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Footnotes and Disclosure

The authors have no proprietary or commercial interest in any materials discussed in this article.

Capnocytophaga sputigena as a cause of severe orbital cellulitis and subperiosteal abscess in a child

Orbital cellulitis is an infection of the soft tissues lying behind the orbital septum. The etiologic agents differ across age group, but gram-positive cocci colonizing the skin and the nasopharynx, such as *Staphylococcus* and *Streptococcus* species, are most commonly identified in children. *Haemophilus influenzae*, a gram-negative facultative anaerobe, was frequently identified before the introduction of the Haemophilus vaccine in 1985. We report the case of a 15-year-old man who presented with a severe orbital cellulitis complicated by a subperiosteal abscess (SPA) secondary to *Capnocytophaga sputigena*.

A 15-year-old man presented with a 1-week history of fever and right periorbital swelling and erythema. The patient reported a general feeling of discomfort, headaches, and diplopia with both upward and downward gaze. He denied any recent travel, or orbital trauma, but had an upper respiratory tract infection preceding the onset of symptoms. His medical history was significant for an attention-deficit/hyperactivity disorder, and his immunization status was up-to-date. He had no known medication allergy and had not been treated with antibiotics before presentation.

On examination, the patient was febrile at 38.2°C, and visual acuity was 20/60 in the right eye and 20/20 in the left eye. Pupils were round and reactive to light, and there was no afferent pupillary deficit. The right eye showed motility restriction in upgaze and downgaze, moderate chemosis, and a 9-mm proptosis. The remainder of the examination was otherwise normal. At this stage, the blurred vision in the right eye was attributed to chemosis and pooling of tears. A computed tomography scan revealed a right-sided pansinusitis involving predominantly the ethmoid and maxillary sinuses. The adjoining orbit showed soft tissue stranding and a subperiosteal gas-containing fluid collection measuring 41 mm in anteroposterior dimension and 10 mm in thickness along the floor of the orbit (Fig. 1). The patient was diagnosed with a right orbital cellulitis complicated by an SPA. The presence of gas within the abscess was suspicious for a more aggressive anaerobic infection. Other laboratory tests included a normal white blood cell count of 7.7×10^9/L (reference range 4–10.5), an elevated erythrocyte sedimentation rate of 25 mm/hour (reference range

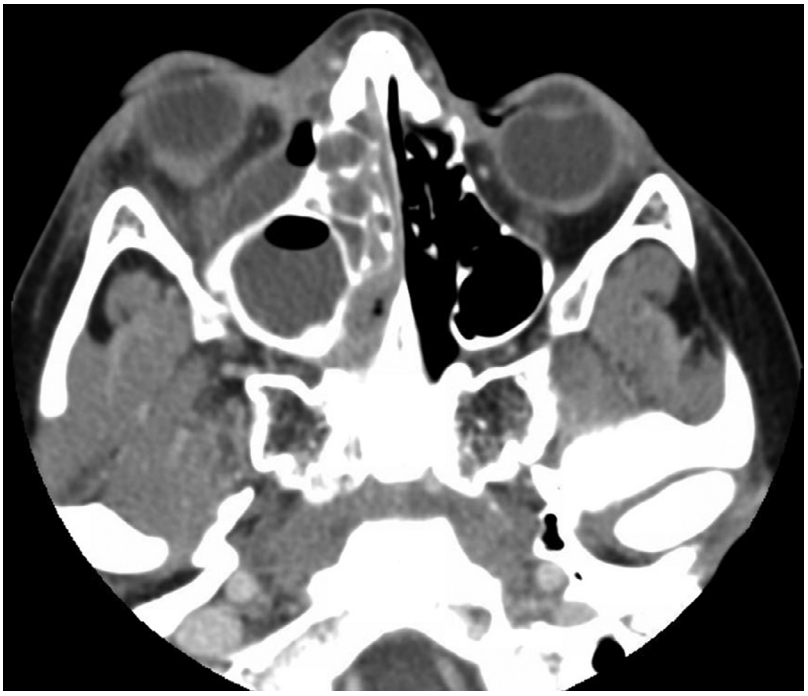

Fig. 1—A computed tomography scan showing a large, gas-containing inferomedial subperiosteal abscess, associated with a right-sided pansinusitis and orbital cellulitis.

