

Condylar osteomyelitis: A case report of a rare complication of maxillary dental extraction

ABSTRACT

Condylar osteomyelitis is a long-standing infection of the condylar head of the mandible. The chronic progression of this disease can lead to the destruction of surrounding bony structures and can ultimately affect function. Currently, in English Literature, there have been few cases published on condylar osteomyelitis. Interestingly, regardless of proximity, there have only been two other reported cases of condylar osteomyelitis subsequent to extractions of the upper maxillary third molar. We report a case of a 27-year-old female who presented with an acute episode of condylar osteomyelitis after a simple extraction of an upper left third molar. Several courses of antibiotics did not alleviate her severe trismus, paresthesia, or extensive preauricular collection. Three surgical interventions showed negative growth on numerous swabs. However, CT scans and an MRI confirmed extensive osteomyelitis along the left head, neck, and the angle of the mandible. Following inpatient IV antibiotics, the patient was discharged with a PICC line to allow for long-term treatment. An improvement in function, pain, and swelling was seen on discharge. However, due to the nature of this disease she was monitored for 2 years and due to joint collapse has been listed for alloplastic replacement.

Keywords: Abscess, condylar, dental, extraction, osteomyelitis, TMJ

INTRODUCTION

Condylar osteomyelitis is a rare chronic infection of the mandibular head. Progression can lead to the destruction and functional compromise of the TMJ, mandible, and surrounding structures. Despite anatomical proximity, condylar osteomyelitis following extractions of the upper maxillary third molar has rarely been reported.^[1-3] This report aims to raise awareness of the possibility of osteomyelitis following dental extraction.

CASE REPORT

A 27-year-old female pharmacist presented with progressive left-sided facial swelling following a simple upper left third molar extraction. Initial presentation to her general dental practitioner (GDP) 12 days prior to attendance required a course of metronidazole and amoxicillin with no improvement. On presentation, her symptoms included a 1 mm trismus, paresthesia of the left preauricular region, and general malaise.

She had a firm tender swelling extending from the left preauricular region to the lower border of the mandible, with no obvious collection [Figure 1]. Computed tomography (CT) showed a large retro-maxillary collection, extending into the infratemporal fossa, from the upper left third molar extraction site [Figure 2]. Intra-oral incision and drainage under general anesthesia reduced the swelling and the patient was discharged.

OLIVER DUGENA, ANDREW SIDEBOTTOM¹

Oral and Maxillofacial Senior House Surgeon, Queens Medical Centre, Derby Road, Lenton, Nottingham NG72UH, ¹Oral and Maxillofacial Surgeon, Spire Nottingham Hospital, Tollerton Lane, Nottingham, UK


Address for correspondence: Dr. Oliver Dugena, Queens Medical Centre, Derby Road, Lenton, Nottingham NG72UH, UK.
E-mail: oliverdugenadr@gmail.com

Received: 29 October 2022, **Revised:** 09 January 2023, **Accepted:** 06 March 2023, **Published:** 19 March 2024

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Dugena O, Sidebottom A. Condylar osteomyelitis: A case report of a rare complication of maxillary dental extraction. *Natl J Maxillofac Surg* 2024;15:154-6.

Access this article online	
Website: www.njms.in	Quick Response Code 
DOI: 10.4103/njms.njms_189_22	

She represented four days later with severe pain and increasing left facial swelling. A repeat CT showed that the left peri-mandibular abscess appeared smaller, and there was some bone irregularity at the angle of the mandible consistent with osteomyelitis with the spread of infection into the infratemporal fossa. A preauricular approach accessed the infratemporal fossa to drain the abscess cavity and a further intra-oral incision drained the sub-masseteric space. Microbiology advised intravenous cefuroxime with metronidazole (although no specific culture was obtained) and the patient was discharged after symptomatic improvement.

Worsening pain, new hearing loss, and 5 mm trismus caused her to re-present 3 days later. Exploration of left fascial spaces did not reveal any deep-seated pus despite ongoing discharge from the incision site. The trismus did not improve intra-operatively. IV tazobactam and mandibular exercises yielded minimal improvement. Magnetic resonance imaging (MRI) confirmed the provisional diagnosis of condylar osteomyelitis in the left head, condyle, and ramus of the mandible [Figure 3].

Delayed cultures from the second incision and drainage grew *Streptococcus milleri*. Microbiology advised 1 g of penicillin and 600 mg of clindamycin four times daily. Following improvement, a peripherally inserted central catheter (PICC) line was placed allowing her to self-administer six weeks of antibiotics at home. She has been monitored for 4 years and due to joint collapse has been listed for alloplastic replacement.

