CASE REPORT

An unusual complication after strabismus surgery

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Orbital cellulitis is rarely reported after strabismus surgery; fewer than 10 cases have been reported. Nonetheless, orbital cellulitis is a potentially sight- and life-threatening condition. A high index of suspicion, use of a multidisciplinary approach, early diagnosis, aggressive treatment, and close monitoring are all important means of avoiding potentially irreversible visual loss and systemic complications. We report a case where early use of aggressive treatment to manage a post-strabismus surgery infection led to a good outcome.

Introduction

Strabismus is common in children,[1] affecting about 3%.[2] Orbital cellulitis is uncommon after strabismus surgery.[3] To the best of our knowledge, there have been fewer than 10 reported cases,[3-9] with a variety of outcomes. Having a high index of suspicion and urgent and aggressive intervention are important, as this condition may lead to sight- and life-threatening complications. We report a case where early use of aggressive treatment to manage post-strabismus surgery infection led to a good outcome.

Case report

A 5-year-old Pakistani boy underwent strabismus surgery for a "V" pattern, intermittent alternating convergent squint and right inferior oblique overactivity in September 2007. Preoperatively, his best-corrected visual acuity was 20/20 for both eyes and he was in good health.

The patient underwent a 7-mm bilateral medial rectus recession and right inferior oblique recession through an inferotemporal fornix approach. The fornix incision was closed using 8 o'vicryl stitches. There were no intra-operative complications. On the first postoperative day, mild congestion was noted and both eyes were straight. The patient was discharged home on gutt Maxitrol (Alcon, Puur, Belgium), which consists of gutt dexamethasone 0.1%, neomycin sulfate, polymyxin B sulfate (Maxitrol), four times per day.

He returned on the second postoperative day to the accident and emergency department, complaining of right eye pain and swelling. A physical examination revealed a swollen right eye with tenderness, erythema, an increase in temperature and yellowish purulent discharge (Fig 1). He was unable to open his right eye voluntarily. No gross right proptosis was noted. His visual acuity and extraocular movements could not be tested because of severe pain. He had intense chemosis and conjunctival injection and normal intra-ocular pressures measured by digital pressure. He had no afferent papillary defects and his papillary reactions were normal. The fundal examination was unremarkable. His body temperature was 37.9ºC. A full blood count showed a leukocytosis of 12.4 x 10^9 g/dL, predominantly neutrophils. His serum C-reactive protein concentration was elevated. Blood cultures were negative and no other focus of infection was found. There were no abnormalities in his left eye.

Key words
Cellulitis; Orbital diseases; Postoperative complications; Strabismus

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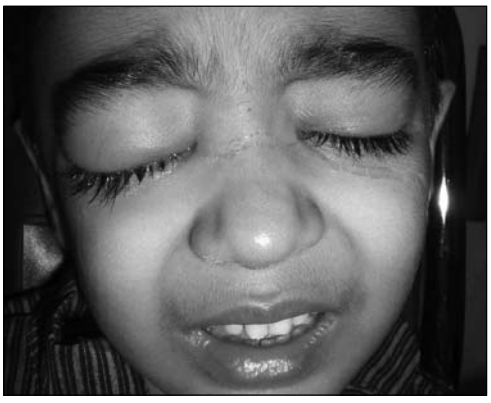

FIG 1. The right eye was severely swollen with tenderness, erythema, an increase in temperature and yellowish purulent discharge

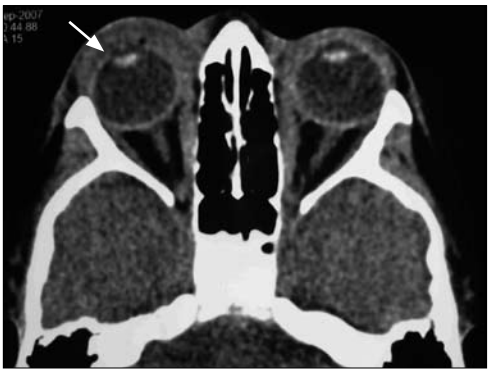

FIG 2. Computed tomographic scanning revealed a thickened anterior part of the right globe (arrow) and the absence of a retrobulbar pus collection or haemorrhage. The optic nerve was not displaced