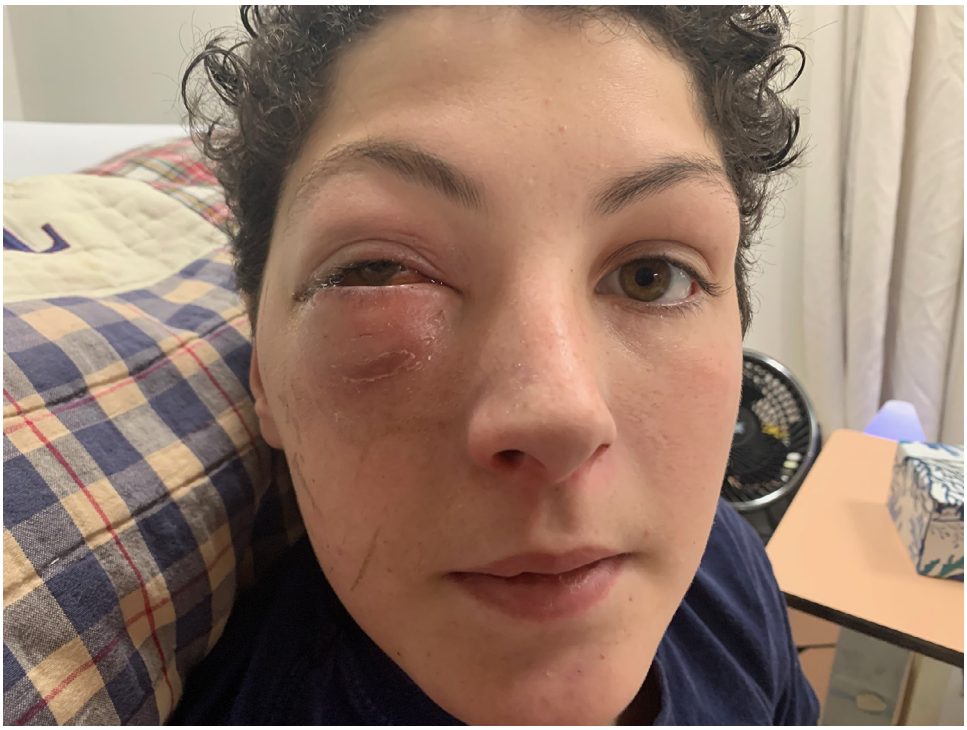

Fig. 2—Clinical photograph showing severe periorbital swelling, chemosis, and hypertropia.

1—10), and an elevated C-reactive protein level of 117 mg/L (reference range 0—5).

The patient was admitted to the hospital and treated with intravenous ceftriaxone, cloxacillin, and metronidazole. Although methicillin-resistant *Staphylococcus aureus* is a growing concern among children presenting with orbital cellulitis, our patient presented no risk factor for such infection. He also received nasal saline and oxymetazoline sprays to promote drainage of the sinuses, but the orbital signs continued to worsen during the first 24 hours of treatment (Fig. 2). The right eye developed a complete ophthalmoplegia, and visual acuity decreased to 20/120. The patient was brought to the operative room for maxillary antrostomy and lavage and drainage of the orbital SPA via a swinging eyelid approach. A culture from the SPA showed massive growth of a beta-lactamase-producing strain of C. *sputigena*. Postoperatively, the patient received oral prednisone in dosages of 50 mg once daily for 3 days as well as intravenous antibiotics. He showed significant improvement during the ensuing days. He was discharged after 9 days of parenteral therapy and was prescribed oral amoxicillin-clavulanic acid for a total of 4 weeks. At the 1-month follow-up visit, visual acuity was restored to 20/20 in both eyes and extraocular movements were full.

Orbital cellulitis is uncommon in children, with an estimated incidence of 1.6 cases per 100 000 individuals.[1] In most cases, it is the result of direct spread of bacterial infection from periorbital structures. Paranasal sinusitis and upper respiratory tract infection are among the most important risk factors, especially when the ethmoid and maxillary sinuses are involved. Orbital cellulitis can also be caused by hematogenous spread from bacteremia or direct inoculation.

