LETTERS TO THE EDITOR

Ulcerative keratitis in a person wearing daily disposable contact lenses

EDITOR,—Daily disposable contact lenses were introduced in the UK in February by Vistakon. The lens, consisting of the polymer etafilcon A, is manufactured by a stabilised soft moulding method in a sterile manner within its own packaging. The sterile lens is inserted in the morning and discarded at the end of the day's wear. Premarket studies have suggested improved acuity, comfort, and patient satisfaction compared with conventional daily wear soft lenses.¹

We report a case of keratitis associated with the use of daily disposable contact lenses.

CASE REPORT

A 27-year-old woman with low myopia was referred to the accident and emergency department of Moorfields Eye Hospital. She had worn soft contact lenses for 9 years, initially using daily wear conventional soft lenses. She had successfully worn Surevue monthly disposable contact lenses for the past 2 years on a daily wear basis with a good hygiene routine. Mild meibomian gland dysfunction with lens greasing and a slight reduction in the tear film was managed with lid hygiene and Clerz lubricating drops. As there was a slight increase in lens awareness at the end of each month, she requested a 5 day trial of 1-day Acuvue contact lenses.

The patient attended routinely at the end of the trial, reporting a slight increase in lens awareness on that day. At no time had the lenses been reworn or reinserted, nor had there been any other unusual events. On examination, the corrected vision was 6/5 in both eyes and the contact lenses were not defective. There was mild right conjunctival hyperaemia and a 0.8 mm diameter anterior stromal infiltrate with a small overlying epithelial defect in the corneal mid periphery in the 10 o'clock meridian. The anterior chamber was quiet and the lesion was felt to be too small for useful cultures to be taken; cultures from the lenses revealed no growth. The patient was treated initially with hourly ofloxacin 0.3% drops and by 48 hours the epithelial defect had closed although some infiltrate persisted. The topical antibiotic was reduced in frequency over the next week and the lesion healed leaving a small corneal scar.

Figure 1 Slit-lamp photograph to show healing infiltrate in right corneal mid periphery (arrow) following a 5 day trial of daily disposable contact lenses.

COMMENT

Disposable contact lenses, first introduced in 1987 for extended wear, had several theoretical advantages including minimal lens handling, avoidance of the problems associated with aging and deposited lenses, elimination of the need for lens hygiene compliance, and no possibility of microbial contamination of lens solutions or cases.² It was hoped that this would decrease the incidence of microbial keratitis and other complications. However, cases of ulcerative keratitis were reported over the next 2 years³⁻⁵ which led to several large case-control studies. Although these studies indicated that extended wear was the main risk factor,⁵⁻⁸ some demonstrated an additional risk for disposable lenses beyond that of the mode of wear.⁹⁻¹⁰ However, others failed to confirm this.¹¹⁻¹³

The daily disposable contact lens was introduced in the hope that it will be significantly safer as well as more convenient and acceptable to wearers. However, the lessons learned from the widespread use of extended wear and earlier types of disposable lenses¹⁴⁻¹⁵ suggest that only extensive experience with daily disposable lenses over the next few years will reveal whether this hope is to be realised.

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Pigmented conjunctival epithelial dysplasia in an HIV positive African: detection of human papillomavirus type 16

EDITOR,—Pigmented conjunctival epithelial dysplasia is a disease entity that is found most frequently in non-white (African or Indian/Asian) patients. Owing to the heavy pigmentation observed on clinical examination, the lesion can easily be misdiagnosed as malignant melanoma.¹

CASE REPORT

A 31-year-old African woman who had, some months previously, been diagnosed as HIV positive but without any symptoms of AIDS presented with a conjunctival tumour. The lesion had been present for 7 years and was located at the temporal limbus of her left eye. It was markedly pigmented. The clinical diagnosis was invasive malignant melanoma, and she therefore underwent surgery. Apart from the tumour, both eyes appeared normal.

