Case Report

Surgical Management of Garre's Osteomyelitis in an 8-Year-Old Child

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Abstract

Chronic non-suppurative osteomyelitis, also known as Garre's osteomyelitis is a well-described pathologic entity in dental literature. We present here a case report of a unilateral hard bony swelling of the lower jaw associated with infection. Radiograph revealed the pathognomic feature of 'onion skin' appearance. Surgical recontouring of the lower jaw was performed since there was no evidence of bone remodelling after removal of the infected tooth.

Keywords: Child, Garre's osteomyelitis, surgical management

Introduction

'Osteomyelitis' is defined as the inflammation of the bone and its marrow contents. Cierny *et al*.[1] have classified osteomyelitis as suppurative and non-suppurative. Garre's osteomyelitis, a type of chronic non-suppurative osteomyelitis, was named after Carl Garré in 1893. It presents as a focal gross thickening of the periosteum with peripheral reactive bone. Persistent low-grade infection in children and young adults in the presence of high osteoblastic activity triggers the periosteum to lay down new bone.[2]

Garre's osteomyelitis is seen in the mandible, especially its lower and lateral borders, more commonly than in the maxilla. This predilection is due to the fact that maxilla has a rich vascular supply and thin cortical plates while the blood supply to the mandible is only limited to the inferior alveolar artery. Most commonly Garre's osteomyelitis presents as facial asymmetry on the lower part of face owing to a solitary swelling with normal to inflamed overlying skin. On palpation, the swelling is bony hard and non-tender.[3] The causative factors associated with this lesion are grossly carious tooth, periodontal defects, persistent infection and trauma. Intraoral periapical radiograph is helpful in cases of deep carious lesions in relation to the bony mass. Orthopantomograph (OPG) reveals a periosteal thickening of the inferior border of the mandible due to increase in osteoblastic activity resulting in an 'onion skin' appearance.

Case Report

An 8-year-old male patient reported to our institution with a chief complaint of facial asymmetry in the lower portion of his face for 5 months. The swelling was initially pea sized and gradually increased to its final dimensions. The patient gave a history of extraction of grossly carious lower right deciduous molar with no reduction in the size of the swelling. On extraoral examination, facial asymmetry with a solitary localised oval-shaped swelling measuring 20 mm × 20 mm was seen on the right side of the face near the body of mandible [Figure 1]. On palpation, the swelling was noted to be well defined, hard in consistency, non-tender, non-pulsatile and non-fluctuant. Localised ipsilateral submandibular lymphadenopathy was also

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evident. Intraorally, obliteration of the lower buccal vestibule on the right side was noted [Figure 2]. OPG revealed 'onion skin' appearance at the inferior border of the mandibular body suggestive of a periosteal reaction [Figure 3].

Based on the clinical and radiographic findings, the lesion was diagnosed as Garre's osteomyelitis and surgical recontouring under general anaesthesia was planned [Figure 4]. Extraoral approach was used to expose the lesion, and the excess bony mass was excised using surgical bur and handpiece. The excised bone fragments [Figure 5] were subjected to histopathological examination which revealed trabeculae of bone with osteoblastic rimming and reversal lines together with a chronic inflammatory infiltrate. The microscopic picture confirmed the diagnosis of Garre's osteomyelitis. The patient was followed up 3 months post-surgery with no recurrence of the lesion [Figure 6].

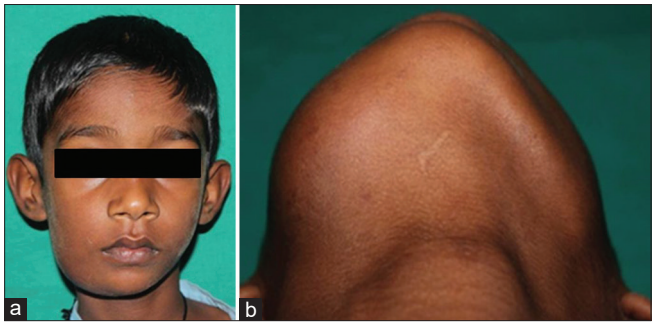


Figure 1: (a) Pre-operative clinical photographs showing facial asymmetry on the right side of the mandible as seen in front (a) and worm's (b) view

