Epithelial downgrowth following clear cornea phacoemulsification in a buphthalmic eye

Epithelial downgrowth is a rare complication which can occur following anterior segment surgery and penetrating ocular injury. A prevalence as high as 16–29% among eyes enucleated after cataract surgery has been reported in the older literature, but advancements in the microsurgical techniques have decreased that rate to less than 0.2%. To our knowledge only two cases of epithelial downgrowth following clear corneal phacoemulsification have been reported.¹ We present the clinical and histopathological features, and the successful surgical management, of a patient with extensive intraocular involvement of epithelial downgrowth with following clear corneal phacoemulsification.

Case report
A 26 year old man was followed up for bilateral congenital glaucoma. He underwent several bilateral trabeculectomies in the past. Preoperatively his intraocular pressures (IOP) were well controlled with no medication. He underwent phacoemulsification with implantation of a poly(methylmethacrylate) (PMMA) lens through a 5 mm superior clear cornea phacoemulsification. He underwent phacoemulsification of small incision cataract surgery. Although there is no single predisposing factor, wound fistula, damage to the corneal endothelium, and corneal stromal vascularisation can have a role in the pathogenesis of the epithelial invasion.¹ Various methods have been tried in the treatment of epithelial downgrowth.¹ It has been shown that patients treated surgically underwent fewer enucleations than patients managed conservatively. However, surgical management of epithelial downgrowth is difficult, particularly when the anterior chamber contains sheets of epithelium. Knauf et al.² reported surgical success following surgical excision of a localised cystic downgrowth. Extensive disease involvement is associated with a poor outcome.³ We feel that early detection and surgical intervention can result in improved outcome even in cases where the downgrowth has extensive intraocular involvement as demonstrated in this case. Experimental evidence suggests that the presence of endothelium inhibits epithelial downgrowth through direct intercellular interactions.⁴ There are previous reports documenting decreased endothelial cell density in eyes with congenital glaucoma.⁵ It is possible that the decreased endothelial cell count combined with persistent wound leak would have contributed to the extensive downgrowth of the epithelium in our patient. We hope this case report highlights this rare complication of small incision cataract surgery.

References
Posterior uveal effusion syndrome after trabeculectomy in an eye with ocular venous congestion

Schepens and Brockhurst,1 in 1963, used the term uveal effusion syndrome to describe spontaneous bilateral serous detachments of the choroid and ciliary body with exudative retinal detachment, primarily occurring in males. Many cases have been reported since then, especially in nanophthalmic eyes.2,3

We report an interesting case of a young, healthy female patient with mild ocular venous congestion who developed posterior retinal detachment and uveal effusions after trabeculectomy for open angle glaucoma.

Case report

A 32 year old white female was referred to the glaucoma service at Doheny Eye Institute for high intraocular pressure in the left eye. Visual acuity was 20/20 right eye and 20/25 left eye. Manifest refraction was +2.75 +1.50 x13 right eye and +0.50 +2.00 x160 left. An afferent pupillary defect was noted in the left eye. Applanation intraocular pressures were 17 mm Hg right eye and 36 mm Hg left.

Slit lamp examination of both eyes revealed dilated and tortuous conjunctival and episcleral vessels, although more obvious in the left eye than the right eye. The anterior chambers were deep and quiet. The cornea and lens were clear.

Gonioscopic evaluation of both eyes showed open, grade IV Shaffer angles with no anterior pressure. The subretinal fluid was loculated in the macula for the next 3 days. However, on postoperative day 4, the macular detachment resolved, but the choroid still looked boggy and macular choroidal folds were seen. The visual acuity improved from hand movements to 20/200 within a week, and to 20/60 over the next 3½ months.

Comment

Schepens and Brockhurst reported a series of 17 patients with uveal effusion syndrome in 1963,4 predominantly noted in middle aged males. Flat, annular choroidal detachments were seen in two of these patients. Rarely, glaucoma occurred secondary to anterior displacement of the ciliary body. Thickened sclera (about 2 mm) was found in 47% of their cases.

