We wish to bring this observation to the notice of ophthalmologists prescribing latanoprost 0.005%, so that patients undergoing treatment may be informed of this side effect.

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Sir,

Corneal endothelial precipitates in HIV- and CMV-positive patients without concomitant ocular disease

Human immunodeficiency virus (HIV) and associated opportunistic infections are well known to have ocular manifestations. The rate of eye involvement exceeds 70%.[1] Recently a new manifestation of corneal involvement was reported in the form of corneal endothelial precipitates in association with cytomegalovirus (CMV) retinitis.[1–3] We report two cases of HIV-positive patients with similar corneal endothelial deposits without the presence of CMV retinitis or other ocular diseases.

Case 1

A 28-year-old, HIV-positive white man, with a history of AIDS-defining infections including *Mycobacterium avium intracellulare*, *Pneumocystis* pneumonia and toxoplasmosis, presented with a complaint of blurred vision. Best corrected visual acuity was 6/7.5 in both eyes. External and visual field examinations were normal. Pupils were equal, round and reactive. Anterior segment evaluation was pertinent for bilateral reticular non-pigmented endothelial precipitates, which formed a 360° ring around the corneal periphery and were scarcely distributed throughout the rest of the endothelial surface (Fig. 1). The corneal epithelium and stroma were normal. The anterior chambers were quiet. No other signs of uveitis were noted. Fundoscopic evaluation of both eyes by a vitreoretinal specialist was unremarkable.

The patient was treated first with fluorometholone 0.1% and then with prednisolone 1% without improvement. He was a participant in an oral ganciclovir treatment trial. The trial evaluated oral ganciclovir versus placebo as a prophylactic agent against CMV disease.[4] Upon entering the trial the patient underwent screening for opportunistic infections including a CD4 count, an antibody test and urine culture for CMV, blood count and serum chemistry. All patients included in this trial had CMV infection proven by a positive blood titre or urine culture, but had no active CMV disease. This patient was in the ganciclovir group. The corneal precipitates were first noted at 28 months into the trial, at which point the patient was referred to our institution.

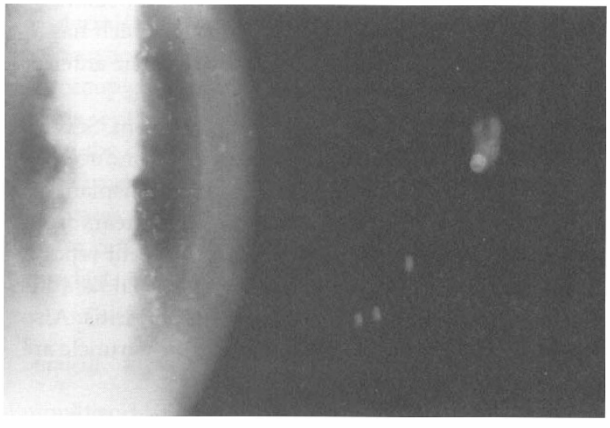

FIg. 1. *Case 1. A narrow beam slit-lamp photograph of the right eye showing non-pigmented diffuse reticular precipitates on the corneal endothelium.*

Throughout the trial the patient had frequent eye and physical examinations that were normal until month 28. Except for the aforementioned precipitates he did not manifest any other signs or symptoms of any ocular disease. He did not have any prior history of ocular infections such as herpes simplex, herpes zoster or syphilis. He has been followed for over 2 years without a change in his systemic or corneal condition or any signs of CMV retinitis.

Case 2

An HIV-positive, 44-year-old white man, without systemic manifestations of AIDS, also a participant in the prophylactic oral ganciclovir treatment trial, presented to our institution for an evaluation by request of the ganciclovir treatment trial ophthalmologist. The patient was asymptomatic. His uncorrected visual acuity was 6/6 in both eyes. External examination and visual fields were normal. Pupils were equal, round and reactive. Anterior segment examinations revealed normal corneal epithelium and stroma bilaterally. Grey-white, reticular precipitates were seen on the corneal endothelium in both eyes. They were denser towards the corneal periphery and evenly distributed around the entire corneal circumference. The anterior chambers were quiet. The fundi were normal.

The patient's condition was not responsive to anti-uveitis therapy and remained unchanged during the 6 month follow-up period. The precipitates were noted, as in case 1, at 28 months of the ganciclovir trial. All prior ocular examinations were normal. The patient did not have any prior history of ocular disease. He was screened and followed in the same fashion as the patient in case 1. He was also in the ganciclovir group of the trial. The patient died from AIDS-related wasting syndrome. Permission for an autopsy was not granted.

Discussion

Human CMV is a member of the herpesvirus group and is a common pathogen affecting immunocompromised hosts. Approximately 10% of CMV infections in AIDS patients involve the eye.[5] The most prevalent ocular manifestation of CMV infection is retinitis, which has been extensively described in the literature.[6] The anterior segment, corneal and external ocular problems associated with the virus are much less frequent. Several years ago Yee *et al.*[5] reported a case of CMV-induced corneal epithelial keratopathy in a cardiac transplant patient. CMV virus has also been detected in tears from patients with acute CMV chorioretinitis.[5] Recent reports by Wilhelmus *et al.*[7] indicate that CMV epithelial keratitis can possibly lead to stromal involvement and iritis. Also CMV infections of the conjunctiva and of the caruncle are known to occur in patients with AIDS.[8,9]

Reports of endothelial precipitates in HIV-positive patients date back to the mid-1980s.[1] The endothelial changes have always been reported in association with CMV retinitis and are predominantly located in the lower third of the cornea.[1,2,3,6] They usually have no direct effect on vision. Morphologically the precipitates consist of dendritic monocytes overlying the apical surface of the corneal endothelium as reported by Walter *et al.*[3] They are mixed with fibrin and occasional lymphocytes. The corneal epithelium and stroma remain uninvolved. The endothelium may manifest areas of polymegethism, sometimes decreased cell counts, occasional cell oedema and no evidence of CMV virus.[1,3] The number of lymphocytes found on the endothelial surface varies and might be associated with the patient's immunological status.[3] An anterior chamber reaction is usually present but can be minimal.