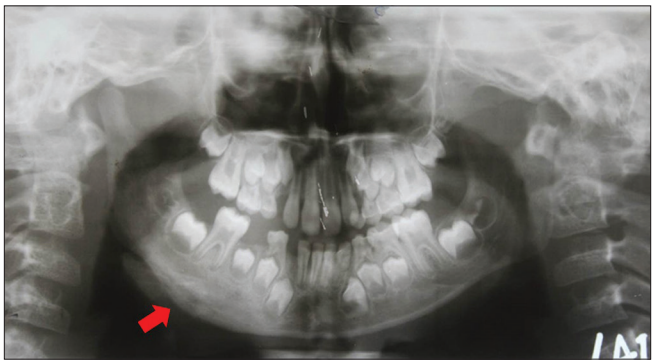


Figure 3: Orthopantomograph reveals deposition of bone in the outer cortex of the inferior aspect of the mandible on the right side

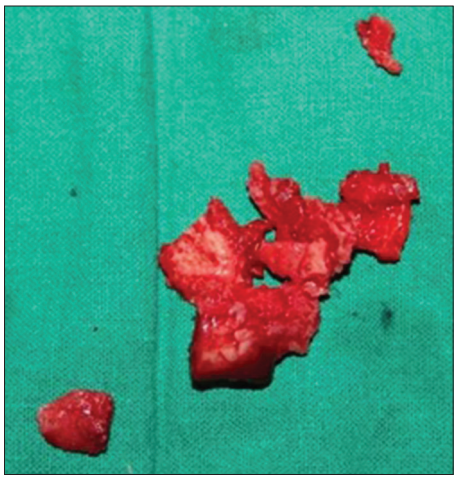


Figure 5: Resected bone chips

Discussion

Garre's osteomyelitis is a lesion with a large amount of periosteal reaction. Its development depends on the interplay of chronic infection, activity of the osteoblastic cells in the periosteum, virulence of the infectious agents and the host resistance. This lesion is seen exclusively in children or young adults by virtue of a periosteum that is capable of vigorous



Figure 2: Clinical photograph showing mild obliteration of the lower buccal vestibule on the right side

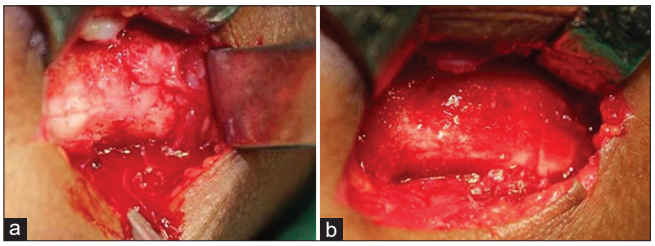


Figure 4: Intraoperative picture showing submandibular incision to expose the lesion (a) and recontoured bone (b)

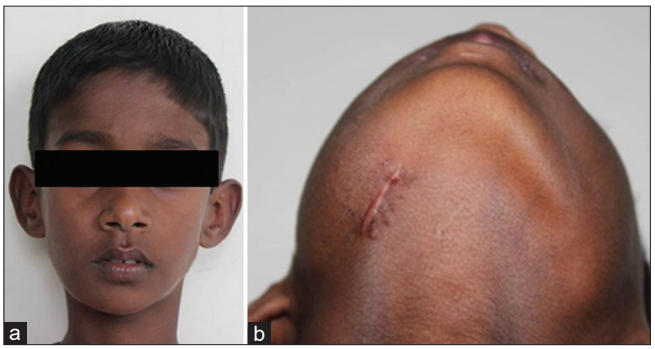


Figure 6: Post-operative clinical photograph at 3 months reveals gross improvement in facial symmetry as seen in frontal (a) and worm's (b) view

osteoblastic activity. Owing to similar radiographic findings of 'onion skin' appearance, osteogenic sarcoma, infantile cortical hyperostosis, fibrous dysplasia and Ewing's sarcoma could be considered as differential diagnoses.[4] Management varies from conservative to surgical approach including endodontic therapy, extraction of tooth and recontouring of bone. The latest treatment modality for Garre's osteomyelitis involves resection of bone followed by transport distraction osteogenesis.[5] Remodelling of the mandible occurs after resolution of the infection, but occasionally, it remains static necessitating surgical recontouring procedures.

Conclusion

Garre's osteomyelitis is associated with low-grade infection usually arising from an infected tooth that results in stimulation of bone formation. Elimination of the source of infection is important to restore the impaired balance between the virulent bacteria and the oral flora. In the present case, no resolution of the bony mass was noted for 6 months despite removal of the infected tooth. Hence, surgical recontouring of bone was carried out.

Declaration of patient consent

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

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Nil.

Conflicts of interest

There are no conflicts of interest.

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