Since then, numerous cases have been reported.5-7 Gass2 described the features of idiopathic serous detachments of the choroid, ciliary body, and retina (uveal effusion syndrome) in nine patients. He noted dilated episcleral vessels, vitreous cells, leopard spot retinal pigment epithelium (RPE) changes, and characteristic ultrasonographic and angiographic findings. None of these patients had previous trauma, surgery, ocular or inflammatory disease, or systemic illness. All had an inferotemporal scleral fistula. All but one patient had refractive error within 1.50 dioptres of emmetropia. Ultrasonography revealed slightly smaller than normal globes, even in the presence of myopic refractive error in one patient. The two patients who had gonioscopy had partial or complete filling of Schlemm’s canal with blood. The author attributed the above clinical findings to partial obstruction of the vortex veins. Fluorescein angiographic abnormalities included slow perfusion of the choroid and prolonged choroidal fluorescence, suggesting choroidal vascular congestion.5

Uveal effusion syndrome is occasionally associated with a normal or near normal eye (nanophthalmos). This association was first reported by Brockhurst in 1974.8 In five nanophthalmic patients who underwent glaucoma surgery for either acute or chronic angle closure glaucoma. The thickened sclera seen in this anomaly may lead to partial obstruction of the vortex veins, causing the choroidal effusions.9

In our case, although the patient had slightly shortened globes (axial length of 21.5 mm right eye, 22.5 mm left), they were not nanophthalmic. The thickened sclera in each eye was consistent with slightly small hyperopic eyes. The corneal diameters were normal. The anterior chambers were deep.

The dilated episcleral vessels and blood in Schlemm’s canal suggested compromised venous outflow. Moderately thickened sclera, noted on ultrasonography, probably caused impaired venous drainage by mechanically compressing the vortex veins. Such an eye would be predisposed to uveal effusions. An abrupt lowering of intraocular pressure during sclerostomy may have triggered the formation of choroidal effusions. The peripheral serous choroidal detachments were drained intraoperatively, leaving behind loculated, posterior suprachoroidal fluid, which resolved in an unusual serous macular detachment. In a normal eye, this small amount of suprachoroidal effusion and subretinal fluid is readily absorbed. In our patient, however, we presumed that the thickened choroid impaired the retinal pigment epithelial pumping mechanism. Although the serous retinal detachment resolved within a week, the choroidal folds remained visible for months.

Elective surgical intervention should be avoided in patients with compromised venous outflow. Potentially blinding complications can occur intraoperatively or postoperatively in these eyes. Patients with ocular venous congestion should be advised of the potential complications of uveal effusion syndrome with any intraocular surgery.

Recognition of the classic signs and symptoms of uveal effusion syndrome is very important. The natural course is variable. The effusions may resolve spontaneously. Medical treatment with steroids and anti-inflammatories is usually not helpful. Decompression of vortex veins has had limited success. Scleral windows to improve venous outflow of suprachoroidal fluid have been successful.2

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References


Intravitreal triamcinolone acetonide for ischaemic macular oedema caused by branch retinal vein occlusion

No proved treatment exists for ischaemic macular oedema associated with branch retinal vein occlusion (BRVO) despite the potential for significant visual loss in affected eyes.

We report a patient with an ischaemic BRVO with associated macular oedema treated with intravitreal triamcinolone acetonide.

**Case report**

A 38 year old man was referred to our department with a 6 week history of acute visual loss in his right eye (RE). On examination, visual acuity was 6/60 RE and 6/6 LE. A right relative afferent pupillary defect was present. Intraocular pressures were 9 and 10 mm Hg, respectively. Anterior segment examination showed no evidence of neovascularisation. There was no vitreous inflammation. Dilated fundus examination revealed a right inferotemporal BRVO with macular oedema. Collateral disc vessels were present. Systemic and haematological examinations, including full blood count, erythrocyte sedimentation rate, C-reactive protein, clotting screen, serum angiotensin converting enzyme, serum cholesterol and triglycerides, clotting screen, chest x ray, and ECG, were negative for systemic vascular or vasculitic disease.

At review 4 months later, right visual acuity had reduced to counting fingers. Fluorescein angiography showed significant macular ischaemia and non-perfusion with a broken foveal capillary ring (fig 1A). There was diffuse leakage and additional masking from intraretinal haemorrhages (fig 1B). Optical coherence tomography measured a central macular thickness of 337 μm with incomplete macular perfusion, with BRVO and macular oedema associated with incomplete macular perfusion, the majority of cases with a good visual outcome. Although one study reported a predictive value in 91% of eyes with BRVO and macular oedema reducing vision to 20/40 or worse. However, laser treatment is inappropriate in eyes with foveal capillary non-perfusion. Eyes with BRVO and a broken foveal capillary ring have a poorer prognosis for visual acuity. Although one study reported a poor visual outcome in 91% of eyes with BRVO and macular oedema associated with incomplete macular perfusion, the majority of cases with a good visual outcome were presented with visual acuities of 20/100 or better. Poor presenting visual acuity is correlated to poor visual prognosis.

