

Infratemporal fossa abscess: complication of maxillary sinusitis

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Abstract

This is a case report of a child presenting with a left-sided facial swelling with a perimaxillary infratemporal fossa abscess and maxillary sinusitis of the same side. The patient was treated by incision and drainage via a sublabial approach.

Key words: Child; Sinusitis; Neck; Abscess

Introduction

Complications of acute sinusitis in children are more common than in the adult.¹ The ethmoid sinus is most commonly affected with complications including pre-septal cellulitis, post-septal cellulitis, orbital cellulitis. Other complications include mucocoeles, osteomyelitis of the frontal bone and maxilla as well as intracranial complications including meningitis, intracranial abscess and cavernous sinus thrombosis. There is no case report of acute sinusitis causing infratemporal space abscess in the literature to date.

Case report

An 11-year-old boy presented to the Otolaryngology department with a three-day history of fever associated with headache, vomiting and a left-sided swelling on his face. There was no significant past medical history.

On examination he was pyrexial and had a left-sided periorbital swelling. The eye movements, visual acuity and colour vision were normal in both eyes. There was no proptosis. There was marked trismus. Anterior rhinoscopy showed marked swelling of the left inferior turbinate with pus coming from the middle meatus. There was complete left-sided nasal obstruction. The tonsils were normal in size and position. There was a tender swelling on the left side of the face, which was more pronounced in the infrazygomatic region. Left submandibular lymphadenopathy was noted.

Haematological investigations revealed a polymorphonuclear leucocytosis and a raised C-reactive protein measurement (CRP) of 153. Following multidisciplinary assessment including otolaryngologists, paediatricians and maxillofacial surgeons, treatment was started with intravenous broad-spectrum antibiotics cefuroxime and metronidazole. Dental infection was excluded.

A computed tomography (CT) scan of the paranasal sinuses showed opacity of the left maxillary sinus and an enhancing soft tissue dense opacity overlying the left maxilla and filling the fat space deep to the temporalis muscle (Figure 1). The features were suggestive of left maxillary sinusitis and abscess formation in the

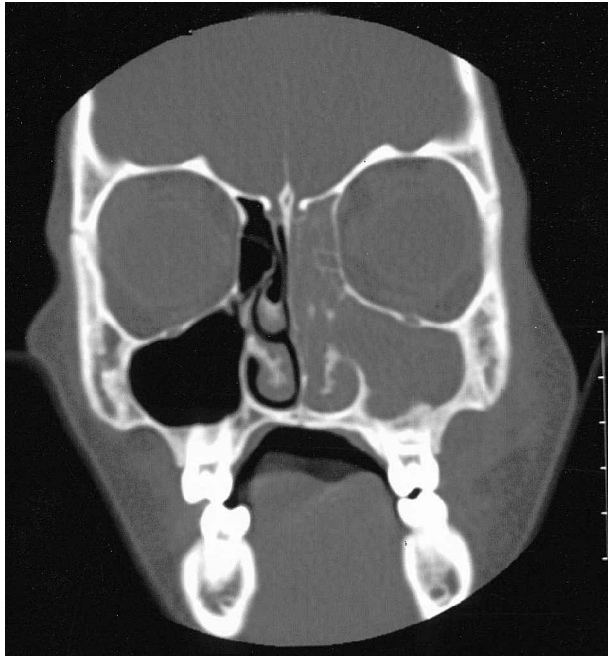
perimaxillary infratemporal space. Examination under general anaesthesia identified an abscess in the left infratemporal space. There was swelling at the lateral aspect of the gingivo-labial groove. Thirty mls of pus was aspirated and the specimen sent to microbiology for culture and sensitivity. An incision was made at the site of needle puncture and, following a sublabial approach, a cavity was palpated extending up to the lateral pterygoid plate.

The post-operative period was uneventful and the patient was discharged two days after the operation with oral co-amoxiclav. He was prescribed oral antibiotics for six weeks to prevent osteomyelitis of the maxilla and palatine bone. The microbiology investigation failed to identify the causative organism for the abscess. On review in the clinics three months following the operation, he was found to be asymptomatic. No further follow up was arranged.

