

contributory factors and the prompt cessation of the nightmares on stopping timolol indicates the drops as the most probable cause.

Busy outpatient clinics may not allow sufficient time to enquire about these less well known adverse effects, which may result in unnecessary investigations in some elderly patients to rule out psychiatric disorders. An awareness of the possible CNS side effects on the part of general practitioners and treating ophthalmologists may save precious time and resources for the health system and avoid anxiety for the patient.

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Sir

The importance of recognising *Streptococcus milleri* as a cause of orbital cellulitis

We present three cases of orbital cellulitis caused by *Streptococcus milleri* (*S. milleri*) which highlight the organism's propensity for abscess formation, necessitating surgical drainage and a long course of antibiotic therapy.

Case reports

Case 1. A 15-year-old boy presented with marked inflammation of the preseptal tissues and restriction of the extraocular movements. A CT scan showed an opaque ethmoid and maxillary sinus with a subperiosteal abscess. Intravenous co-amoxiclav (Augmentin, Beecham) 1.2 g t.d.s. was commenced and ethmoidectomy and drainage of subperiosteal abscess

was performed. Following an initial improvement, the periorbital swelling increased. Further surgical exploration and drainage of pus was performed. The patient improved once again and was discharged home 4 days later on oral Augmentin 625 mg PO t.d.s for 10 days. Four days following the completion of the oral antibiotics the patient was readmitted with a recurrence of the orbital cellulitis. An MRI scan showed a large soft tissue mass in the roof of the orbit (Fig. 1). A frontal sinus pus collection and a subperiosteal abscess were drained and intravenous antibiotics restarted. *Streptococcus constellatus* was cultured from pus swabs from both drainage procedures. The patient was discharged home on a 6 week course of oral Augmentin and his further recovery was uneventful.

Case 2. A 31-year-old man presented with a 1 day history of left periorbital swelling, proptosis and diplopia. A CT scan showed an opaque maxillary sinus. He was admitted and given intravenous cefotaxime and metronidazole. A left inferior meatal antrostomy and pus drainage was performed. Following an initial improvement the proptosis increased. An inferior subperiosteal abscess was drained. The signs improved and 4 days later the patient was discharged. *S. milleri* was cultured from a pus swab from the second drainage procedure. The patient received a 6 week course of oral Augmentin. There were no further complications or relapses.

Case 3. A 12-year-old boy presented with left periorbital swelling and pyrexia. He was admitted and commenced on intravenous Augmentin. The following day the patient underwent an antral washout and aspiration of pus. He failed to improve and 2 days later he underwent



Fig. 1. Case 1. A sagittal MRI image through the left orbit showing a superior orbital collection.

formal antrostomy, ethmoidectomy and drainage of subperiosteal abscess. *S. milleri* was cultured from the aspiration sample. He made a satisfactory recovery and was discharged home 3 days later on Augmentin 375 mg PO t.d.s. for 4 weeks. His further recovery was uncomplicated.

Comment

The *Streptococcus milleri* group is made up of three distinct species: *S. intermedius*, *S. constellatus* and *S. anginosus*. The organisms require microaerophilic or anaerobic conditions for culture and have been shown to form part of the bacterial flora of the normal maxillary sinus.^{1,2} However, sinusitis with closed ostia provides the ideal anaerobic environment for the organism to proliferate.^{2,3}

It has been suggested that *S. milleri* is increasing in incidence as a cause of complicated chronic sinusitis.³ It seems more likely, however, that improved anaerobic culture techniques have simply allowed these organisms to be increasingly recognised as pathogens. A recent series of complicated sinusitis from South Africa showed *S. milleri* to be the most commonly isolated organism from intracranial, soft tissue or orbital empyemas.⁴

The isolates presented here were sensitive to amoxicillin *in vitro* and showed a good clinical response to Augmentin in accordance with previous reports.^{1,4-6} There are, however, few published data regarding the duration for which oral antibiotics should be continued following the initial successful management of orbital cellulitis. Tresadern *et al.*⁵ advocated oral antibiotics for 4 weeks following clinical resolution of abdominal wound abscesses caused by *S. milleri*, because of the tendency for sequestered *S. milleri* to seed further abscess formation. Blayney *et al.*⁶ presented a series of 5 patients with complicated *S. milleri* sinusitis. All patients were discharged from hospital on oral penicillin or amoxicillin for 3–4 weeks and made an uneventful recovery. The case series presented here provides further evidence for the importance of a long course of antibiotics for *S. milleri* infections. The first patient

suffered a recurrence of the orbital cellulitis on cessation of a 10 day course of oral antibiotics following discharge home. The other patients made an uneventful recovery on 4 weeks of oral antibiotics.

Patients with orbital cellulitis caused by *S. milleri* sinusitis are likely to develop subperiosteal and orbital abscesses requiring multiple drainage procedures in addition to intravenous antibiotics. Following a satisfactory clinical response, patients should be discharged from hospital on oral Augmentin for at least 4 weeks in order to prevent relapse.

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