapillary oedema over the next 5 days, his disc remained pale (Fig 2) and his acuity measured as 3/30 (logMAR) after 7 days of intravenous aciclovir and 5 days of methyl prednisolone. Systemically he remained completely well and afebrile on treatment. He was discharged with a further 3 day course of oral aciclovir and a 6 day reducing course of oral prednisolone.

Over 5 months of follow up his acuity has not improved beyond 3/30 (logMAR). The right optic disc is pale and a yellow lipid deposit is present on the macula with some reticular macular pigmentation. The left eye has been normal throughout.

Comment
Posterior segment involvement as part of primary VZV infection in children has only been reported twice to our knowledge. Copenhaver 1 reported a 3 year old with bilateral papillitis and a unilateral macular lesion associated with encephalitis following VZV infection. This case was a complete recovery of vision and resolution of the macular lesion within 3 weeks of presentation. Capone and Meredith 2 describe a case of unilateral central visual loss in a 2 year old child caused by chickenpox retinitis with optic neuritis resulting in a poor visual outcome. Their patient presented with an acute exotropia 24–48 hours before the onset of cutaneous VZV. Funduscopy revealed papillitis, phlebitis, and a macular deposition of lipid stars just outside the arcades and scattered intraretinal haemorrhages were also described. In these two cases sequential acuity measurement or photography were not possible because of the young age of the subjects.

Our case is particularly interesting, not only because these are the first published fundal photographs of VZV neuroretinitis in a child, but also because of the relatively mild ocular findings which have resulted in only slight visual loss. The young age of the patient is atypical of VZV infection. 3 Adults who contract primary VZV infection tend to run a more severe course than children. 4 Ocular complications in children are extremely rare. 5

The typical posterior segment involvement of VZV is acute retinal necrosis (ARN). 6 The youngest case of ARN in association with chickenpox has been reported in a 4 year old. 7 In adults, ARN is described as being less severe when presenting at the time of primary zoster infection than as a result of secondary reactivation of latent, previously acquired VZV. 3 The changes typical of ARN were absent in this case. Unilateral papillitis and retinitis confined to the macular area were the main features. Optic neuritis has been reported by several authors in association with primary VZV. 8, 9 Many of these cases are bilateral and coincident with encephalitis 9 or occurring in those who are immunocompromised. 10 Unilateral optic neuritis has been described in an 18 year old several weeks following a varicella rash which remitted without sequelae following the administration of corticosteroid. 11

The mainstay of treatment of VZV retinitis is with intravenous aciclovir. Whether any advantage is gained in administering systemic steroid with the aciclovir is controversial. 12 We do not know if a more positive visual outcome may have been achieved if intravenous therapy had been commenced on presentation, rather than therefore suggested that prompt treatment of VZV retinitis with intravenous aciclovir be started in patients, particularly in a child, presenting with any posterior segment signs.

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Figure 1 Right fundus: neuroretinitis with loss of vision to 1/60.

Figure 2 Right fundus: following treatment with intravenous aciclovir and methyl prednisolone.

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zymes were slightly abnormal (first hour was 128 mm and C reactive protein affecting the right elbow and nailfold infarcts 2 month history of general malaise, arthral-
ments in the left. Systemic inquiry revealed a eye casualty department with a left CRAO, was subsequently sent home with aspirin venous acetazolamide (500 mg), ocular mas-
There were no signs of uveitis or retinal acute right CRAO with macular oedema. Vision was hand movements in the right eye.
A 58 year old white man presented with sud-
Bilateral central retinal artery occlusion in Wegener’s granulomatosis and α1 antitrypsin deficiency
Visual loss occurs in up to 8% of patients with Wegener’s granulomatosis (WG) during the disease lifetime, although only a small proportion of these cases are the result of central retinal artery occlusion (CRAO). We describe an unusual case of a patient with bilateral CRAO as a presenting feature of WG and α1 antitrypsin (AAT) deficiency.

Case report
A 58 year old white man presented with sud-
Complication of acupuncture in a patient with Behçet’s disease
We would like to bring to your attention a complication resulting from acupuncture in a patient with Behçet’s disease.

Case report
A 35 year old white man, who fulfilled the International Study Group criteria for Behçet’s disease, attended the Behçet’s clinic at the Birmingham and Midland Eye Centre. He complained of four red areas on his left arm (Fig 1). Two days earlier he had undergone acupuncture for what he described as “tennis elbow.” These red areas corresponded to where the acupuncture needles had been inserted. Examination revealed these areas to be pustules (inset) that were characteristic of a positive pathergy test.

Figure 1 Photograph of right elbow showing vasculitic rash.

Figure 2 Retrollumination photograph of right and left index fingers showing nailfold infarcts.

References
Comment
A positive pathergy test is an important diagnostic sign of Behçet’s disease. Its prevalence varies by geographic region, being less common in patients from Northern Europe. Nevertheless, patients with Behçet’s disease should be made aware of this potential complication if they intend to undergo acupuncture.

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Reference

Corneoscleral fibrous histiocytoma
Fibrous histiocytomas of the corneoscleral limbus are rare tumours. We present a case report and a review of the clinical and histopathological findings from cases presented in the literature.

Case report
A 19 year old white male presented with a 6 month history of a painless growth on the inferior corneoscleral limbus of the left eye (Fig 1A and B). There were no other ocular symptoms. He had no medical history of note. His vision was 6/5 unaided in the right eye, and 6/6 unaided in the left eye. The growth was approximately 5 mm in diameter, vascularised, and yellowish in appearance. There were no other ocular abnormalities. The lesion was excised by conjunctival excision and sent for histopathological opinion.

Histological sections of the lesion showed a stromal hypercellular nodule consisting of spindle cells, small lymphocytes, multinucleated giant cells, and histiocytes. (Fig 1C–F). Some histiocytes had foamy cytoplasm. Many capillary sized blood vessels were present. In areas, the spindle cells were arranged in a storiform pattern. A fine collagenous meshwork extended throughout the lesion. Immunohistochemistry confirmed the cellular composition of the lesion (Fig 1G, H) as rich in macrophages (CD68), lymphoid cells (CD45), capillary sized blood vessels (CD34), and vimentin positive spindle cells. Mitotic figures were not evident after a careful search. The lesion was diagnosed as a benign fibrous histiocytoma. The tumour was incompletely excised and extended into the deep aspect of the lamella in the conjunctiva. However, 16 months after excision there has been no recurrence of the tumour.

Comment
Fibrous histiocytomas are soft tissue tumours and may be benign or malignant, the benign variety being the most common. They are usually found on the extremities, but can occur in any part of the body, including orbital tissues. Fibrous histiocytomas account for 1% of all orbital tumours, and are the most common primary mesenchymal tumour of the orbit. Benign fibrous histiocytomas have been reported in the orbit, eyelid, and episclera. Symptoms and signs depend on the site, but may include decreased vision, pain, restricted eye movements, diplopia, and disc swelling. To date, there are only 18 cases of fibrous histiocytoma arising from the corneoscleral limbus reported in the literature. 11 of these were classified as benign. They usually present as painless masses and can develop at any age, but most commonly between the ages of 20–40 years. Their gross appearance is of a circumscribed yellow or white mass, and they may have focal areas of haemorrhage, which can make them appear brown or black in colour. The histopathological appearance of a benign fibrous histiocytoma includes a mixture of fibroblastic and histiocyte cells that are often arranged in a cartwheel or storiform pattern, and accompanied by varying numbers of inflammatory cells, including foam cells and siderophages. No atypical nuclei or mitotic figures are present. Although some authors regard these tumours as reactive proliferations of fibroblasts, others do not accept this view because the lesions tend not to regress spontaneously. Recurrence is rare, with less than 5% of cutaneous benign fibrous histiocytomas recurring after local excision.

