



Accidental Finding of Dead Bone (Sequestrum) in Multiple Periodontal Abscess Suggesting Localized Osteomyelitis Lesions: A Rare Case Report

Manish Ashtankar^{1*}, Mala Dixit Baburaj², Sandeep Pimpale³, Ashok Bhansali⁴ and Abhishek Singh⁵

¹MDS, Department of Periodontics and Implantologist, Nair Hospital and Dental College, Mumbai, India

²Professor and HOD, Department of Periodontics and Implantologist, Nair Hospital and Dental College, Mumbai, India

³Assistant Professor, Department of Periodontics and Implantologist, Nair Hospital and Dental College, Mumbai, India

⁴Assistant Professor, Department of Periodontics and Implantologist, Government Dental College and Hospital, Aurangabad, India

⁵II MDS Student, Department of Periodontics and Implantologist, Nair Hospital and Dental College, Mumbai, India

***Corresponding Author:** Manish Ashtankar, MDS, Department of Periodontics and Implantologist, Nair Hospital and Dental College, Mumbai, India.

Received: February 03, 2018; **Published:** March 27, 2018

Abstract

Periodontal abscess is common finding due to periodontitis or non-periodontitis related causes. Sequestrum formation in periodontal abscess is rare finding. We are presenting a rare case of an accidental finding of dead bone (sequestrum) in multiple periodontal abscesses suggesting localized osteomyelitis lesion in 34-year female patient presents with a history of recurrent swelling and pus discharge in the upper right side of jaw since 1 month. The treatment procedures and the outcomes are discussed in this article.

Keywords: Periodontal Abscess; Osteomyelitis Lesion (OM); Antibiotic Sensitivity Test; Dead Bone (Sequestrum)

Introduction

A Periodontal abscess (also termed lateral abscess [1], or parietal abscess) [1], is a localized collection of pus (i.e. an abscess) within the tissues of the periodontium.

It can be classified as acute or chronic and single or multiple. The most rational classification of periodontal abscesses is, however, the one based on its etiology. Depending on the cause of the acute infectious process, two types of abscesses may occur, periodontitis-related and non-periodontitis related [9].

Osteomyelitis of the jaws is defined by the presence of exposed bone in the mouth, which fails to heal after appropriate intervention [2]. It is an inflammation of bone cortex and marrow that develops in the jaw usually after a chronic infection [3-5].

It can be classified based on length of the time the inflammation present. Acute osteomyelitis is loosely defined as OM which has been present for less than one month and chronic osteomyelitis is the term used for when the condition lasts for more than one month [6].

Localized osteomyelitis can either be vertical, where a short segment of the body of the mandible from the alveolar crest to the lower border is involved or alveolar, where a segment of alveolar bone down to the level of the inferior alveolar canal will sequesterate, including the sockets of several teeth.

It is more common in the mandible than in maxilla because of difference in blood supply. There were only two reported cases found in PubMed suggesting incident of osteomyelitis lesion and periodontal abscess [10,11]. This article reports a case of a 34-year female present with multiple periodontal abscesses which turned out to be osteomyelitis lesion in the maxilla.

Case Report

A 34-year-old female reported to the Department of Periodontics and Oral Implantology, Nair Dental College and Hospital, Mumbai with the chief complaint of pus discharge, dull pain, mobile teeth and receded gums in upper right back teeth region since 1 month.

Past medical and dental history: Patient gave a history of swelling in the upper right back side of jaw 1 month ago with multiple draining sinuses and extraoral swelling in the same region. She also gave a history of high fever intermittently with malaise. In consultation with private practitioner, a patient was advised to take Amoxicillin 500 mg TDS and Metronidazole 400 mg TDS for 5 days. The swelling subsided after antibiotic treatment but pus discharge from sinus continued. Hence, the patient decided to consult Nair Dental Hospital.

Extraoral examination: No extraoral swelling was present. Cervical and submandibular lymph nodes were not palpable.

Intraoral examination: Clinically, intraoral examination revealed a periodontal abscess with multiple draining sinuses with respect to upper right back side of jaw (Figure 1). Deep periodontal pockets, gingival recession, and grade1 mobility were present with canine, first premolar, second premolar and first molar on the same side. Canine was in crossbite. Vitality test of canine, first and second premolar and first molar was positive.



Figure 1: Preoperative view of patient showing periodontal abscess with multiple draining sinuses.

Radiographic examination: Radiographic examination showed a horizontal bone loss with premolars and molars.

