Rare presentation of idiopathic unilateral hyperostosis in the maxillary canine-premolar region – A case report

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Abstract

Hyperostosis are the non- malignant small bony surface growth occurring on the buccal aspect of maxillary and mandibular alveolar process with predominance in premolar and molar region. The exact mechanism of development of hyperostosis is unclear however it is suggested that it may arise due to interplay of environmental and genetic factors. They have limited growth potential and normal arrangement of tissue, so they are not considered as tumors. This article presents a very rare case of unilateral maxillary buccal hyperostosis in canine-premolar region and its surgical management.

Keywords: Hyperostosis, Buccal exostosis, Tori, maxillary, Canine-premolar, Unilateral.

Introduction

In dentistry both the terms hyperostosis and exostosis are used to define a bony growth that occurs on the surface of normal bone. However exostosis is mostly used in medicine to describe a surface bony growth with a cartilage cap. So hyperostosis could be the most preferred term to avoid confusion.(1) Bony hyperplasia represents the limited growth potential with the normal arrangement of tissue so they are not considered as tumors. Bony hyperplasia are characterized by the growth of normal new bone and designated according to their anatomic locations.

They are more common during adolescence or in younger adults before 30 years of age and increases gradually over a period of time. There is no sex predilection. More common on the buccal surface rather than palatal surface mostly occurring bilaterally, may be solitary or multiple. Mostly found in premolar and molar region with a tendency to develop. They are painless, hard bony mass on palpation with the overlying covering of normal mucosa. However trauma or any other injury may cause ulceration to the mucosa. The exact etiology is still unknown however it is thought that it may arise through interplay of environmental and genetic factors.(2,3) However it has also been reported as a sequelae of dental procedures too.(4)

Case Report

A 29 years old systemically healthy male patient reported to the Department of Periodontology, Subharti Dental College & Hospital, Meerut, Uttar Pradesh for routine checkup and oral prophylaxis. On intra oral clinical examination, a unilateral nodular enlargement on the left maxillary canine-premolar region was observed (Fig. 1). It was ovoid in shape, well defined and smoothly contoured with no discomfort or pain. The overlying mucosa was thin and blanched. The lesion was bony hard on palpation with measurements of 5mm × 5mm in size. However it was not interfering in speech, mastication and in any other oral function. Patient had no medical history or any kind of trauma and symptoms in the affected area. Also there was no past history of any dental procedure in the canine-premolar region. Tooth was also vital with no history of pain and sensitivity. Radiographic examination revealed no significant findings, however orthopantomograph revealed a slight increase in radiopacity in the canine-premolar region (Fig. 2). No other abnormalities were observed except for faulty prosthesis in maxillary anterior region.

Fig. 1: Clinical photograph showing nodular overgrowth (hyperostosis) covered with thin mucosa

Fig. 2: Orthopantomograph showing slight increase radiopacity in the maxillary left canine- premolar roots of teeth region

Fig. 3: Intra-operative photograph showing the elevation of the flap for excision of the hyperostosis

Case management: Phase I periodontal therapy was performed. After blood investigations revealed all the parameters in the normal range, patient was advised to get rid of the bony overgrowth. With patient's consent, treatment was planned to remove the bony mass under local anesthesia. During the surgical appointment, after adequate local anaesthesia was administered, an incision was given at the most prominent part of the lesion to expose the bony growth adequately. The flap was designed in such a way to achieve better access to the base of the bony lump. The bony growth was sliced with the Oschienbein chisel, and further smoothened by bone cutting burs through the base of the bony overgrowth under the continuous saline irrigation followed by further smoothening with bone file(Fig. 3, 4). Excised sample was collected in a formalin and sent for the histopathological examination which showed osteocytes in lacunae. Surgical site was thoroughly irrigated with a solution of povidone iodine solution. Flap margins were sutured (Fig. 5). Antibiotics amoxicillin 500mg tds and analgesic ibuprofen 400mg tds were prescribed for 5 days and 0.2% chlorhexidine mouthwash twice daily for 21 days. Patient was recalled after 10 days for suture removal. Healing was satisfactory, mild inflammation was present with no post-operative complications (Fig. 6). Patient is still under the follow-up and there is no recurrence of the bony overgrowth.

Fig. 4: Intra-operative photograph after excision of hyperostosis

Fig. 5: Sutures placed

Fig. 6: Post-operative photograph showing satisfactory healing

Discussion

Hyperostosis are usually small regions of osseous hyperplasia of cortical bone and occasionally internal cancellous bone that usually occur on the surface of the alveolar process. Development of buccal bony hyperostosis were reported in a small number of cases secondary to soft tissue graft procedures that include free gingival grafts[4] and subepithelial connective tissue graft.[5] In 2015, a case of bony exostosis were reported after the treatment of gingival recession with subepithelial connective tissue graft and enamel matrix derivative.[6] Enamel matrix derivative was shown to induce proliferation and enhance the osteogenic differentiation of gingiva-derived mesenchymal stem cells (GMSCs) isolated from human gingival connective tissue. Also, in 1971 the first case of osseous hyperplasia under the fixed partial denture was shown by Caiman et al.[7] Torus palatinus and torus mandibularis are the two most common types of intraoral osseous overgrowths that are designated to their anatomic locations. Buccal hyperostosis are found less frequent than tori. It may arise due to interplay between genetic and environmental factors.[1] Glickman and Smulow[8] described the formation of hyperostosis in response to heavy occlusal forces with the purpose of reinforcing bony trabeculae. In cases of soft tissue graft procedures surgical trauma could be associated with the liberation of osteoprogenitor cells from the periosteum bone interface inducing osteogenesis[9] although the exact etiology is still unknown. Usually hyperostosis

does not require any surgical intervention unless in the event of tissue trauma, periodontal or prosthodontic complications like denture insertion, function, causing trauma or as used to get autograft as it is a potent donor site.[10] These lesions might present a clinical test for the dental clinicians attempting to perform periodontal surgery in the posterior maxilla. Also, while recording details for final impression of crown and bridge, removable prosthesis, study models, impression trays cannot be seated to the depth, because of the interference by these bony anatomical variants. When treatment is elected, the bony mass may be removed using bone cutting bur or chiseled off through the base of the lesion.

Conclusion

Hyperostosis is a localized peripheral overgrowth of bone, in which the base is in continuity with the original bone covered by thin mucosa. In conclusion, the etiology of hyperostosis in this case is unknown. Patients presenting with such lesions should be evaluated and differentiated with other entities like osteoma, which produces similar clinical, radiographic presentation. It was an accidental observation in the present case, patient was explained and motivated for the treatment, and finally patient was satisfied with the outcome.

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