In contrast, malignant fibrous histiocytomas of the corneoscleral limbus characteristically appear in later life, between the ages of 50–70 years, with an equal distribution of males to females. They are highly aggressive tumours, and have been reported to have a local recurrence rate of 100% if a limited excision is performed. Recurrence can occur within a few months of excision. There are seven reported cases of corneoscleral malignant fibrous histiocytoma. Two of the cases had an enucleation and two cases underwent orbital exenteration.

Figure 1 Fibrous histiocytoma arising from the corneoscleral limbus, showing the tumour extending into the cornea. It is moderately vascular and has a similar appearance to a dermoid. (B) Fibrous histiocytoma showing the inner margin of the tumour. (C) Haematoxylin and eosin (H&E) stain, original magnification x20. (D) H&E stain, original magnification x100. (E) H&E stain, original magnification x400. (F) H&E stain, original magnification x400. (G) Immunoperoxidase CD68. Original magnification x200. (H) Immunoperoxidase CD45. Original magnification x200.
Follow up of these patients ranged from 18 months to 5 years and all were free from recurrence. The other three patients had a local excision. One patient developed local scleral recurrence 2 months later. (It is not evident from the literature if the borders of excision were clear of tumour.) He was found to have a metastasis in the parotid gland 4 months later, and after a parotidectomy and radical neck dissection, the patient developed multiple pulmonary metastases and died within 1 year. One of the patients was lost to follow up. The third patient who had a local excision went on to develop two recurrences, which subsequently needed excision and cryotherapy. However, after 1 year he was free of any recurrence. Malignant fibrous histiocytomas have a broad range of histological appearances; storiform-pleomorphic, myxoid, giant cell, and inflammatory. The storiform-pleomorphic type is the most common. The cells are predominantly plump pleomorphic spindle-shaped with occasional large, ovoid histiocyte-like cells. Modest amounts of inflammatory cells, such as lymphocytes and plasma cells may be present. The differential diagnosis of a malignant fibrous histiocytoma includes pleomorphic carcinoma, malignant melanoma, and other sarcomas. For those limbal fibrous histiocytomas with a benign histopathological appearance, the management should be local surgical excision. Malignant fibrous histiocytomas need to be managed cautiously, preferably by wide local excision and cryotherapy at the earliest opportunity. If necessary, enucleation should be considered to fully excise a limbal malignant fibrous histiocytoma.

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References

Haemophilus influenzae corneal ulcer associated with atopic keratoconjunctivitis and herpes simplex keratitis

Haemophilus influenzae is a rare cause of corneal ulceration, usually associated with previous corneal damage. To ensure appropriate treatment, the organism must first be identified by cultures in enriched media. We describe a case of keratitis caused by H influenzae associated with two risk factors—herpetic keratitis and atopic keratoconjunctivitis.

Case report
A 43 year old Hispanic male presented with 1 week of redness, blurred vision, pain, burning, and itching in the left eye. Past ocular history was remarkable for bilateral epithelial and interstitial herpetic keratitis and atopic keratoconjunctivitis with a previous shield ulcer in the left cornea. The patient was not using any medications at the onset of the current episode. He had a history of anhidrotic ectodermal dysplasia and atopic dermatitis since birth. On examination, uncorrected visual acuity was 20/100 in the left eye. The skin of the eyelids was wrinkled, thickened, and hyperpigmented bilaterally with madarosis of the lashes. The conjunctiva had a mild papillary reaction on the right and a severe reaction on the left, with giant papillae in the superior tarsal area. In the left eye, corneal sensation was markedly decreased and a central corneal epithelial defect of 1.0 × 0.5 mm was present with an underlying anterior stromal infiltrate measuring 2.5 × 1.5 mm (Fig 1). Scant keratic precipitates and a small hypopyon were also present.

Scrapings of the corneal ulcer were taken and inoculated on blood and chocolate agar as well as in thioglycollate broth. Viral cultures and polymerase chain reaction (PCR) were also performed to rule out the possibility of a recurrent herpes simplex infection. They were subsequently negative. The patient was started on oloxicin and fortified ceftazolin (50 mg/ml) drops every hour. He was also started on oral aciclovir 800 mg five times a day. On the fourth day, corneal cultures were positive with a heavy growth of H influenzae sensitive to oloxicin (Fig 2). On the sixth day of treatment, uncorrected visual acuity improved to 20/30, the stromal infiltrate decreased to 1 × 1 mm, with a small epithelial defect, and there was no hypopyon. A supratarsal injection of dexamethasone was given and topical prednisolone acetate 1% three times a day was added. The papillae regressed and the corneal lesion healed completely, leaving a central scar with a deep stromal vessel.

Figure 1 Haemophilus influenzae corneal ulcer.

Comment
H influenzae is a tiny Gram negative coccobacillus that is an uncommon cause of corneal ulceration. In most series it accounts for less than 2% of all corneal ulcers.11,12 It is a common cause of acute bacterial conjunctivitis, especially in children. Unlike Staphylococcus aureus, Streptococcus pneumoniae, and other bacterial causes of conjunctivitis, H influenzae seldom produces corneal ulceration. This is in marked contrast with H pyogenes ocular infections where peripheral ulcers, infiltrates, and pphylctenules are commonly seen as complications of conjunctivitis. For H influenzae to infect the cornea, there must be an epithelial defect. Most of the reported cases of H influenzae keratitis have been associated with specific risk factors such as contact lens wear, application of cyanoacrylate glue, or systemic debilitating diseases.11,12 In this case, the patient had two significant risk factors—severe atopic keratoconjunctivitis and herpetic keratitis. Despite the negative results of the viral cultures and HSV-DNA PCR, we cannot rule out the possibility that a viral aetiology played a part in this case. Also, it seems likely that complications from the patient’s atopic disease, delayed the healing of the ulcer.

H influenzae is a fastidious organism that needs media enriched with nicotinamide adenine dinucleotide (NAD), such as chocolate agar for growth. It will not grow in blood agar, unless there are also colonies of Staphylococcus aureus, which provide NAD. In that situation, H influenzae will then grow as satellite colonies around the Staphylococcus aureus. This case illustrates the importance of utilising chocolate agar as well as blood agar to make an aetiological diagnosis.

In conclusion, H influenzae is a rare cause of corneal ulceration, which can occur in patients with previous corneal damage from

Figure 2 Corneal cultures: (A) no bacterial growth on blood agar; (B) heavy growth of H influenzae on chocolate agar.
diseases such as herpetic keratitis and atopic keratoconjunctivitis. To ensure appropriate treatment the organism must first be identified by cultures in enriched media.