斜視手術後的罕見併發症

斜視手術後很少出現眼眶蜂窩組織炎。直至目前，文獻只記載少於10宗病例。眼眶蜂窩組織炎可能導致失明，甚至有生命危險。要避免這種不能逆轉的失明病及系統性併發症，醫生應盡量提高警覺，使用跨學科及積極治療的方法，及早診斷和密切監察病人。本文報告一宗及早使用積極治療方法，成功醫治斜視手術後的感染個案。

Emergency computed tomographic scanning showed diffuse soft tissue swelling in the right periorbital and maxillary area, but no retrobulbar pus collection or haemorrhage. The optic nerve was not displaced (Fig 2). A conjunctival swab grew *Staphylococcus aureus*.

The patient was started on intravenous cloxacillin 500 mg 6 hourly, metronidazole 120 mg 8 hourly and cefotaxime 850 mg 8 hourly, with ofloxacin ointment (Tarivid, Santen, Daiichi, Japan) and topical timoptol (Timolol maleate, Santen, Tampere, Finland) to the right eye. Oral codeine 2.5 mL was also administered 6 hourly for analgesia. He was monitored closely for afferent papillary reactions and proptosis. His fever subsided on the second day of treatment and the swelling began to decrease on the third day. The intravenous antibiotics were continued for 10 days, then replaced with oral flucloxacillin 500 mg four times daily for 4 more days. The right eye swelling had subsided completely after 1 week. He was afebrile from the second day and his white cell count and C-reactive protein levels decreased markedly. His right eye pain decreased and he had regained full motility by the third day of treatment. When followed up 4 weeks postoperatively, his eyes were straight and he had a visual acuity of 20/20 bilaterally.

Discussion

Periocular infection is uncommon after squint surgery, with an estimated incidence of 1/1000 to 1/1900.[3] Fewer than 10 cases of orbital cellulitis following strabismus surgery have been reported.[3-9] Orbital cellulitis in childhood is rare and is usually secondary to sinusitis or osteomyelitis. A high index of suspicion and early, aggressive intervention are important as this condition may lead to permanent visual loss.[9] The blindness caused by orbital cellulitis is a result of compartment syndrome developing when the blood supply to the optic nerve is interrupted by severe oedema at the orbital apex. Moreover, in these young patients, orbital cellulitis may lead to life-threatening systemic complications like a cavernous sinus thrombosis, meningitis or a subperiosteal abscess. Intra-operative contamination, self-contamination after surgery, and concomitant sinus disease are possible sources of infection after strabismus surgery.[7] The most common organisms found in conjunctival cultures are staphylococci and streptococci.[5,7] In many other cases the source of infection is unknown. Most patients develop symptoms between 48 and 72 hours postoperatively. Since most patients having strabismus surgery are discharged on the first postoperative day, their parents should be warned and alerted to the symptoms and signs of this rare but serious complication.

It can be difficult to differentiate between preseptal cellulitis and orbital cellulitis in their early stages. Signs including proptosis, limited extraocular motility, decreased visual acuity, and an afferent papillary defect are more suggestive of involvement posterior to the orbital septum. In our case, the patient did not have prominent proptosis when first examined, and his extraocular motility and visual acuity could not be tested. Though preseptal cellulitis can be a differential diagnosis, it was best to treat this patient more aggressively using intravenous antibiotics in order to prevent rapid deterioration. Without proper treatment, preseptal cellulitis may develop into the more serious complication, orbital cellulitis.

In conclusion, orbital cellulitis is a rarely reported but potentially sight- and life-threatening condition after strabismus surgery. Use of a multidisciplinary approach, early diagnosis, aggressive treatment, and close monitoring are important means of avoiding potentially irreversible visual loss and systemic complications.

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