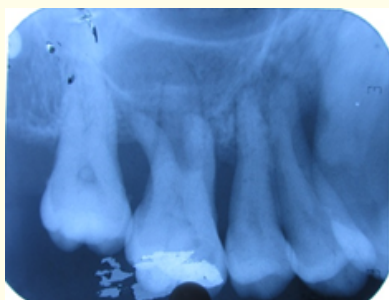


Figure 2: Preoperative IOPA.

Hematological tests: CBC, BT, CT values were within normal limits, except for a marginal rise in leukocyte count.

Provisional Diagnosis: Periodontal abscess with multiple draining sinuses.

Case Management

Antibiotic sensitivity test was done before phase 1 therapy.

Pus sample collection: An aspirate through draining sinuses was collected after disinfection by an antiseptic mouthwash, chlorhexidine with all precautions to reduce contamination with normal oral flora.

Phase I therapy: Scaling and root planing were performed to drain a periodontal abscess under a loading dose of Amoxicillin 1.0 g followed by a maintenance dose of 500 mg/t.i.d. for 3 days. A patient was then re-evaluated to determine if antibiotic therapy or dose adjustment was required.

Patient evaluation after three days showed regression in swelling but minimal pus discharge was still continued.

Antibiotic sensitivity test showed organisms were susceptible to third generation Ciprofloxacin and Metronidazole and intermediate to Amoxicillin. Hence, a combination of third generation ciprofloxacin and metronidazole, 500 mg each BD for 8 days was prescribed.

A patient was evaluated after 8 days of phase I therapy (Figure 3) shows operated site 8 days after phase I therapy. Periodontal abscess regressed completely with gingival recession and exposure of bone between canine and first premolar. A patient was advised to maintain oral hygiene. Due to the persistence of periodontal pockets after 3 weeks of phase 1 therapy, surgical intervention was planned.



Figure 3: After phase I therapy (8 days follow up).

Surgical phase: Under local anesthesia, buccal and palatal sulcular incisions were placed, a mucoperiosteal flap was reflected and debridement was completed. During debridement, a bony fragment measuring 15 mm x 5 mm was discovered along the root surface of first premolar and canine. It was considered as necrotic bone (Figure 4 and 5) this fragment was removed and sent for biopsy (Figure 5).



Figure 4: Surgical debridement.

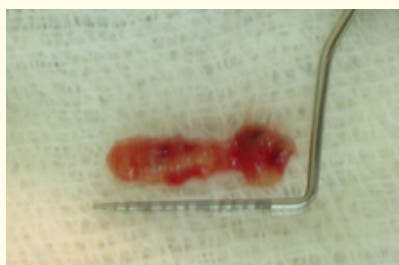


Figure 5: Dead bone (sequestrum).

After completion of debridement and removal of necrotic bone interrupted sutures were given (Figure 6), and periodontal pack (Figure 7) was placed. After 7 days sutures were removed. Healing was uneventful. Splinting was performed after suture removal to take care of increased mobility of first premolar and patients comfort (Figure 8).



Figure 6: Suture.



Figure 7: Periodontal dressing.



Figure 8: Postoperative view.

Histological examination: Hand E stained section showed bone tissue with empty lacunae. No osteoblastic rimming present (Figure 9).

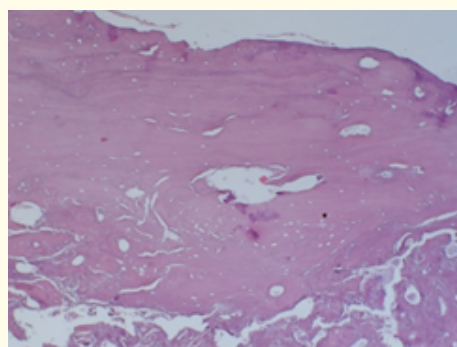


Figure 9: Hand E section showing dead Bone (sequestrum).

Final diagnosis: In view of these findings, final diagnosis localized osteomyelitis following chronic periodontal abscess was made.

Clinical outcome: Patient was recalled for regular follow-up after 3, 6 months. After 6 months of follow-up, there was no recurrence of lesion (Figure 10-12).



Figure 10: Postoperative view (3 month).



Figure 11: Postoperative view (6 month).

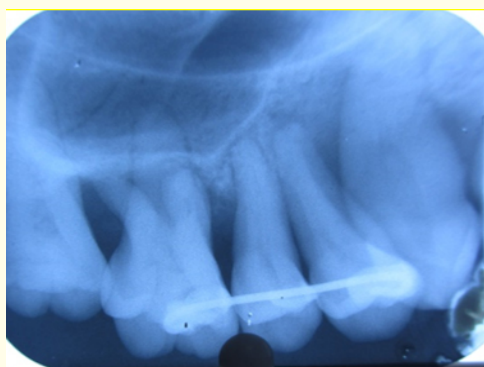


Figure 12: Preoperative IOPA (after 6 month).