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References


Blinking and operating: cognition versus vision

The difference in the refractive indices between the air and the tear film results in the tear film having the greatest optical power of any part of the eye. Eyelid blinks are important for maintenance of the tear film. Between blinks there is progressive thinning of the tear film, having the greatest optical power of any part of the eye. Eyelid blinks are associated with a change in the shape of the profile of the corneal tear film and up to a 6% reduction in visual acuity. More importantly, however, a reduction in blink rate leads to a reduction in contrast visual acuity.

The ability to distinguish between different layers during surgery, such as the posterior capsule of the lens and anterior vitreous face, or peeling a layer off the retinal surface in vitreoretinal surgery, is dependent on the surgeon having and maintaining good contrast acuity. Blink rates and blink amplitude vary according to vision related behaviour and a reduction in the blink rate occurs with tasks of increasing visual difficulty. For example, visual tasks requiring concentration, such as video display terminal use, result in a decrease in average blink rate from 18.43/mm to 3.6 blinks/min.

In order to determine whether the blink rate of ophthalmic surgeons alters during intraocular surgery, the blink rate patterns of nine ophthalmic surgeons were recorded. Two observers recorded the blink rate during casual conversation and when the surgeons were using the operating microscope. None of the surgeons were aware that their blink rates were being recorded, which was done by two medical students during their ophthalmic attachment—that is, their presence in the theatre was accepted as part of their ophthalmic training. The blink rate for each surgeon was recorded in each condition between four and 10 times. The mean blink rate for each surgeon during casual conversation and while operating are presented in Table 1. There was a significant reduction in the average blink rate between both conditions (16.69/min and 4.75/min, p < 0.0001, Wilcoxon test), on average 3.57/min, 21.7%.

The reduction in blink rates observed in this study—that is, 16.69 to 4.75, are similar to that found by Patel et al for visual tasks such as video display terminal use. A reduction in blink rate to 4.75 translates to a reduction in contrast acuity of approximately 10% with a three and a half fold decrease occurred while operating. It was also noted that the onset of such sensation as the request for an instrument or demonstration of an intraocular structure, was associated with the onset of a blink response.

The reduction in blink rates observed in this study—that is, 16.69 to 4.75, are similar to that found by Patel et al for visual tasks such as video display terminal use. A reduction in blink rate to 4.75 translates to a reduction in contrast acuity of approximately 10% with a three and a half fold decrease occurred while operating. It was also noted that the onset of such sensation as the request for an instrument or demonstration of an intraocular structure, was associated with the onset of a blink response.

The reduction in blink rates observed in this study—that is, 16.69 to 4.75, are similar to that found by Patel et al for visual tasks such as video display terminal use. A reduction in blink rate to 4.75 translates to a reduction in contrast acuity of approximately 10% with a three and a half fold decrease occurred while operating. It was also noted that the onset of such sensation as the request for an instrument or demonstration of an intraocular structure, was associated with the onset of a blink response.

Should we vaccinate for glaucoma surgery?

Trabeculotomy is the most common non-laser surgical procedure performed for treatment of all forms of glaucoma. It involves the fashioning of a fistula from the anterior chamber of the eye to the subconjunctival space. The surgeon enters the eye through a clear corneal incision in the area of the trabeculectomy called a “filtering bleb.” Antimetabolites may be used intraoperatively and perioperatively to increase the success of glaucoma filtering surgery by their action on wound healing. 5-Fluorouracil or mitomycin C is administered to the scleral flap during the procedure. Post-operatively, subconjunctival injections of 5-Fluorouracil or mitomycin C is administered to the scleral flap during the procedure. Post-operatively, subconjunctival injections of 5-Fluorouracil or mitomycin C is administered to the scleral flap during the procedure.
5-fluorouracil may be given. This is known as an augmented trabeculectomy.

Infective endophthalmitis is a recognised complication of glaucoma filtering surgery. It may occur in the early postoperative period or it may happen years after surgery. Another example of a precursor to endophthalmitis has been described as blebitis.9 Blebitis is an infection of the trabeculectomy bleb without vitreous involvement.

Clinical features of blebitis include pain, photophobia, conjunctival discharge, and severe conjunctival injection centred on an o paesent filtering bleb. A Siedel test may be positive (this indicates aqueous leakage from the bleb and may be an anterior chamber reaction. There is no vitritis.2

As many as one per 100 patients/year may develop infection of the bleb.9 Factors associated with increased risk of bleb related endophthalmitis include increased axial length, thin leaky bleb, conjunctivitis, upper respiratory tract infection, hibernal occurrence, trauma, and vitreous wicks. With the increased use of antimetabolites in glaucoma surgery, the incidence of thin walled cystic blebs seems to be increasing.9 These blebs are more prone to leakage. Some studies conclude that bleb related endophthalmitis is higher when antimetabolites are used.9 This is more common with inferior limbal trabeculectomy.9 However, some studies show equal incidence in augmented trabeculectomy and trabeculectomy without antimetabolite augmentation.9

There are few data available for the incidence of blebitis. In most reported cases conjunctival swabs were performed for culture and sensitivity, but organisms causing endophthalmitis may only be present transiently on the ocular surface. In many reports, ocular surface cultures came back positive for Staphylococcus saprophyticus, Staphylococcus epidermidis, and S aureus, which may both be found on healthy normal eyes.

The microbiology of bleb associated endophthalmitis is different from other causes of endophthalmitis. Clinicians should not extrapolate the results of the Endophthalmitis Vitrectomy study to the post-filtration surgery setting. Clinicians should not extrapolate the results of the Endophthalmitis Vitrectomy study to the post-filtration surgery setting. There have been no reports of epidemics of infective blebitis. If it were contagious, there would have been epidemics or clustering in our glaucoma clinics. We can find no evidence of case to case transmission. In fact, all reported cases and series appear sporadic. The association with upper respiratory tract infections and hibernal occurrence are strongly suggestive of respiratory infection with subsequent spread to the predisposed eye.9,14 We are uncertain whether this is systemic or droplet spread. However, the need for topical antibiotic protection is negated by the presence of systemic antimicrobial agents. We believe that by minimising the possibility of systemic infections with these agents we diminish the likelihood of blebitis.

It is possible that these vaccines could be given to patients who are destined for trabeculectomy. The cost for both vaccines would be less than £20.00. Two hundred and fifty vaccinations could be paid for by the price of a single episode of bleb associated endophthalmitis. Assuming a long term infection rate of 2%, these vaccines could possibly prevent two cases of bleb associated endophthalmitis, representing a saving of £5000 to the NHS.

Apart from the cost, vaccination has the potential to prevent significant ocular morbidity. At the very least, these vaccines should be considered in high risk patients undergoing augmented trabeculectomy. We plan to conduct a prospective study of the effect of these vaccinations upon the incidence of blebitis and bleb related endophthalmitis.

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References

The wide field multifocal electroretinogram reveals retinal dysfunction in early retinitis pigmentosa

The diagnosis of retinitis pigmentosa (RP) is made on the basis of characteristic retinal pigmentation changes, visual field defects, and reduction in amplitude or loss of rod scotopic standard electroretinography (ERG) responses, with a possible history of night blindness and a positive family history of RP.