In this case, a patient with a chronic BRVO and ischaemic macular oedema had complete resolution of the macular oedema 2 weeks following intravitreal injection of triamcinolone. The resolution of macular oedema was associated with a significant improvement in visual acuity from counting fingers to 6/24. This final visual acuity was presumably limited because of residual ischaemic macular damage.

Although the mode of action by which triamcinolone induces resolution of macular oedema remains poorly understood, in vitro studies and clinical observations indicate that triamcinolone has the capacity to reduce the permeability of the outer blood-retinal barrier.

Intravitreal triamcinolone has been shown to be safe and effective when used for the treatment of cystoid macular oedema caused by uveitis, diabetic maculopathy, central retinal vein occlusion, and post-cataract surgery. IOP elevation may occur in up to 50% of eyes after triamcinolone injection. Other potential risks include cataract development, retinal detachment, and endophthalmitis. Despite good initial anatomical and visual response to intravitreal triamcinolone when used in these conditions, macular oedema has been reported to recur following treatment, often necessitating repeated injections. Further follow up is required to determine if macular oedema recurs following treatment in branch retinal vein occlusions.

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

**References**

A 4 month old girl presented with iris hypoplasia and a right relative afferent pupillary defect, and a heterochromia, bruising over the left eye, a 360 degree giant retinal tear occurring in a baby girl as a result of presumed non-accidental injury (NAI).

Case report

On examination the child did not fix to light or a target with the right eye and there was no response to the optokinetic nystagmus drum. There was no red reflex visible in the right eye and a right exotropia was present. Cycloplegic refraction revealed a refractive error of −0.50/D, +1.50/90 in the left eye.

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7 Harley RG, O’Collins W. Ocular manifestations of child abuse. In: Francois J, Maione W, eds. Ocular injury is the presenting sign of phy- thalia (ARM) in the opposite eye. However, the authors’ conclusions were not given in the paper.

The authors stated in the abstract that “the area occupied by the CNV in the first eye also influenced severity of ARM changes in the fellow eye.” In the results section it was stated that “age, sex, cardiovascular disorder, and smoking status were not significant predictors for ARM severity with classical CNV.” In the statistical analysis section of Methods, as well as in the footnotes to Table 5, it was mentioned that the “CNV subtype” was the dependent variable and not the “ARM severity in the fellow eye.” Therefore, the model was attempting to predict the “type of CNV in the same eye,” and not the “ARM severity in the fellow eye” using the independent variables age, sex, cardiovascular disorder, etc. In addition, there appear to be typographical errors in the p values in Table 5; 0.57 should read 0.057, 0.19 should read 0.019.

Also in Table 5, the odds ratio of stage 3 ARM (soft indistinct drusen or reticular drusen with pigmentary irregularities) being 4.8 times more than no ARM predicting an occult CNV over a classic CNV was also misleading. This is because the individual coefficients of the independent variables reflect the contribution of these factors (including area of the CNV lesion) to the variance of the dependent variable (the CNV subtype)! In order to examine the effect of CNV subtype in one eye on the severity of ARM in the other eye, perhaps the authors should collapse the five possible values for the severity of ARM into two and designate this the dependent variable in the logistic regression model. Since the logistic regression model predicts the log odds that an observation will have an indicator equal to 1, to facilitate interpretation of odd ratios, it is crucial to specify which of the two conditions ("occult CNV" or "classic CNV") is designated as 1 (the counterpart being 0). Alternatively, they could perform "multiple linear regression" and designate "severity of ARM" as the dependent variable with five possible values. In either of these two alternatives, area of lesion (in the eye with CNV), age, etc could be additional independent variables.

If the authors were to compare only "severity of ARM" with "CNV subtype" (four possible values), Kendall’s rank correlation is also a reasonable approach.

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Reference

A new look at ophthalmodynamometry

It was with great interest that I read the article by Jonas. It is indeed noteworthy that efforts are being undertaken for reviving ophthalmodynamometry. This is especially pertinent as this method is, despite the many modern techniques published within the past 20 years, the only way to gain insight regarding the pressure present at the eye’s central retinal vessels. A direct measuring device has demonstrated the usefulness of this examination. Nevertheless, Jonas’ recent article raises some questions that must be clarified in light of additional articles that will soon be published by the same author as well as for those who are no longer familiar with ophthalmodynamometry.