DISCUSSION

Osteomyelitis is a chronic bone infection. Involvement of the condyle is rare with no established antibiotic regimen cited.^[1,3] This case illustrates a rare complication following *maxillary* tooth extraction and represents the resistant nature of this condition. Following a full Medline literature search, the primary causes were attributed to ear infections or secondary to the removal of mandibular third molars.^[1] The passive bony spread has been attributed to why the mandibular region is more frequently involved in comparison with the maxillary molar region, despite proximity to the condyle.^[1-3] Misdiagnosis may account for the rarity of publications.^[3]

CT and MRI complement each other to evaluate bone marrow, soft tissue, and hard tissue changes.^[4] The first CT showed a collection spreading from the extraction site into the left retro-maxillary space and infratemporal fossa [Figure 2]. Both



Figure 1: Clinical photograph of the patient on the first presentation with left-sided facial swelling



Figure 2: Axial slice of the CT scan on the first presentation showing breach through the buccal cortex of the upper left third molar. Evidence of collection in the infratemporal space with masseteric hypertrophy

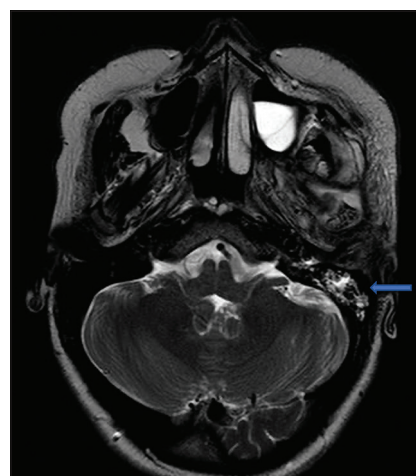


Figure 3: Axial view of a T2 MRI scan with contrast showing the condyle with erosive pitting, reinforcing condylar osteomyelitis as a diagnosis

the CT and MRI show signs of osteomyelitis involving the condyle, body, and angle of the mandible [Figure 3]. A direct

spread from the extraction socket into the condylar head can be tracked and seen [Figure 2].

Condylar osteomyelitis has different infectious etiologies and is usually polymicrobial. Many cases are culture-negative leaving empiric broad-spectrum antibiotics as first-line treatment with varying success.^[1-3,5] *Streptococcus milleri* was cultured in this case after three initial negative swabs, highlighting the difficulty of pathogen isolation in these infections. Microbiology advised 1.2 g IV benzylpenicillin and 600 mg oral clindamycin four times daily. The current literature does not suggest a specific regime, although most cases are treated with antibiotics targeting a similar spectrum of bacteria.^[1,2] Antibiotic use, surgical debridement, joint immobilization and condylectomies have been the mainstay in the treatment.^[1,3,6-8] Cheng *et al.*^[9] reported the successful use of bisphosphonate treatment in 2020.

Ultimately the use of long-term-at-home antibiotics through a PICC line was curative and reconstruction following the resolution of the infection should consider alloplastic replacement where joint collapse has occurred.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

The research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Chattopadhyay PK, Nagori SA, Menon RP, Thaneermalai B. Osteomyelitis of the mandibular condyle: A report of 2 cases with review of the literature. *J Oral Maxillofac Surg* 2017;75:322–35.
2. Zemann W, Feichtinger M, Pau M, Karcher H. Primary osteomyelitis of the mandibular condyle—a rare case. *Oral Maxillofac Surg* 2011;15:109–11.
3. Gams K, Freeman P. Temporomandibular joint septic arthritis and mandibular osteomyelitis arising from an odontogenic infection: A case report and review of the literature. *J Oral Maxillofac Surg* 2016;74:754–63.
4. An CH, An SY, Choi BR, Huh KH, Heo MS, Yi WJ, *et al.* Hard and soft tissue changes of osteomyelitis of the jaws on CT images. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2012;114:118–26.
5. Kim SG, Jang HS. Treatment of chronic osteomyelitis in Korea. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2001;92:394–8.
6. Coviello V, Stevens MR. Contemporary concepts in the treatment of chronic osteomyelitis. *Oral Maxillofac Surg Clin North Am* 2007;19:523–34.
7. Baltensperger M, Atz KG, Bruder E, Lebeda R, Makek M, Eyrich G. Is primary chronic osteomyelitis a uniform disease? Proposal of a classification based on a retrospective analysis of patients treated in the past 30 years. *J Craniomaxillofac Surg* 2004;32:43–50.
8. Hudson JW. Osteomyelitis of the jaws: A 50-year perspective. *J Oral Maxillofac Surg* 1993;51:1294–301.
9. Cheng H, Wali R, Sproat C, Patel V. Secondary chronic osteomyelitis of the mandible: A resistant disease successfully treated with bisphosphonate therapy. *Oral Surg* 2020. doi: 10.1111/ors. 12578.