Multifocal electrophysiology (mfERG), is a new technique that constructs a topographic map reflecting retinal function. Researchers have suggested that the spatial resolution of mfERG is sufficient to detect focal changes in retinal function as RP progresses.11

We describe a case of early RP in which the amplitude and implicit times of the patient’s standard ERG rod and maximal responses were normal in the right eye and equivocal in the left eye. However, the peripheral retinal multifocal ERG amplitude and implicit times were reduced and delayed. These abnormalities were obtained using a custom built wide field mfERG, which facilitates assessment of a 90 degree retinal field.

Case report

A 29 year old woman was referred to the eye clinic by her optometrist. Abnormal retinal pigmentation was found in both funds on routine examination. She had no visual problems and was otherwise systemically well. Her 51 year old mother is known to have RP.

On examination, she had 0·5 dioptres of hypermetropia or both eyes. Her best corrected logMAR visual acuities were −0·075 in the right eye and −0·025 in the left. Her colour vision, anterior segment examination, and intraocular pressures were normal in both eyes. Fundus examination revealed semicircular arcs of intraretinal “bone spicule” pigmentation in the inferior mid-periphery of each retina. Her optic discs appeared normal and there was no evidence of attenuation of the retinal vasculature.
A Humphrey 120 point threshold related perimetry test was performed and the patient maintained fixation throughout the test. There was an arc of absolute visual field defect in the superior field, symmetrical in both eyes, maintained fixation throughout the test.

There was a mean b-wave amplitude of 29 nV (normal range 61–108 nV). However, the averaged peripheral mfERG response of the patient is reduced at 29 nV (normal range 61–108 nV).

The rod response was normal (normal range 72–367 µV) [A]; the maximal b-wave response of patient’s right and left eye compared with controls (normal range of maximal b-wave amplitude 241–709 µV) [B]; the cone b-wave response of patient’s right and left eye compared with normal control (normal range of cone b-wave amplitude 68–222 µV) [C].

Figure 1 The Ganzfeld ERG responses of a normal eye compared with the patient’s eyes. The rod b-wave of patient’s right and left eye compared with control (normal range of rod b-wave amplitude 72–367 µV) [A]; the maximal b-wave response of patient’s right and left eye compared with controls (normal range of maximal b-wave amplitude 241–709 µV) [B]; the cone b-wave response of patient’s right and left eye compared with normal control (normal range of cone b-wave amplitude 68–222 µV) [C].

The global nature of the Ganzfeld ERG technique previously described.4 The amplitudes of the central and peripheral mfERG responses were grouped and averaged (Fig 2A) and compared with similar responses from normative data (Fig 2B). The average amplitude of the central mfERG response was 75 nV in the right and 101 nV in the left (normal range 74–122 nV) (Fig 2A). The average peripheral retinal mfERG responses were 29 nV in the right eye and 45 nV in the left eye (normal range 61–108 nV). The normal range is derived from a group of 40 controls, aged 20–40 years. In addition, the mfERG responses were reduced in areas that had normal visual field sensitivities.

Comment Retinitis pigmentosa in its early stages of evolution is characterised by rod dominated photoreceptor dysfunction.5 Although mfERG is a photopic response, thought to predominantly reflect cone function,6 the nature of mfERG stimulation (that is, stimulation frequencies from 5 Hz to 75 Hz),7 indicates that this composite response may contain contributions from rods, in addition to cones and post receptor cells.

The global nature of the Ganzfeld ERG requires approximately 30% of the retina to be dysfunctional before abnormalities can be detected.8 In this case report, the standard ERG did not help to confirm the diagnosis of RP. However, the spatial resolution of the peripheral wide field mfERG indicated peripheral retinal dysfunction, suggestive of RP.

We conclude that wide field mfERG may have advantages over Ganzfeld ERG in the electrophysiological diagnosis of some forms of early RP. Further evaluation of wide field mfERG in the diagnosis and follow up of early RP is indicated.

References


Day 1 review following cataract surgery: are we seeing the precise details?

The Royal College of Ophthalmologists published cataract surgery guidelines in February 2001. This document includes protocols relating to postoperative visits suggesting that there are no additional risks to patients who are not reviewed on the first postoperative day. This is a change in recommendation from previous college guidelines in 1995 suggesting a review within 48 hours. There may follow a growing impetus for ophthalmologists to dispense with the first day review, given the reduced demand on clinician time and the corresponding accrual of staffing and financial resource benefits. While we applaud the dissemination of practice guidelines, it is of paramount importance that they constitute “merely tools, not rules” to aid clinical decision making. They may have inherent limitations in particular circumstances and may require evaluation for effective application in clinical settings.

Four studies were quoted by the guideline authors, three of which advocated the omission of day after review5 and one of which was equivocal9 suggesting that it was unsafe to abandon this practice unless raised intraocular pressures (IOP) were controlled. The numbers of patients included ranged from 100 to 387. The results of these studies are shown in Table 1.

Comment

In our view, deriving meaningful conclusions that may underpin clinical practice are difficult, owing to the varying methodological...
approaches used in these studies. In Tufail’s study, extracapsular cataract extraction was the predominant surgical technique used. Cohen et al excluded more than 50% of patients with complicated ocular histories or complicated surgery and Whitefield et al had similar extensive exclusion criteria, although the number excluded was not mentioned.

We would draw attention to a recently published study by McKellar and Elder, which to our knowledge is one of the largest cohort studies, aside from national cataract surveys, reporting on first and seventh day complications of cataract surgery. Of 1000 patients, the study found that on the first postoperative day 10% of eyes were observed in 10% of eyes, of which 88% was raised IOP. Unlike most of the previous studies, all patients with available records were eligible, including those with preoperative risk factors and those with surgical complications. These figures align more closely with our “gold standard” of the National Cataract Surgery Survey than the previous mentioned studies. The events most frequently occurring within 48 hours after surgery in the national survey were corneal oedema (9.5%), raised IOP (7.9%), and uveitis (5.6%). Overall, 23.3% of patients had early postoperative complications ranging from minor to sight threatening conditions. The survey also found that several risk indicators were associated with poorer visual outcomes and complications related to cataract surgery: age, ocular co-morbidity (glaucoma, macular disease, amblyopia, and previous ocular surgery), diabetes mellitus, stroke, type of surgical procedure, and grade of surgeon.

In summary, up to 20 000 patients a year in the United Kingdom (10%) may have an unexpected early postoperative complication such as corneal oedema or raised IOP if first day review was abandoned. And if McKellar’s study is representative, then 5% of patients would have raised pressure without any previous history or surgical complication and 0.9% of patients could have other potentially serious early complications. Nationally, that equates to almost 12 000 patients annually. It is worth noting that the American Academy of Ophthalmology in its white paper concludes that there are enough significant early postoperative complications to warrant first day review. Are we sufficiently confident in our own practices to diverge?

Credit should be apportioned to the distinguished authors of the cataract surgery guidelines suggesting 24 hour follow up of patients who had undergone complicated surgery, had coexisting eye disease, or had large incision cataract surgery. We would like to reiterate the importance of explicit criteria as part of any review policy and suggest that clinical interpretation of individual circumstances is paramount.

To reconcile the need for an efficient, cost effective review protocol together with a necessity to give due consideration to the entirety of detrimental post-cataract complications, especially given the NHS resource constraints, is difficult. A pragmatic approach may be for clinicians to be discriminatingly aware of those patients most at risk of developing early complications and instituting review policies accordingly, together with an open door policy for patients who need or want reassurance on the first day following uncomplicated surgery. Furthermore, a multi-professional management approach involving the extended role of trained ophthalmic nurses in postoperative care may reduce demands on physician time.