The device, as it is described, appears to measure the appositional force exerted by the examiner’s hand on the contact lens placed upon the eye. One has to clearly distinguish between the appositional force and any pressure within the eye itself. In no way does the former reflect any circulatory parameter of the eye, certainly not a collapse pressure. Moreover, this measurement is strongly dependent on the IOP which, in these experiments, seemed not to have been considered. The collapse pressure itself strongly depends on the IOP— that is, the tissue pressure around the central retinal vessels, a matter of debate for many years. Since the examination itself lowers the IOP considerably, any repetition of the examination must yield a new value. Therefore, it has been recommended to repeat the examination only after a longer rest period for the eye. If, as cited in this study, the examination has been repeated nine times in succession, the results should show a linear decrease of the distribution curve.

Pulsations of the central retinal vein express the fact that the IOP oscillates at levels near the cerebrospinal fluid pressure, a difference in the order of 1–2 mm Hg. We wonder whether the set-up and the method are accurate enough to document such subtle changes. In order to obtain answers to questions concerning the circulation of the central retinal vessels in the diseases mentioned in the article, it would be necessary to convert the force in the corresponding pressure values. I look forward to reading the articles the author cited in the reference list and to clarification of the points raised in this letter.

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References

Time to learn from what is known

We read with interest the recent editorial by Melese et al. Trachoma is responsible for up to two million cases of blindness worldwide, yet to a large extent it is a forgotten disease which affects the poorest and most medically underserved populations.

The World Health Organization (WHO), together with the International Agency for Prevention of Blindness, jointly launched “Vision 2020—the right to sight” in 1999 which aims to eliminate avoidable blindness by the year 2020, including blindness from trachoma. Who has endorsed “SAFE” (Surgery for trichiasis, Antibiotics to reduce the prevalence of chlamydial infection, and Facial cleanliness and Environmental changes to reduce the disease transmission) as the strategy implemented by national programmes to achieve the elimination of blinding trachoma.

We have recently undertaken a review of the evidence base of the SAFE strategy and judged it to be strong for the surgery and antibiotics components, but weaker for the other components. We therefore concur with the opinion of Melese et al that more research is required, not only to develop a protocol for the rational use of antibiotics, as they suggest, but also to strengthen the evidence relating to the “F” and “E” components.

The SAFE strategy has been implemented by the national control programmes of many endemic countries in Africa, Asia, and Latin America with varying degrees of success. Melese et al make the observation that the experiences gained from research studies are not directly transferable to real life settings; the need, therefore, is for the publication of the experiences of countries that have successfully dealt with trachoma through implementation of the SAFE strategy to serve as a best practice model for other countries. Morocco is a good example. A decade ago trachoma was a public health problem in five provinces of Morocco, but with the efficient implementation of the SAFE strategy the prevalence of active trachoma and trichiasis has declined dramatically so that Morocco is now close to eliminating trachoma as a public health problem.

Moreover, this measurement is strongly dependent on the IOP which, in these experiments, seemed not to have been considered. The collapse pressure itself strongly depends on the IOP—that is, the tissue pressure around the central retinal vessels, a matter of debate for many years. Since the examination itself lowers the IOP considerably, any repetition of the examination must yield a new value. Therefore, it has been recommended to repeat the examination only after a longer rest period for the eye. If, as cited in this study, the examination has been repeated nine times in succession, the results should show a linear decrease of the distribution curve.

Pulsations of the central retinal vein express the fact that the IOP oscillates at levels near the cerebrospinal fluid pressure, a difference in the order of 1–2 mm Hg. We wonder whether the set-up and the method are accurate enough to document such subtle changes. In order to obtain answers to questions concerning the circulation of the central retinal vessels in the diseases mentioned in the article, it would be necessary to convert the force in the corresponding pressure values. I look forward to reading the articles the author cited in the reference list and to clarification of the points raised in this letter.

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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 50 different organisations related to eye disorders ranging from conditions that are relatively common to very rare syndromes. The web page acts as a portal giving direct access to support groups’ own websites. 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; website: www.eyeconditions.org.uk).

The British Retinits Pigmentosa Society
The British Retinitis Pigmentosa Society (BRPS) was formed in 1975 to bring together people with retinitis pigmentosa and their families. The principle aim of BRPS is to raise funds to support the programmes of medical research into an eventual cure for this hereditary disease, and through the BRPS welfare service, help members and their families cope with the everyday concerns caused by retinitis pigmentosa. Part of the welfare service is the telephone help line (+44 (0)1280 860 363) for any queries relating to retinitis pigmentosa, especially for those recently diagnosed with retinitis pigmentosa (tel: +44 (0)1280 860 363; email: lynda@brps.denmon.co.uk; website: www.brps.denmon.co.uk).