The excised tissue was embedded in paraffin, and by routine light microscopy (sections stained with haematoxylin-eosin and periodic acid Schiff) the tumour was diagnosed as invasive malignant melanoma by a general pathologist. Because some suspicious pigmentation remained after the local excision, the patient was sent to a university hospital for a second opinion and further treatment. When at that time the original sections were reviewed, the histological picture disclosed a well demarcated epithelial proliferation with massive hyperkeratosis (Fig 1). Goblet cells were no longer present, and there was squamous metaplasia with features of dysplasia such as dyskeratosis, parakeratosis, nuclear pleomorphism, and irregular maturation. Other prominent features were vacuolated koilocytotic cells and, as could be expected from the clinical aspect, a fairly large amount of pigment. The pigment was identified as melanin by the Masson-Fontana stain. Melanin containing cells were dispersed throughout the epithelium even within the keratin layers; some of these cells were dendritic while others appeared plump and rounded. The latter probably represented macrophages invading the tumour. At the edge of the tumour there were similar features characteristic of epithelial dysplasia with a sharp border between normal and diseased epithelium. In addition, there was a striking elastotic degeneration of the subepithelial stroma in this area.

The basal lamina was intact throughout the lesion; there was no tumour infiltration of the stroma but only a chronic inflammatory cell infiltrate including melanomacrophages.

Bearing in mind the epithelial character of the tumour and some of the cellular features such as the koilocytotic atypia, we were interested to see whether a viral origin might play a

Fig 1A

Fig 1B

Figure 1 (A) Histological appearance of pigmented conjunctival epithelial dysplasia. Note massive hyperkeratosis (*), dyskeratosis, and koilocytotic cells with melanin interspersed throughout the lesion. The basal lamina (arrow) is intact. (Paraffin section, haematoxylin and eosin, $\times 82$.) (B) Epithelial cells with hyperkeratosis (*) at higher magnification. (Paraffin section, haematoxylin and eosin, $\times 224$.)

a secondary tumour associated phenomenon.

Considering the epithelial origin of the tumour, it was not surprising to find involvement of a virus in the disease process. During the past decade human papillomaviruses (HPV) have been established as main pathogenetic factors in cervical carcinogenesis.⁶ Recently, HPV has also been associated with epithelial lesions of either skin or mucous membranes such as the conjunctiva.⁷ There

role in the pathogenesis. Owing to the limitation of material, an ultrastructural study was not carried out but we were able to perform a polymerase chain reaction (PCR) on material extracted from two 60 μ m sections of formalin fixed paraffin embedded material.^{2,3} Synthetic oligonucleotide primers targeting a specific sequence in the genome of human papillomavirus (HPV) 16 were used to amplify a 120 base pair fragment.⁴ After 40 cycles of amplification the reaction mixture was analysed by agarose gel electrophoresis and stained with ethidium bromide. Thus we could indeed retrieve viral DNA (Fig 2).

To our knowledge, no other obvious papillomatous growth was present at either dermis or cervix suggesting that the eye was the only site of HPV 16 infection in our patient.

COMMENT

Pigmented conjunctival epithelial dysplasia should, especially in pigmented patients, be considered in the clinical differential diagnosis of conjunctival melanoma.^{1,5} Apparently all of these lesions occur in patients with a highly developed melanocytic system with secondary proliferation of intraepithelial melanocytes and release of pigment into neighbouring cells and into the conjunctival stroma. The marked elastotic degeneration of the subepithelial stroma beneath the tumour could either be evidence of a pre-existing pinguecula-like lesion with subsequent epithelial changes or otherwise be

Figure 2 Demonstration of a 120 base pair fragment, characteristic of human papillomavirus type 16, by PCR and agarose gel electrophoresis. Note the weak but distinct band in line 1, representing tumour material from our patient with pigmented conjunctival epithelial dysplasia [Lane 1, conjunctival papilloma; lane 2, cervical carcinoma positive for HPV-16; lane 3, placental tissue negative for HPV-16 (negative control); lane 4, 100 fg cloned HPV-16 DNA; lane 5, reaction with target (negative control).]

is, however, still argument about the possible influence of virus particles on the malignant transformation of these tumours.⁸ Meanwhile HPV-DNA has been identified by in situ hybridisation in 13 out of 21 sebaceous carcinomas of the eyelid.⁹

In conjunctival lesions, HPV-6, HPV-11, and HPV-16 have been detected in both benign and malignant lesions.¹⁰ The increase of conjunctival neoplasia in HIV patients has also been reported^{11,12} but no pigmented conjunctival epithelial dysplasia has been investigated with regard to either virus so far.