At the moment, there is a paucity of a good prospective literature on the subject and a need for future studies to address whether those identified complications would result in a change of management at the first postoperative day visit and whether patients would have a poorer outcome if the changes were not instituted.

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References

**Choroidal abnormalities in neurofibromatosis type 1 with non-invasive infrared imaging**

Retinal abnormalities have been reported worldwide in patients with neurofibromatosis type 1. However, there have been few reports of choroidal abnormalities. We report a patient with choroidal abnormalities, associated with neurofibromatosis type 1, using a scanning laser ophthalmoscope (SLO).

**Table 1** Day 1 postoperative complications noted in clinical studies

<table>
<thead>
<tr>
<th>Study/(n) patients</th>
<th>Corneal oedema</th>
<th>Raised IOP</th>
<th>Uveits</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tufail et al (387)</td>
<td>4 (1%)</td>
<td>8 (2%)</td>
<td>–</td>
<td>12 (3.1%)</td>
</tr>
<tr>
<td>Whitefield et al (100)</td>
<td>10 (10%)</td>
<td>3 (3%)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Cohen et al (201)</td>
<td>26 (13%)</td>
<td>12 (6%)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Tan et al (227)</td>
<td>5 (4.4%)</td>
<td>3 (1.3%)</td>
<td>1 (0.4%)</td>
<td>3 (1.3%)</td>
</tr>
</tbody>
</table>
They also reported that bright patchy choroidal regions should be a new diagnostic criterion for neurofibromatosis type 1. The non-invasive SLO examination with confocal and indirect infrared imaging may be useful in the diagnosis of patients with neurofibromatosis type 1.

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References

Corneal melt and perforation secondary to floppy eyelid syndrome in the presence of rheumatoid arthritis

Floppy eyelid syndrome (FES) is an uncommon condition that it is often underdiagnosed or misdiagnosed owing to the somewhat trivial and non-specific symptoms with which it often presents.1 In association with the dry eye of rheumatoid arthritis it can, however, have devastating effects.

Case report
A 60 year old moderately obese man with well controlled rheumatoid arthritis (RA) presented to the eye clinic with recurrent red and gritty eyes. A diagnosis of dry eye syndrome with blepharitis was made. He was also found to have a mucocoele of the left lacrimal sac. Lid hygiene and ocular lubricants yielded an initial encouraging response and he was discharged.

He re-presented 5 years later with similar symptoms and reduced visual acuity (VA) of 6/36 in the left eye. A diagnosis of dry eye syndrome with secondary corneal epithelial changes was made. Topical lubricants failed to improve the condition satisfactorily and he was therefore scheduled for punctal occlusion. However, upon admission for this 8 weeks later, he was found to have an asymptomatic perforation of the left cornea, with a VA of 6/60. The perforation was treated with glue and a bandage contact lens, topical antibiotic, steroids, and lubricants. Systemic immunosuppression was considered in view of the history of RA, but was withheld as a heavy growth of staphylococcus had been cultured from the cornea. The right eye demonstrated signs of dryness but was otherwise healthy with VA of 6/9.

Bilateral punctal occlusion was undertaken as planned, and in addition a left dacrocystorhinostomy (DCR) to eliminate the mucocoele as a potential reservoir of infection. The eye, however, continued to slowly deteriorate, with persisting mucopurulent discharge, despite the DCR. Eventually uncontrolled endothalmitis developed requiring evisceration.

He re-presented 8 months later with reduced VA of 6/60 in the right eye secondary to a corneal melt (Fig 1A). A chronic mucopurulent discharge had also developed in the right eye, but no lacrimal sac mucocoele was identifiable. On this occasion, however, it was noted on examination that while evertting the eyelids, all four lids exhibited excessive laxity (Fig 1B). This, together with a florid papillary tarsal conjunctival reaction and the chronic mucus discharge, led to a diagnosis of RA associated dry eye syndrome exacerbated by FES.

All four eyelids were immediately subjected to considerable shortening by pentagonal excision; the corneal melt was treated with a bandage contact lens, with topical antibiotic, steroids and lubricants. The response to surgery was dramatic with complete resolution of discharge and gradual spontaneous repair of the corneal melt (Fig 2). The VA eventually recovered to 6/9.

Comment
FES occurs most frequently in middle aged obese males,2 although it has been described in young, slim males, females, and one child.3 Typically, the upper tarsus is rubbery and the upper eyelid everts easily with gentle upward pressure. A florid papillary tarsal conjunctivitis and chronic mucus discharge are common. Severe corneal involvement is rare, with only four reports in the literature of ulceration in association with FES and only two cases of perforation.4,5 Although the exact pathophysiology of FES is uncertain, a sequence of events may lead to its development and to the secondary corneal changes has been proposed.4,6 Unknown predisposing factors, possibly congenital, create a floppy upper tarsus. Whereas examination of post-excision specimens has revealed normal tarsal collagen, elastin fibres are nearly absent.7 It is unclear whether this finding is causative or secondary. During sleep, a local pressure induced ischaemia may develop in the tarsus that, when relieved, results in a reperfusion injury which could injure tarsal elastin. In addition, there is a high incidence of obstructive sleep apnoea in FES patients and nocturnal dip in PaO2 could further contribute to the local ischaemia and subsequent elastin damage.8

Corneal involvement may occur through one or more mechanisms. Spontaneous nocturnal lid eversion resulting from pressure of the pillow on the lax upper lid may lead to repeated trauma of the corneal epithelium. Lash ptosis may contribute to this direct trauma. The cornea, however, may be damaged from a more subtle but important mechanism. Affected lid specimens demonstrate a marked polymorphonuclear infiltrate, which may be the sequelae of the reperfusion injury described above; this tarsal infiltrate and the associated papillary response may have direct toxic effects on corneal epithelium and stroma.9 It is perhaps intuitive that the corneal complications found in FES may be more severe when, as in our case, co-existing pathologies are present. Blepharitis and RA associated dry eye may both independently cause significant corneal pathology.

This case serves as a reminder that multiple pathologies may contribute to the clinical picture. If FES is not to be missed, ocular examination must include lid eversion and inspection of the tarsus.

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References

Figure 1 Right eye before eyelid shortening showing (A) the corneal melt and (B) marked laxity of the upper and lower lids with a chronic mucus discharge.

Figure 2 Postoperative photograph of right eye demonstrating the marked improvement.
Ocular trauma with small framed spectacles

Penetrating injuries are widely reported with spectacle related eye trauma, particularly in car accidents. The use of high grade plastics and secure frames have been shown to reduce the incidence of spectacle related eye trauma. Spectacle safety may be compromised in the trend for small frames and frameless spectacles and may place patients at risk of serious ocular injury.

We present the case of an aphakic patient who sustained a blunt injury following ocular compression by her spectacles. Her injuries could have been avoided if larger framed spectacles had been worn.

Case report

A 79 year old aphakic woman sustained a non-penetrating injury to her left globe by walking into a door. She noted a sharp pain and sudden loss of vision. The globe was compressed by her spectacles, which were smaller than her orbital rim. Her glasses were not damaged and there was minimal periocular soft tissue injury.