Surgical Eye Expeditions International
Volunteer ophthalmologists in active surgical practice are needed to participate in short term sight restoring eye surgery clinics around the world. Contact: Harry S Brown, Surgical Eye Expeditions International, 27 East De La Guerra, C-2, Santa Barbara, CA 93101-9838, USA (tel: +805 963 3303; fax: +805 963 3364; email: hsbrown.md@cox.net or seeinl@seeintl.org; website: www.seeintl.org).

Rise in organ transplant numbers
According to UK Transplant, the UK has seen the highest number of organ transplants in six years. Last year (1 April 2002 to 31 March 2003), 2777 patients had their lives saved or...
dramatically improved through the generosity of 1064 donors. This equated to a 6% increase compared to the previous 12 months (1 April 2001 to 31 March 2002). Furthermore, during 2002–3, the highest number of people benefited from a cornea transplant for five years (1997-98) and 240 more people had their sight restored than the previous year. For further information see UK Transplant’s website (www.uktransplant.org.uk).

Elimination of avoidable blindness

The 56th World Health Assembly (WHA) considered the report on the elimination of avoidable blindness (doc A56/26) and urged Member States to: (1) Commit themselves to supporting the Global Initiative for the Elimination of Avoidable Blindness by setting up a national Vision 2020 plan by 2005; (2) Establish a national coordinating committee for Vision 2020, or a national blindness prevention committee to help implement the plan; (3) Implement the plan by 2007; (4) Include effective monitoring and evaluation of the plan with the aim of showing a reduction in the magnitude of avoidable blindness by 2010; (5) To support the mobilisation of resources for eliminating avoidable blindness. The WHA also urged the Director-General to maintain and strengthen WHO’s collaboration with Member States and the partners of the Global Initiative for the Elimination of Avoidable Blindness as well as aid in the coordination and support of national capability.

5th International Symposium on Ocular Pharmacology and Therapeutics (ISOPT)

The 5th International Symposium on Ocular Pharmacology and Therapeutics (ISOPT) will take place 11-14 March 2004, in Monte Carlo, Monaco. Please visit our website for details of the scientific programme, registration, and accommodation. To receive a copy of the Call for Abstracts and registration brochure, please submit your full mailing details to http://www.kenes.com/isopt/interest.htm. Further details: ISOPT Secretariat (website: www.kenes.com/isopt).

XVth Meeting of the International Neuro-Ophthalmology Society

The XVth Meeting of the International Neuro-Ophthalmology Society will take place 18-22 July 2004, in Geneva, Switzerland. Further details: Prof. A. Safran, University Hospital Geneva, c/o SYMPORG SA, Geneva (fax: +4122 839 8484; email: info@symport.ch; website: www.symport.ch).

4th International Congress on Autoimmunity

The 4th International Congress on Autoimmunity will take place 3–7 November 2004 in Budapest, Hungary. The deadline for the receipt of abstracts is 20 June 2004. Further details: Kenes International Global Congress Organisers and Association Management Services, 17 Rue du Cendrier, PO Box 1726, CH-1211 Geneva 1, Switzerland (tel: +41 22 908 0488; fax: +41 22 732 2850; email: autoim04@kenes.com; website: www.kenes.com/autoim2004).

14th Meeting of the EASD Eye Complication study group

The 14th Meeting of the EASD Eye Complication (EASDEC) study group will take place on the 21–23 May 2004. There will be key lecture notes on the following topics: Peter Gaede (Denmark)–Results of the Steno 2 study, Hans Peter Hammes (Germany)–Animal models of diabetic retinopathy, Massimo Porta (Italy)–Screening with the London protocols: 12 years after, and Anselm Kampik (Germany)–Surgical options in diabetic retinopathy. There will also be case presentations and oral and poster presentations. The EASDEC board comprises F Bandello (President), PJ Guillausseau (Vice President), C-D Agardh (Past President), P Massin (Secretary), M Porta (Treasurer). The Scientific and Organizing Committee includes: F Bandello, PJ Guillausseau, P Massin, C-D Agardh, M Porta, A Kampik, M Ulbig, and G Lang. There are three travel grants available, at 1000 Euro each, for young scientists (less than 35 years at the time of the meeting). Application for the grant should be made together with the submission of the abstract. For further information, contact: Department of Ophthalmology, Ingrid Mannl, Ludwig-Maximilians-University, Mathildenstr. 8, 80336 MUNICH, Germany (tel: +49-89-5160-3800; fax: +49-89-5160-4778; e-mail: easdec@ak-l.med.uni-muenchen.de. The deadline for abstracts is 2 March 2004.