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Case Report

A case of acute clival osteomyelitis in a 7-year-old boy secondary to infection of a Thornwaldt cyst

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ABSTRACT

Clival osteomyelitis is a potentially life-threatening infection that can occur in healthy children. It can be related to congenital anomalies. We report the case of a 7-year-old boy with *Streptococcus intermedius* and *Fusobacterium* clival osteomyelitis arising from a Thornwaldt cyst situated in a *fossa navicularis magna* of the occipital bone. Multidisciplinary management is necessary to ensure rapid improvement and complete healing.

1. Case report

A 7-year-old boy was brought to the Amiens University Hospital Emergency Department in France with acute febrile left torticollis.

He had a history of headache for 3–4 weeks refractory to paracetamol.

The boy complained of severe headache and was unable to fully extend his neck. He had a rectal temperature of 39 °C. Physical examination including neurological assessment was unremarkable apart from pain on lateral flexion and extension of the neck. In particular, there were no signs of meningismus and no cervical lymph nodes. More, the oropharyngeal examination was not significant apart from the pain while performing the examination.

Serum C-reactive protein (CRP) was 31 mg/l and complete blood count showed 13,400 neutrophils/mm^3.

Medical imaging including head CT scan and MRI showed clival osteomyelitis associated with retropharyngeal abscess and C1-C2 epiduritis [Figs. 1 and 2].

Endoscopic examination under general anaesthesia in the ENT operating room showed a global inflammatory smooth submucosal mass in the posterior nasopharynx and transnasal aspiration of the abscess was performed immediately, producing 10 cm^3 of clear fluid, while subsequent aspirations produced 10 cm^3 of pus.

Empirical antibiotic therapy with a combination of cefotaxime, metronidazole and gentamicin was initiated immediately after aspiration and the patient was admitted to the Neuropaediatrics Department for management and follow-up.

Fever permanently resolved 24 hours after aspiration and initiation of antibiotic therapy, but headache persisted for 7–10 days requiring treatment with paracetamol and weak opioid.

Intravenous cefotaxime, metronidazole and gentamicin were continued for 7 days until the final microbiology results of pus culture revealed *Streptococcus intermedius*. The isolate, identified by means of matrix-assisted laser desorption ionisation-time of flight mass spectrometry (MALDI-TOF MS; Bruker Daltonik GmbH, Germany; MALDI Biotyper 2.2), was associated with a broad range of anaerobic flora including *Fusobacterium* spp. Susceptibility testing of the *S. intermedius* strain showed a wild-type profile susceptible

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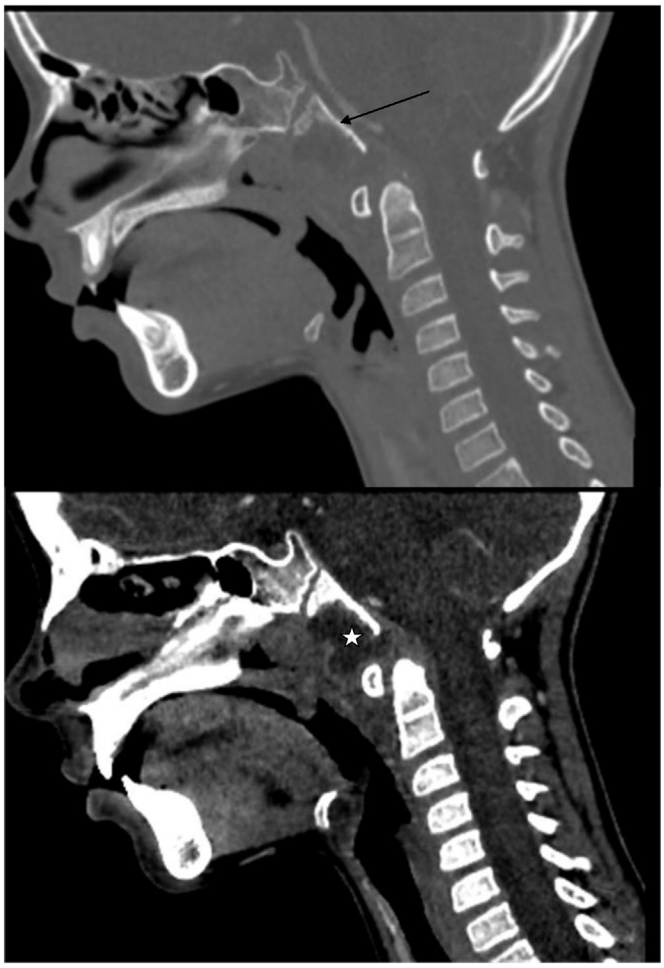

Fig. 1. Initial imaging. CT scan, sagittal view showing osteolysis (bone window CT scan) [black arrow] and retropharyngeal abscess [*].

to beta-lactam antibiotics, aminoglycosides, macrolides and clindamycin. Analysis of the fluid was compatible with serous exudate.