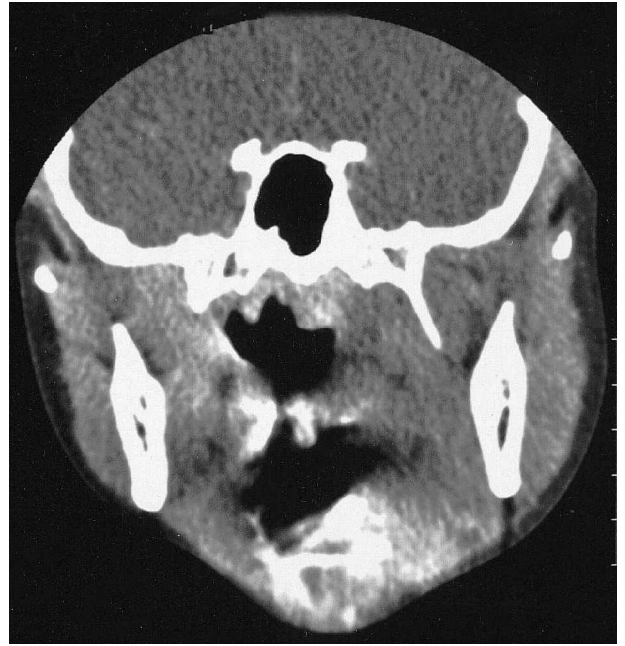
Discussion

Acute paranasal sinusitis is an uncommon condition in children. Because of the development of sinuses, sinusitis is unlikely to be a clinical problem before the age of two to three years.² The major precipitating factor in the development of acute sinusitis is a viral upper respiratory tract infection (URTI). On average, children contract three to six viral URIs per year and approximately 0.5 per cent of all viral URIs predispose to acute bacterial rhinosinusitis (ABRS).³ *Streptococcus milleri* deserves specific comment. It is a micro-aerophilic anaerobe commensal of the upper respiratory tract and a potential causative agent of significant morbidity. The paranasal sinuses are the most commonly affected sites for this organism in the head and neck (37 per cent)⁴ and it can also give rise to complications by spreading to adjacent areas from primary sinus infections (56 per cent).

Acute sinusitis may often be associated with complications, and, in children, the complications of acute sinus infections occur more frequently than among the adult population.¹



(a)



(b)

FIG. 1

CT scans of the paranasal sinuses (a) and (b) showing opacity of the left nasal cavity and maxillary sinus with enhancing soft tissue swelling over the left maxilla and filling the fat space deep to the temporalis muscle.

- A child presented with left-sided facial swelling, maxillary sinusitis and an infratemporal fossa abscess. The treatment is discussed
- It is the authors' contention that an infratemporal fossa abscess in association with acute maxillary sinusitis has not been previously reported but no search strategy is presented to confirm this claim

The local spread of infection from the maxillary sinus occurs by erosion or displacement of the two thinnest areas of the sinus wall, namely the canine fossa and the floor of the orbit through, or close to, the canal or groove of the infraorbital nerve.² Other factors favouring local spread of infection in children are the thin bony septa of the sinus wall, the large vascular foramina and more porous bones with open suture lines.¹

Infections from a dental source are most commonly reported with infratemporal space abscesses⁵ and infections at this site may also follow trauma secondary to the fracture of the posterior wall of the maxillary sinus, even some years after the facial fracture.⁶

Although rare, it is important to remember the possibility of this complication from acute maxillary sinusitis. CT scanning is the most helpful method of investigation for diagnosis as it will show loss of the fat planes in the infratemporal fossa.⁷ Delay in diagnosis and treatment can lead to spread of infection superiorly to the base of the skull or inferiorly into the deep tissue spaces of the neck. Spread may also occur into the submasseteric space. If the abscess involves the contents of the

infratemporal fossa, neurosensory deficit affecting the maxillary and the mandibular division of the trigeminal nerves can also occur.⁷

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Mr N. Raghava takes responsibility for the integrity of the content of the paper.

Competing interests: None declared