Discussion

Most periapical and periodontal infections are isolated by the body which produces a protective pyogenic membrane or abscess wall to keep the area of infection localized. Micro-organisms which are sufficiently virulent may destroy this barrier [8].

Tabaqhali 1988, cited that those purulent oral infections are polymicrobial, and mainly caused by endogenous bacteria.

Newman and Sims (1979), Topoll, *et al.* (1990), Herrera, *et al.* (2000a) have shown that the microbiota of periodontal abscess is not different from the microbiota of chronic periodontitis lesions. This microflora is polymicrobial and dominated by non-motile, Gram-negative, strictly anaerobic, rod-shaped species [9].

OM is usually a polymicrobial, opportunistic infection, caused primarily by a mixture of alpha-hemolytic streptococci and anaerobic bacteria from the oral cavity such as *Peptostreptococcus*, *Fusobacterium* and *Prevotella* [8].

It may occur either because of the spread of an adjacent area of infection or by seeding of the infection from a non-adjacent site via the blood supply (hematogenous spread). Unlike OM of the long bones, hematogenous OM in the bones of the jaws is rare. It is mainly caused by the spread of adjacent odontogenic infection. Hence, osteomyelitis lesion following chronic periodontal abscess can occur [8].

The mandible is affected more commonly than the maxilla. This is thought to be related to the differences in blood supply between the mandible and the maxilla. The maxilla has a better blood supply and has thin cortical plates and less medullary spaces. These factors mean that infections of the maxilla are not readily confined to the bone, and readily dissipate edema and pus into the surrounding soft tissues and the paranasal air sinuses [8].

The main treatment of localized osteomyelitis in a patient without any systemic conditions is to remove the etiology of the disease as well as antibiotic therapy to prevent post-surgical infection [4]. Antibiotic therapy should be instituted at the earliest moment and can be changed according to the results of antibiogram [7].

In the present case treatment plan included removal of the periodontal pocket and granulation tissue by raising mucoperiosteal flap. Antibiotic therapy was instituted prior to SRP and continued postoperatively for complete care of the infection. Post-treatment evaluations showed complete healing.

Conclusion

In case of long-standing odontogenic infection antibiotic sensitivity test stands to be important before the start of treatment, because of chances of resistance to conventional antibiotics which can result in delayed healing with consequences like osteomyelitis and dead bone (sequestrum) formation.

Key Messages

Long-standing chronic periodontal infection can result in necrosis of bone.

Conflict of Interest

No conflict of interest.

Bibliography

1. Newman MG., *et al.* "Carranza's clinical periodontology (11th edition)". St. Louis, Mo: Elsevier/Saunders (2012): 137.
2. Reid IR. "Osteonecrosis of the jaw: who gets it, and why". *Bone* 44.1 (2009): 4-10.
3. Yeoh SC., *et al.* "Chronic suppurative osteomyelitis of the mandible: case report". *Australian Dental Journal* 50.3 (2005): 200-203.
4. Kushner G M and Alpert B. "Osteomyelitis and osteoradionecrosis". In: Miloro M, Ghali GE, Larsen PE, Waite PD, eds. *Peterson's Principles of Oral and Maxillofacial Surgery*. 2nd edition. London: BC Decker (2003): 313-321.
5. Fonseca RJ., *et al.* "Oral and Maxillofacial Surgery". 1st edition. Philadelphia: WB Saunders (2000): 485-490.
6. Neville BW., *et al.* "Oral and maxillofacial pathology (2nd edition)". Philadelphia: W.B. Saunders (2002): 126-132.
7. Clover MJ., *et al.* "Osteomyelitis of the mandible during pregnancy". *British Journal of Oral and Maxillofacial Surgery* 43.3 (2005): 261-263.
8. Topazian RG., *et al.* "Oral and maxillofacial infections (4th edition)". Philadelphia: W.B. Saunders (2002): 214-235.

9. Jan Lindh. "Clinical periodontology and implant dentistry: fifth edition".
10. Waalkens CC. "Periodontal abscess/osteomyelitis: a case report". *Journal of the New Zealand Society of Periodontology* 58 (1984): 14-15.
11. Tomaselli DL Jr., *et al.* "Osteomyelitis associated with chronic periodontitis in a patient with end-stage renal disease: a case report". *Periodontal Clinical Investigations* 15.2 (1993): 8-12.

Volume 2 Issue 4 April 2018

© All rights are reserved by Manish Ashtankar., *et al.*