She was aphakic, following bilateral cataract extraction for congenital cataracts. The spectacle refraction was +9.00 with a short back vertex distance of 5 mm (Fig 1).

The pinhole acuity was 6/36, a quiet, deep anterior chamber was noted with no aqueous leak, the intraocular pressure was 0 mm Hg. Funduscopy revealed a light vitreous haemorrhage, peripapillary choroidal ruptures, and a 360 degree suprachoroidal haemorrhage (Fig 2).

Hypotony following traumatic ciliary artery spasm was diagnosed and the patient was treated conservatively, with topical atropine twice daily and dexamethasone four times daily. After 4 days the hypotony resolved and the intraocular pressure returned to 14 mm Hg. The suprachoroidal haemorrhages resolved over 2 weeks and the visual acuity improved to 6/24.

Comment

The potential ocular damage from framed and frameless spectacles has been highlighted in a number of reports. These often result from minor road traffic accidents or inflation of air bags that damage the spectacles. The trauma is usually sufficient to break the lenses in the spectacles and the resultant globe laceration is the main cause of morbidity. The recent trends towards smaller framed spectacles has not been reported as a potential risk to the patient; however, in this case, with small framed spectacles (with a short back vertex distance), minor trauma was sufficient to cause serious eye injury. The patient’s previous larger framed spectacles would have prevented such an injury as the lenses would have been supported by the orbital margin and not the globe.

This case demonstrates the previously unconsidered risk of small framed spectacles in aphakic patients. The back vertex distance may be short, increasing the risk of blunt injury.

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References


Late opacification of SC60B-OUV acrylic intraocular lenses

Optical clarity of the intraocular lens (IOL) is paramount in maintaining visual improvement after cataract extraction. While the advent of newer foldable IOLs have revolutionised cataract surgery by the smaller incisions required, their long term safety will be established only with time. There have been recent reports of two separate groups of hydrophilic IOLs that have shown various degrees of opacification, 6 months to 2 years after implantation. These include the Hydroview lens (Bausch & Lomb Surgical, Claremont, CA, USA) and the model SC60B-OUV (Medical Developmental Research, Clearwater, FL, USA). We report our experiences with two patients who had permanent reduction in visual acuity 1-2 years after implantation of the SC60B-OUV IOL.

Case reports

Case 1

An 82 year old man with visual acuities of 6/60 in both eyes because of a right macular hole and left posterior subcapsular cataract underwent routine left phacoemulsification and intraocular lens implantation in March 1998. A foldable hydrophilic acrylic IOL (Model SC60B-OUV, MDR, Inc) was implanted in the capsular bag. Postoperative recovery was uneventful, with left visual acuity improving to 6/4 with correction, 6 weeks after the surgery.

He was referred back to the clinic in March 2000 with symptoms of intermittent binocular diplopia, which was relieved with fresnel prisms. His left visual acuity was 6/6, but the intraocular lens was found to be uniformly cloudy (Fig 1A). As the patient was not experiencing any symptoms from his cloudy IOL, no intervention was advised. Over the next 6 months the brownish discoloration of the IOL increased in intensity and the patient complained of “foggy vision.” His visual acuity dropped to 6/12 and he was disturbed by the distorted, but clear images from his right eye and hazy images from his left eye. Fundus examination of the left eye has also become progressively difficult. IOL exchange is being considered, bearing in mind the presence of the macular hole in the fellow eye and the risks of removing a posterior chamber IOL 3 years after implantation.

Case 2

A 78 year old woman with bilateral Fuchs’ corneal endothelial dystrophy and long standing central retinal vein occlusion in the left eye, underwent uneventful right phacoemulsification with intraocular lens implantation (Model SC60B-OUV, MDR, Inc) in August 1998. Her right visual acuity improved to 6/9.
but approximately 1 year after the surgery there was gradual deterioration of vision to 6/24 in August 2000. At this stage the IOL was noted to be cloudy; there was also progression of her endothelial dystrophy. She underwent uneventful right penetrating keratoplasty with exchange of posterior chamber IOL in November 2000 and has a current right visual acuity of 6/12. The explanted opacified IOL is compared to a normal clear acrylic IOL in Figure 1B.

Comment
The safety and efficacy of AcrySof polyacrylic IOLs has been reported to be equal to or better than poly(methylmethacrylate) IOLs. The unexpected late opacification of the acrylic IOL (SC60B-OUV), implanted in the only “good” eye of both our patients, resulted in significant visual disability and clinical dilemma. This model of IOL was first produced in June 1997 by Medical Development Research (MDR, Inc). More than 60 000 of these lenses have been implanted worldwide, but only outside the United States. Reports of opacification of the IOL started coming through to the manufacturer in May 1999. (Summary of SC60B-OUV lens opacification investigation, personal communication from MDR, Inc, 20 July 2001.)

Several theories have been put forward to explain the late clouding of the IOL optic. 1–4 Analysis of 23 explanted IOLs of the same model has shown that degeneration of the ultraviolet filtration material and calcium deposits within the optic biomaterial are responsible for the opacification of the IOL. 5 Werner et al. analyzed nine explanted IOLs of the same model and demonstrated the presence of calcium phosphate salts in the deposits within the optics of the IOL. 6 Investigations by the manufacturers identified four lots of polymer biomaterial formulated and prepared by Vista Optics (London) and used by MDR. Inc in the IOL manufacture, that correlated with opacification complaints (Summary of SC60B-OUV lens opacification investigation, personal communication from MDR, Inc, 20 July 2001).

Ninety two of the estimated 60 000 SC60B-OUV IOLs implanted were explanted and returned to the company. MDR, Inc ceased exporting SC60B-OUV lenses in June 2000 and claims that the opacification represents only 0.15% of total SC60B-OUV IOLs implanted. (Summary of SC60B-OUV lens opacification investigation, personal communication from MDR, Inc, 20 July 2001.) However, this does not account for those patients who have not yet had their opaque IOLs identified or explanted. The latency of the onset of opacification and resulting visual disability may mean that we are seeing only the tip of the iceberg.

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References

Treatment of superior limbic keratoconjunctivitis with a unilateral bandage contact lens
The typical patient with superior limbic keratoconjunctivitis (SLK) is a woman aged between 20 and 60 years of age with chronic red and irritable eyes. 1 Although both eyes are usually affected, the condition maybe asymmetrical. 2 After episodes of exacerbation and remission it usually resolves. The patient may also have abnormal thyroid function. 3 SLK has been treated with silver nitrate or thermal cauterisation of the superior bulbar conjunctiva, pressure patching, and large diameter bandage contact lenses (BCL); topical trans-retinoic acid 0.1%, and recession or resection of the superior bulbar conjunctiva. 4 Over 50% of patients with SLK are said to have keratoconjunctivitis sicca 5 and recently upper punctal plugs have been used to treat SLK.

We report two cases in which a unilateral BCL wear ameliorated the symptoms of bilateral SLK and a possible explanation is discussed.

Case reports
Case 1
A 38 year old woman presented with a 3 month history of irritable photophobic eyes that were unresponsive to preserved lubricants. Her right eye was amblyopic. On systemic review she reported weight loss, heat intolerance, and insomnia.

