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Pseudomonas conjunctival ulcer and secondary orbital cellulitis in a patient with AIDS

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Bacterial infections of the anterior segment of the eye are not a common feature of AIDS but once established these infections may be particularly severe and more likely to cause ulcer and perforation.[1] *Pseudomonas aeruginosa* has been cultured in keratitis, corneal ulcers, and scleritis in HIV infected patients[2]; nevertheless, nobody has previously reported *Pseudomonas* conjunctival ulcers in HIV patients.

Case report

A 26-year-old man with a history of intravenous drug misuse was diagnosed as having AIDS a year before presentation after one episode of *Pneumocystis carinii* pneumonia. He also had cachexia, oral candidiasis with secondary anaemia, and neutropenia due to treatment with zidovudine. He presented himself to the ophthalmologist on 29 June 1992, with a 2 day history of severe pain and a greenish discharge from his right eye. No history of trauma, contact lens, or previous ocular problems was elicited. Best corrected visual acuity was 20/25 in the right eye and 20/20 in the left eye. The patient exhibited signs of orbital cellulitis in the right eye, including periocular erythema, ptosis, proptosis of 3 mm, eyelid oedema, tenderness, total ophthalmoplegia, and chemosis. Slit-lamp examination disclosed purulent conjunctivitis with a conjunctival and Tenon's capsule ulcer in the nasal side of the right eye that measured 5×8 mm (Fig 1). The corneal examination did not show any abnormal findings. The left eye appeared normal. Computed tomography of the orbits disclosed an enhancing mass lesion in the anteronasal region of the right orbit without sinus involvement or bony erosion, more consistent with an orbital cellulitis than an orbital abscess (Fig 2). Laboratory studies revealed a leucocyte count of $1{\cdot}1\times10^9$/l (58% polymorphonuclear leucocytes). The absolute CD4+ lymphocyte count was 155×10^6/l. Empirical treatment before conjunctival culture results was as follows: fortified tobramycin 15 mg/ml and cefazolin sodium 50 mg/ml one drop of each in the right eye every hour around the clock and intravenous ciprofloxacin 200 mg every 12 hours. In 24 hours, cultures of the ulcer grew *Pseudomonas aeruginosa* sensitive to tobramycin, ceftazidime, and ciprofloxacin, so we replaced cefazolin with ceftazidime. In 48 hours, the discharge, the proptosis, and the ductional restriction diminished. Eight days later the conjunctival culture was negative and the ophthalmic examination was normal.

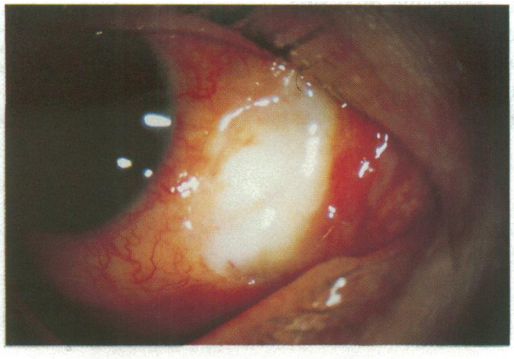

Figure 1 Conjunctival and Tenon's capsule ulcer in the nasal side, that measured 5×8 mm.

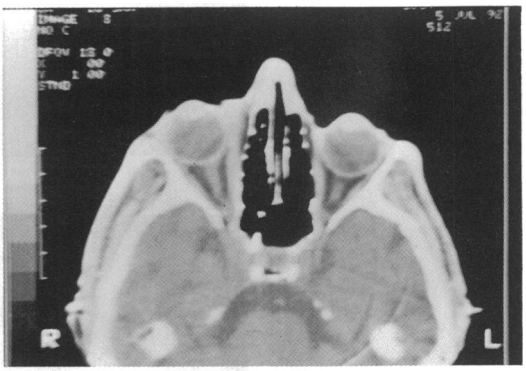

Figure 2 Computed tomogram showing the proptosis and the hyperdense enhancing mass lesion in the anteronasal region of the right orbit without sinus involvement or bony erosion.