Capnocytophaga is a genus within the family Flavobacteriaceae. It includes different species of slow-growing gram-negative bacilli that are often considered as opportunistic pathogens. These capnophilic bacteria are facultative anaerobes, and they can be further classified according to their host preference. C. *sputigena*, C. *gingivalis*, C. *ochracea*, C. *leadbetteri*, C. *granulosa*, and C. *haemolytica* are part of the normal oral flora of humans, whereas C. *canimorsus*, C. *canis*, C. *stomatis*, and C. *cynodegmi* colonize the oral cavity of dogs and cats. C. *canimorsus* is responsible for most cases of infection in humans, with immunosuppression and animal-related injuries being the most common risk factors. C. *sputigena* rarely causes infection in the general population, but it can be responsible for periodontal diseases. The involvement of this bacterium in eye infections is very sporadic, with only a few case reports of keratitis.[2,3] This report is the first to describe a case of pediatric orbital cellulitis with SPA caused by C. *sputigena*.

Orbital cellulitis can usually be managed medically with a combination of IV antibiotics and nasal sprays. Adjunctive treatment with systemic corticosteroids has recently been proven safe and effective. IV dexamethasone (0.3 mg/kg/d every 6 hours for 3 days) given on admission has been shown to decrease the length of hospital stay without significant adverse effects.[4]

SPA formation is a known complication of orbital cellulitis. Current guidelines recommend the consideration of surgical intervention if any of the following criteria are met:

age greater than 9 years, presence of frontal sinusitis, large or nonmedial SPA, suspicion of anaerobic infection, recurrence of the SPA after previous drainage, evidence of chronic sinusitis, acute optic nerve or retinal compromise, or infection of dental origin.[5] Our 15-year-old patient presented with an orbital cellulitis most likely secondary to ipsilateral ethmoid and maxillary sinusitis. The infection was initially unresponsive to medical treatment, and orbital imaging revealed an atypically large, gas-containing inferomedial SPA—features strongly suggestive of an atypical bacterial infection—that justified surgical intervention. This case highlights the importance of multidisciplinary care to achieve an optimal clinical outcome.

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Infliximab for management of severe refractory posterior scleritis in a 9-year-old boy

Posterior scleritis (PS) is a chronic inflammatory condition of the sclera posterior to the rectus muscle insertions. PS predominantly affects adult women and is rare in children.[1,2] Adult form of PS is typically associated with autoimmune systemic diseases; however, pediatric PS is mostly idiopathic with no known underlying conditions.[2–4] The initial presentation of PS in children is nonspecific with painful red eye, potential vision loss, light sensitivity, and eye movement restriction, which make the diagnosis difficult.[2–4]

The current recommended treatment for mild PS is oral nonsteroidal anti-inflammatory drugs (NSAIDs); however, steroids and steroid-sparing immunosuppressive treatment are required for more severe cases.[5,6] In adult PS refractory to standard immunomodulatory agent, antitumour necrosis factor agents such as infliximab have shown good disease control.[7,8] There are few case reports of pediatric PS, most of which have resolved using 2 or more immunosuppressive agents.[2,3] Here, we present a 9-year follow-up study of a patient with pediatric PS with a history of multiple flare-ups while on oral steroids, methotrexate, and mycophenolate, who achieved resolution using infliximab and maintained remission after cessation of treatment. Our case represents only the second case report of infliximab use in paediatric PS.

We present a patient with childhood-onset PS. Written consent was obtained from the patient guardian. The data on patient's electronic chart, including history, systemic and ocular findings, laboratory results, investigations, and treatment, were reviewed.

A 9-year-old boy with a history of asthma, sickle cell trait, and no significant birth history presented with a 4-day history of fever, left eye pain and swelling, foreign body sensation, and tearing. Eye examination showed unilateral decreased visual acuity (right and left eyes 0.1 and 0.7 logMAR, respectively) with equal, round, and reactive pupils to light. There was pain with restriction of ocular motility in the left eye and 3 mm of proptosis, periorbital swelling and injected conjunctiva. Dilated fundus examination showed left optic nerve edema (Fig. 1A). The laboratory results showed leukocytosis with increased neutrophils. After a diagnosis of presumptive orbital cellulitis, he was started on intravenous (IV) cefotaxime, cloxacillin, and clindamycin. Computerized tomography (CT) scan showed diffuse scleral thickening of the left eye associated with swelling of the lateral pre- and postseptal soft tissues extending into retrobulbar fat and surrounding the distal optic nerve. Three days of treatment did not achieve clinical improvement, and a new finding of anterior uveitis was noted. Repeat CT scan showed worsening of the orbital signs more indicative of inflammatory disease rather than orbital cellulitis. An ultrasound B-scan confirmed the characteristic T sign of scleritis (Fig. 1B), and a diagnosis of