Slit lamp examination revealed bilateral superior conjunctival hyperaemia, superior punctate epithelial erosions, and four to five filamentary and micropannus on the superior cornea of each eye. Both superior tarsal conjunctivae had moderate papillary reactions. Schirmer’s test without anaesthesia was 15 mm on the right and 15 mm on the left at 5 minutes. Non-preserved lubricants every 1–2 hours and Lacrilube ointment at night were prescribed. Thyroid function tests revealed hyperthyroidism and she was referred to an endocrinologist who commenced carbimazole.

Three months later she returned still complaining of persistent severe discomfort, photophobia, and a burning sensation in both eyes. The ocular examination was unchanged. A silicone hydrogel BCL (Pure Vision, Bausch and Lomb, 36% water content) was inserted into the right eye and within an hour she had symptomatic relief in both eyes. Non-preserved lubricants were continued for the left eye.

On review 2 months after insertion of the BCL she remained asymptomatic. Mild superior limbal hyperaemia on the right and punctate staining of the superior conjunctiva and adjacent cornea on the left were found on examination.

Case 2
A 54 year old woman was referred with a 3 year history of sore, gritty eyes, worse on the left. The tear break up time was <10 seconds and Schirmer test without anaesthesia was right 0 mm and left 1 mm after 3 minutes. There was some relief from lubricants, though on occasion the pain was so severe that she required oral analgesia.

On examination punctate epithelial erosions were found on the superior bulbar conjunctiva of both eyes, but were more marked on the left (Fig 1). A silicone hydrogel BCL (Pure Vision, Bausch and Lomb) was inserted into the left eye, which rapidly ameliorated the symptoms in both eyes. Lubricants were continued for the right eye.

Three months later she remained asymptomatic and no fluorescein staining was seen. The BCL was removed. Within a month her bilateral ocular discomfort returned and the left BCL was refitted with immediate symptomatic relief in both eyes. Two months later the BCL was lost and her bilateral ocular discomfort recurred within 2 days. Since then her BCL has been replaced every 3 months. Occasionally she has used lubricants for the right eye.

One year following her presentation she became tachycardic and hyperthyroidism was diagnosed. Her endocrinologist commenced carbimazole and B blockers. Her treatment was later changed to propylthiouracil after she suffered from carbimazole induced arthralgia. Thyroid function tests were normal 6 months later and the propylthiouracil was stopped.

Comment
The pathogenesis of SLK is unclear. It may be the result of mechanical irritation from increased pressure of the upper eyelid against the globe and/or increased motility of the upper bulbar conjunctiva from hypothyroidism or ageing. 6 Increased upper eyelid tightness may be the result of thyroid eye disease or chronic inflammation and, in addition, may
impair the normal turnover of bulbar conjunctival epithelial cells.1,2 This may be aggra-

vated, in some patients, by blepharospasm, which increases the force on the globe.3,4 Therapeutic lenses can produce rapid symptom relief in SLK.2 They may be helpful in the treatment of SLK as they relieve the main facilitation healing of punctate epithelial erosions by protecting the ocular surface from the eyelids, reduce upper lid pressure on the globe and alter tear dynamics.3 During blinking as the upper lid moves downwards to meet the lower lid significant forces are exerted on the globe.8 The lens can reduce the force on the superior limbus from blinking as it has a lower mechanical stiffness and elastic modulus.1,8

In the first week of contact lens wear tear production increases dramatically and tear tonicity decreases.9 Tear production then nor-

malises and tear tonicity rises as evaporation increases.9 A lens may then aid aqueous tear deficiency, which can accompany SLK,10 by ensuring a continuous preconorneal tear film.11 This is due to certain of the mechanisms of bilateral symptom relief from unilateral BCL wear carries risks including microbial keratitis and corneal vascularisation.12 BCL wear carries risks including microbial keratitis and corneal vascularisation.12

References
1 Cooper DM, Mouamed J, Hammen DB, et al. Therapeutic lenses can produce rapid sympto-

m relief from unilateral SLK as they relieve pain, highlight the unpredictability of occurrence, but with over a million cases of LASIK or PRK occurring each year, the stimulus to identify contributing factors is significant.13

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MAILBOX
Keratoclastasia after PTK
Takahashi and colleagues have elegantly described an interesting and rare complica-
tion of phototherapeutic keratotomy (PTK) in their recent report of an unusual case of keratoclastasia after PTK.14 The hypothesis that risk of ecstasia is proportional to residual stromal base, or depth of ablation, fits with the assumed biomechanical aetiologic of this recently reported complication of laser refrac-
tive surgery. The generally accepted empirical minimum thickness of 250–300 µm of corneal stroma, excluding flap thickness, remains speculative, as we do not understand the underlying pathophysiology. Indeed, although Holland et al.15 highlighted the association of thin residual stromal thicknesses, post-PRK and LASIK, with keratoclastasia, they also described this complication after surface based hyperthermic PRK ablation, where the centre was minimally ablated and residual stromal thickness was greater than 360 µm.15 The authors suggest, in the reported case, that band-shaped keratopathy (BSK) may have compromised the tensile strength of the cornea. This seems unlikely as this condition generally affects the superficial anterior cornea, and usually does not penetrate deeper than Bowman’s layer, which is its suitability for treatment by PTK. However, further clinical detail which the authors have not provided might reveal underlying corneal pathology with secondary “rough” BSK rather than “smooth” BSK. However, there are a number of reasons, other than simple biomechanical compro-

mise, for keratoclastasia following PTK in this case: (1) forme fruste keratoconus—as no preoperative topography or surface asymme-
try values are presented to enable the reader to rule this out; (2) clinical keratoconus, which seems less likely in respect of patient’s age and a preoperative cylindrical error of only −1.50 D; (3) idiopathic keratoclastasia, possi-
bly secondary to widespread deregulated keratocyte apoptosis. The latter has been demonstrated after LASIK, with a consider-
able and longstanding decrease in keratocytes in the peri-ablation area.16 Also, Helena et al.17 demonstrated apoptosis to a depth of at least 50 µm after all of the following procedures: epithelial scrape, corneal scrape PRK, tran-
sophthallic PRK, and LASIK. Epithelial scrape and LASIK demonstrated keratocyte apopto-
sis to depths of up to 75 µm and 100 µm, respectively. The authors have recently identi-
cied a keratocyte free zone 160 µm into the stroma following LASIK, and theoretically more widespread apoptosis as a response to excimer laser photorefractive surgery, may contribute to keratoclastasia. While it is difficult to ascertain why kerate-

toclastasia occurs, in this case with a residual stromal thickness of over 500 µm, from the data provided the most likely aetiologies would seem to be either undiagnosed forme fruste keratoconus or idiopathic keratoclastasia. Currently, recent reviews illustrate the dearth of substantial information available regarding idiopathic keratoclastasia (iatrogenic kerato-
conus), with a little over 60 cases published. At this point, although some are likely to be due to over-ablation, for many cases such as this the exact aetiology remains unknown and is likely to be multifactorial, and one of these factors is residual corneal thickness. The fact that keratoclastasia can occur, after what would be considered minimal ablation, high-
lights the unpredictability of occurrence, but with over a million cases of LASIK or PRK occurring each year, the stimulus to identify contributing factors is significant.