Subsequent management consisted of intravenous amoxicillin with clavulanic acid for 14 days. Follow-up CT scans were performed on D7 and D21 just before hospital discharge. On D21, CT scan showed complete healing of the abscess.

The length of hospital stay was 25 days.

Oral antibiotic therapy with pristinamycin was prescribed after discharge from hospital.

Nasal endoscopy performed at the one-month follow-up and the three-month follow-up in the ENT outpatients department showed a normal rhinopharynx.

The three-month follow-up CT scan was considered to be normal and oral antibiotic therapy was stopped [Fig. 3].

At the six-month follow-up visit, the patient was in good health with no sequelae.

2. Discussion

Clival osteomyelitis is a rare but potentially life-threatening infection, particularly in children. The clinical presentation may appear to be minor compared to the potential severity of this infection. The main clinical symptom is febrile torticollis (usually secondary to a history of ENT infection for several days to weeks) with only slightly abnormal laboratory parameters (in this case, serum CRP was only 31 mg/l with 13,400 neutrophils/mm^3) [1–3].

Three cases of clival osteomyelitis have been reported in the literature (Pubmed and Science Direct search using clivus, skull base, osteomyelitis, Thornwaldt cyst and *Fossa Navicularis Magna* as key-words).

In 2005, Rusconi reported the case of a 6-year-old girl with clival osteomyelitis secondary to retropharyngeal abscess. Culture of pus swabbed from the abscess contents grew *Enterococcus faecium* [1]. Bates, in 2006, reported the case of a 3-year-old girl with clival abscess, also secondary to retropharyngeal abscess. Culture of the adenoid tissue grew an α-haemolytic *Streptococcus*, and culture of swabs of the abscess contents grew *Peptostreptococcus* species [2].

The first case of clival osteomyelitis resulting from spread of

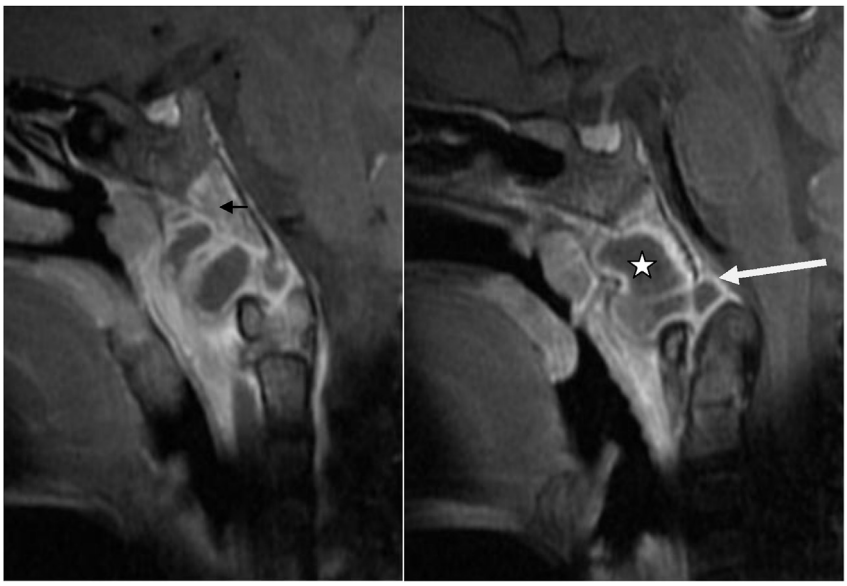

Fig. 2. Initial imaging. RMI in sagittal view showing the osteomyelitis [black arrowhead], the retropharyngeal abscess [*] and the anterior epiduritis between C1, C2 and the occipital bone [white arrow].