The precipitates observed in the two cases reported here differ in their location from previous reports. Also, the anterior chamber reaction was absent and one of the two patients reported subjective visual changes related to the deposits. The corneal changes did not improve with corticosteroid therapy, which is in concurrence with the report by Severin *et al.*[1] The anti-CMV therapy, including oral ganciclovir, not only did not reverse the corneal changes but the changes occurred during the prophylactic therapy trial. This confirms the findings of Mitchell *et al.*[2] who observed that corneal endothelial changes did not disappear on oral ganciclovir therapy while the retinitis became quiescent.

The aetiology of these corneal precipitates is unclear. A review of the literature suggests that the endothelial changes might be the result of an endotheliitis with a component of uveal inflammation or a uveitis with a secondary endotheliitis related to CMV infection.[1–3] Since CMV is a lymphotropic virus it could be introduced to the anterior chamber, epithelium or stroma via limbal lymphatic channels. On the other hand, virus could also be transmitted from the posterior chamber via vitreous and aqueous to the endothelial corneal surface. Both mechanisms could result from a CMV viraemia. However, the endothelial changes might be due to the HIV virus itself or to other opportunistic infections including early CMV infection.

Until the definite pathogenesis of these deposits is identified the corneal endothelial precipitates should not necessarily be classified as related to CMV retinitis.

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Sir,

Pedunculated episcleral choristoma without ocular involvement

A choristoma is a congenital tumour-like growth that contains displaced epithelial and other dermis-like elements not normally indigenous to the site in which they are found.[1] Choristomas can be divided into four main histopathological groups: dermoids, lipodermoids, single-tissue choristomas and complex choristomas. Dermoids consist of collagenous connective tissue covered by epidermoid epithelium. Lipodermoids contain adipose tissue along with a dermis-like connective tissue. Single-tissue choristomas consist of dermis-like tissue or ectopic tissues of mesoectodermal origin (lacrimal and other glands, fat, nerve, brain, cartilage, bone and teeth). Complex or composite choristomas contain tissues of different origins.[2]

Herein we present a rare case of a pedunculated episcleral choristoma with a very unusual presentation.

Case report

A 1-day-old Caucasian white male infant was referred to the Department of Ophthalmology at the Huddersfield Royal Infirmary with a pedunculated pink-coloured mass arising from the temporal aspect of the left eye and hanging on the side of the face (Fig. 1). The child was full-term, with a birthweight of 4.12 kg and an Apgar score of 9. The surface of the mass was covered with fine hair and a prominent scab could also be seen. The mass was excised under general anaesthesia.

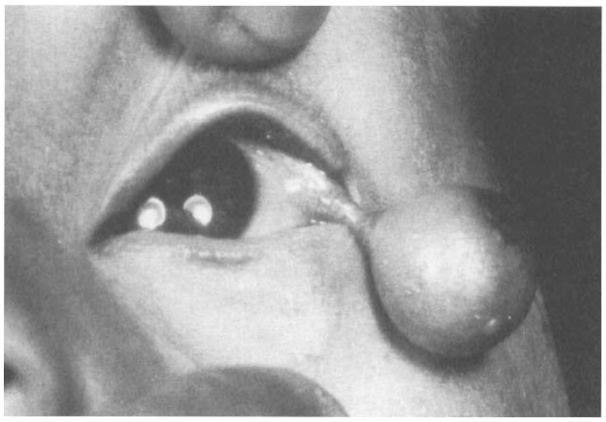

Fig. 1. *A pedunculated episcleral mass protruding laterally through the left palpebral fissure.*

Per-operatively, a haemostat was applied to the peduncle, followed by tying a ligature suture of 6/0 catgut prior to excision of the mass. On excision, the peduncle seemed to retract into the conjunctival fornix. Ocular examination under anaesthesia revealed normal anterior and posterior segments with no evidence of any significant refractive error. An orthoptic assessment a few days later revealed apparently straight eyes with normal following. No skeletal abnormalities were found on radiography.

Pathology

On gross examination, the lesion consisted of a round pedunculated pink-coloured mass 9 mm in diameter. There was focal ulceration of the surface epithelium. Sagittal sectioning revealed fleshy yellow-coloured surfaces.

Histologically, the specimen was covered by a keratinised squamous epithelium. The tip of the nodule was ulcerated and covered by a fibrinopurulent material. The dermis contained numerous pilosebaceous follicles and occasional sweat glands. The centre of the specimen was occupied by a mature adipose tissue, intersected by fibrous septa. Many dilated vascular spaces were present within the dermis and the adipose tissue (Fig. 2, upper). At the base of the specimen there were well-defined aggregates of peripheral nerve tissue, intermixed with a mature cancellous bone, which was surrounded by osteoclasts (Fig. 2, lower).

Comment

Epibulbar choristomas can occur in isolation or with associated systemic malformations, which include Goldenhar's syndrome and mandibulofacial dysostosis (Treacher Collins syndrome and Franceschetti's