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References

BOOK REVIEWS
Age Related Macular Degeneration—Current Treatment Concepts.
This book is one in a large series of medical radiology textbooks concentrating on diagnostic imaging and radiation oncology. There are 71 authors in all, the majority of whom work either in the eastern United States or Germany, and the book contains 24 chapters. The text is aimed at specialists in radiotherapy rather than ophthalmology. The majority of the chapters are concerned with radiotherapy of age related macular degeneration (AMD) with contributions from experts in this field. Some of the chapters contain results of controlled studies and are of good value, whereas others have less scientific merit in that they are long term follow up studies without controls. For ophthalmolo-
gists wishing to look into the subject of
radiotherapy for ARMD this would be a good source of material and is well referenced.

There are a few chapters on the clinical manifestations, diagnosis, and surgery of ARMD but there is no real mention of laser treatment. Many of these chapters are of limited scope and do not provide a comprehensive overview of the ophthalmic assessment and management of ARMD.

Although not stated in the book it reads as if it is the proceedings of a clinical meeting. The chapters do not read in a coordinated way and essentially present the results of individual units describing their methods and results of radiotherapy. As such it is a useful source of information for those with an interest in this topic but it is of limited value for ophthalmologists wishing to obtain a balanced view of current treatment of ARMD.

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Clinical Ophthalmic Pathology.

This is an excellent, easy to read, well illustrated book. It is one of the first of its kind to bring pathology alive by describing diseases via pathogenesis as opposed to anatomy. For the trainee in ophthalmology, optometry, and visual science it, therefore, provides a more logical approach to the understanding of ocular diseases. As the book attempts to cover many subjects it sometimes does not do justice to each. It would have been better to have had the reading lists at the end of each chapter. However, as it stands the book is an excellent introduction to pathology complementing clinical textbooks. If read together with clinical texts it certainly will broaden the knowledge base of all trainee ophthalmologists. As a result of its logical and simple approach I was left frustrated at times with the lack of background knowledge. However, going through pathologically based chapters including injury and repair, immunity, genetics, growth, degeneration, vascular disorders, and disorders of the nerve and muscle, I was left entertained, as a clinician, with a greater understanding of pathological processes.

The final chapter for the clinician in the laboratory I felt could have been expanded, delivering more detail, particularly, on the current molecular methods used in pathological practice today.

A Dick

NOTICES

Childhood blindness

The latest issue of Community Eye Health (No 40) discusses new issues in childhood blindness, with an editorial by Clare Gilbert, senior lecturer at the International Centre for Eye Health. For further information please contact: Journal of Community Eye Health, International Centre for Eye Health, Institute of Ophthalmology, 11–43 Bath Street, London EC1V 9EL, UK (tel: +44 (0)20 7608 6910; fax: +44 (0)20 7250 3207; email: eyeresource@ucl.ac.uk; website: www.jchc.co.uk). Annual subscription (4 issues) UK£23/US$40. Free to workers in developing countries.

International Centre for Eye Health

The International Centre for Eye Health has published a new edition of the Student List of Medicines, Equipment, Instruments and Optical Supplies (2001) for eye care services in developing countries. It is compiled by the Task Force of the International Agency for the Prevention of Blindness. Further details: Sue Stevens, International Centre for Eye Health, 11–43 Bath Street, London EC1V 9EL, UK (tel: +44 (0)20 7608 6910; email: eyeresource@ucl.ac.uk).

Second Sight

Second Sight, a UK based charity whose aims are to eliminate the backlog of cataract blind in India by the year 2020 and to establish strong links between Indian and British ophthalmologists, is regularly sending volunteer surgeons to India. Details can be found at the charity website (www.secondsight.org.uk) or by contacting Dr Lucy Mathen (lucy.mathen@yahoo.com).

Specific Eye ConditionS (SPECS)

Specific Eye ConditionS (SPECS) is not a for profit organisation which acts as an umbrella organisation for support groups of any conditions or syndrome with an integral eye disorder. SPECS represents over fifty different organisations related to eye disorders ranging from conditions that are relatively common to very rare syndromes. We also include groups who offer support of a more general nature to visually impaired and blind people. Support groups meet regularly in the Boardroom at Moorfields Eye Hospital to offer support to each other, share experiences and explore new ways of working together. The website www.eyeconditions.org.uk acts as a portal giving direct access to support groups own sites. The SPECS web page is a valuable resource for professionals and may also be of interest to people with a visual impairment or who are blind. For further details about SPECS contact: Kay Parkinson, SPECS Development Officer (tel: +44 (0)1803 524238; email: k@eyeconditions.org.uk; www.eyeconditions.org.uk).

XXIXth International Congress of Ophthalmology


12th Meeting of the European Association for the Study of Diabetic Eye Complications (EASDEC)

The 12th meeting of the EASDEC will be held on 24–26 May 2002 in Udine, Italy. The deadline for abstracts is 15 February 2002. Three travel grants for young members (less than 35 years of age at the time of the meeting) are available. For information on the travel grants, please contact Pr CD Agardh, President of EASDEC, Malmö University Hospital, SE-205 02 Malmö, Sweden (tel: +46 46 30 30 51; email: cdagardh@endo.msu.lu.se). Further details: NORD EST CONGRESSI, Via Aquilea, 21–33100 Udine, Italy (tel: +39 0432 21391; fax: +39 0432 50687; email: nordest.congressi@uid.netumo.it)

3rd Interdisciplinary Symposium on the Treatment of Autoimmune Disorders

The 3rd Interdisciplinary Symposium on the Treatment of Autoimmune Disorders will be held in Leipzig, Germany on the 6–8 June 2002. Topics to be covered include: basic aspects of autoimmune diseases, experimental therapeutic concepts, and clinical studies providing novel concepts or novel focus on established therapies. There will also be the presentation of the Nils-Illa-Richter Award (application deadline is April 2002, further details on the web site). Further details: Prof. Dr. med. Michael Sticherling, Department of Dermatology, University of Leipzig (email: sticherling@medizin.uni-leipzig.de; website: www.wautoimmun.org); Fördergesellschaft zur Therapie von Autoimmunerkrankugen e.V. (email: autoimmune.org@gmx.de).

International Society for Behçet’s Disease

The 10th International Congress on Behçet’s Disease will be held in Berlin 27–29 June 2002. Further details: Professor Ch Zouboulis (email: zoubbere@zedat.fu-berlin.de).

Singapore National Eye Centre 5th International Meeting

The Singapore National Eye Centre 5th International Meeting will be held on 3–5 August 2002 in Singapore. Further details: Ms Amy Lim, Organising Secretariat, Singapore National Eye Centre, 11 Third Hospital Avenue, Singapore 168751 (tel: (65) 322 8374; fax: (65) 227 7290; email: Amy_Lim@sne.com.sg).

BEAVRS Meeting

The next BEAVRS meeting will be held in the Dalmahoy Hotel near Edinburgh on 31 October to 1 November 2002. Further details: Susan Campbell, Medical Secretary, Gartnavel General Hospital (email: susan.j.campbell.wg@northglasgow.scot.nhs.uk).

CORRECTION

The authors of the letter “Recurrent corneal ulceration as late complication of toxic keratitis”, appearing in the February issue of BJO (2002;86:245–6), would like to add an author, SH Santander.