Although the presence of HPV 16 within the tumour tissue from our patient might be coincidental, it might also implicate a specific role of this virus in the pathogenesis of PCED. As it has also been reported for the genital tract¹³ the HIV infection in our patient, although we do not know when it was acquired, possibly rendered her even more susceptible to a viral infection with early malignant transformation.

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Presumed ocular larva migrans presenting with features of diffuse unilateral subacute neuroretinitis

EDITOR.—Ocular infection by *Toxocara* typically presents as diffuse endophthalmitis or a granuloma; less frequent are anterior uveitis, pars planitis, optic neuritis, conjunctivitis, keratitis, or lens involvement.¹ Rarely, a motile larva may be visualised.

We present a patient with positive aqueous serology to *Toxocara* species associated with features consistent with diffuse unilateral subacute neuroretinitis (DUSN).

CASE REPORT

A 49-year-old man presented with a 3 day history of blurred vision of the right eye, associated with a floater and a right sided headache.

Fig 1A

Fig 1B

Fig 1C

Figure 1 (A) Initial presentation with 'string of pearls' lesion. (B) Crops of perivenous white plaques present during first week after presentation. (C) Slight preretinal fibrosis 1 month after presentation.

Two weeks previously right corneal trauma had resulted in a red eye which had failed to respond to topical chloramphenicol.

At presentation, the anterior chamber exhibited circumcorneal injection, aqueous cells, and flare with multiple posterior synechiae. A hazy fundus view revealed perivascular 'white patches' and macular oedema. Prednisolone acetate 1% hourly, atropine 1% three times daily, and flurbiprofen 100 mg twice daily were prescribed initially.

A 2 mm hypopyon formed 24 hours later but disappeared the following day. Numerous keratic precipitates were present inferiorly. A white 'string of pearls' lesion appeared adjacent to the optic disc (Fig 1A). Intense photophobia impaired fluorescein angiography and initial fundus photography. There was an end systolic aortic murmur. Endogenous endophthalmitis was thus initially thought to be the probable diagnosis. Serological tests excluded systemic candidosis; antimicrobials were withheld pending laboratory findings.

Temporal progression of the disease is illustrated in Figure 2. Cytomegalovirus, herpes simplex virus, varicella zoster virus, *Toxoplasma*, *Treponema pallidum*, *Mycobacterium tuberculosis*, and sarcoid were excluded. Over the following 7 days visual acuity improved and the anterior chamber became less inflamed. The retinal changes

continued to evolve. Venous sheathing associated with a branch vein retinal occlusion developed with crops of perivenous white plaques; this resembled DUSN² (Fig 1B). Raised serum IgE and eosinophilia suggested allergy or helminth infection. The stool yielded both *Entamoeba coli* cysts and *Enterobius vermicularis* ova.

Over the following 2 weeks the retinitis became quiescent, although elevated serum IgE and eosinophilia remained. Despite the atypical clinical appearance ocular larva migrans was suspected. Enzyme linked immunosorbent assay (ELISA)³ on paired serum and aqueous samples demonstrated significantly elevated aqueous antibody activity against *Toxocara* spp; there was no evidence of acute visceral larva migrans.

The active inflammation subsided; treatment was discontinued after 1 month. Slight preretinal fibrosis developed around the optic disc (Fig 1C). Right visual acuity remained at 6/18 for the ensuing 3 months.

COMMENT

DUSN is a clinical syndrome. Early features include visual loss, iridocyclitis, vitritis, papillitis, and retinal vasculitis with recurrent crops of grey-white retinal lesions.² There is progressive visual loss, optic atrophy, and diffuse pigment epithelial degeneration. The aetiology of

Figure 2 Clinical and laboratory observations. *IgE levels against house dust mite, grass pollen, cat and dog danders were negative or only slightly raised (Pharmacia CAP System). Specific IgE against *Toxocara* spp was not detected; parasitic helminth infection may cause polyclonal stimulation of IgE producing B lymphocytes. ♦ Anti-*Ascaris* IgE was minimally raised at 0.35 U/ml (Pharmacia CAP System). Mebendazole 100 mg was administered on day 15; *E. vermicularis* was absent from second stool sample, day 59.