Comment

Pseudomonas corneal ulcers have previously been reported in neutropenic patients infected with HIV[1] but, to our knowledge, this is the first case of *Pseudomonas* conjunctival ulcer complicated with an orbital cellulitis. Other acute orbital involvements in AIDS such as pseudotumour,[3] aspergillosis,[4] and *Pneumocystis carinii* of the orbit[5] were considered in the differential diagnosis, but our diagnosis was based on conjunctival cultures, clinical and computed tomography findings, and patient's prompt and complete response to a specific antibiotic therapy. The importance of neutrophils in the clearing of this invasive bacterial infection is well known. Previous studies showed that in experimental infection of neutropenic rodents and hamsters, the administration of recombinant granulocyte colony stimulating factor (rG-CSF) increased survival rates. rG-CSF 0·4 mg/kg administered at the same time as, and for 2 consecutive days following, infection with *Pseudomonas aeruginosa* resulted in 46% survival 1 week after infection, compared with 6% survival in control mice. Leucocyte numbers in both control and rG-CSF treated mice increased up to 15 hours after infection, although levels in rG-CSF treated mice were always higher than those in controls.[6] Furthermore, *Pseudomonas* produces several virulent factors: cytotoxin, a 25000 molecular weight protein originally

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termed leucocidin because of its cytopathic effects on polymorphonuclear leucocytes, and the production of elastase and an alkaline protease, which inhibit neutrophil chemotaxis in vitro.[7] These characteristic factors of *Pseudomonas* along with the neutropenia may explain this unusual case. We did not use rG-CSF in this patient because of his prompt response to antibiotic therapy. However, we consider that the use of rG-CSF in combination with antibiotic therapy in severe neutropenic patients with life threatening infection is mandatory because it minimises the risk of infection and decreases the mortality rates. We therefore conclude that an early diagnosis is necessary, as well as aggressive treatment, because a *Pseudomonas* infection in a neutropenic patient manifests a truly fulminating progression.

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Ocular melanocytosis and cavernous haemangioma of the optic disc

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Cavernous haemangioma of the optic disc is a rare vascular tumour that may occasionally produce a vitreous haemorrhage.[1,2] Ocular melanocytosis, on the other hand, is a more common condition but one that is associated with an increased incidence of uveal melanoma.[3-5] We encountered an unusual case in which ocular melanocytosis was associated with a cavernous haemangioma of the optic disc that had been masked behind a dense vitreous haemorrhage.

Case report

A 38-year-old man was referred with a diagnosis of vitreous haemorrhage of the right eye due to a tumour of the optic disc. Over the past 7 years, he had been seen on several occasions with vitreous haemorrhages, each of which had resorbed spontaneously.

When first examined by us, visual acuity in the right eye was finger counting. The diagnosis of ocular melanocytosis was based upon the presence of several dark scleral flecks (Fig 1) and iris hyperchromia. Visualisation of the fundus was obscured by a vitreous haemorrhage, and B scan ultrasonography disclosed a 4·5 mm thick mass covering the optic disc (Fig 2). The anterior two thirds of the mass were moderately reflective,

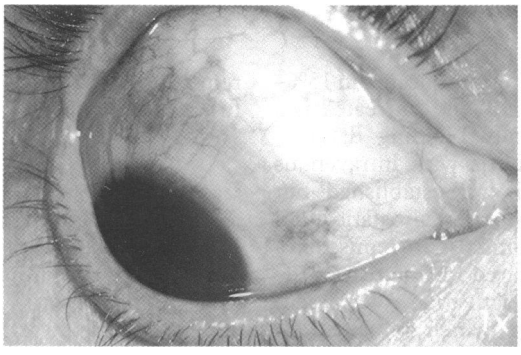

Figure 1 Right eye of the patient demonstrating a diffuse perilimbal episcleral pigmentation.

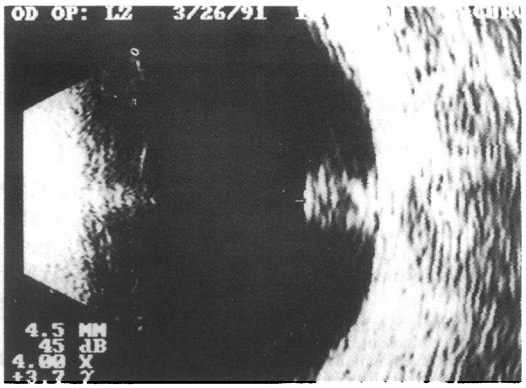

Figure 2 B scan ultrasonography. A 4·5 mm thick tumour mass covers the optic nerve. Internal reflectivity of the base of the tumour is high.