*IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*
*e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 4 Ser.12 (April. 2022), PP 51-57*
*www.iosrjournals.org*

# Maxillary Exostosis as a source of autogenous bone graft for the treatment of intrabony defect-A Case Report

**Dr Fahizah A[1], Dr Shashikanth Hegde[2] , Dr Abdul Naeem[3]**
*[1]Senior Research Fellow, Department of Biomaterials, Yenepoya Dental College, Mangalore*
*[2]Professor, Dept Of Periodontics, Yenepoya Dental College, Mangalore*
*[3]Postgraduate Student, Dept Of Periodontics, Yenepoya Dental College, Mangalore*

***Abstract:***
*Considering the dental diseases worldwide, periodontal disease is one of the two diseases that has direct impact on human population. The ambitious goal of periodontal therapy is to restore the periodontal attachment apparatus to its prediseased state. Autogenous bone, long considered the gold standard of grafting materials, is currently the only osteogenic graft available to clinical practitioners. Buccal exostoses are usually found only on the facial surface of the maxillary alveolar bone, especially in the posterior segment. Resecting the exostosis provides a source of bone without creating a defect at the donor site and also provides an opportunity to restore the normal bony architecture of the alveolar bone. This case report describes the successful management of intrabony defect using an autograft harvested from exostosis on the buccal aspect of maxilla.*

Date of Submission: 11-04-2022 Date of Acceptance: 28-04-2022

## I. Introduction

Considering the dental diseases worldwide, periodontal disease is one of the two diseases that has direct impact on human population. The characteristic features include gingival inflammation, periodontal pocket formation, clinical attachment loss, and alveolar bone resorption. The primary goal of periodontal therapy is to arrest the progression of periodontal disease and maintenance of natural dentition in health and function. Accomplishment of this goal can be done by nonsurgical therapy in patients with mild to moderate periodontitis. Advanced cases can be treated by surgical procedures that regenerate the supporting periodontal tissues. Periodontal regeneration can be achieved by application of root conditioning agents such as citric acid, tetracycline, enamel matrix derivative (EMD), bone replacement grafts, guided tissue regeneration (GTR), bone morphogenetic proteins, growth factors, tissue engineering, and stem cell therapy.[1]

Various bone grafts have been used for periodontal regeneration and are classified, on the basis of their sources, into autografts, allografts, xenografts, and alloplasts. Autogenous bone, long considered the gold standard of grafting materials, is currently the only osteogenic graft available to clinical practitioners. Osteogenesis, osteoinduction, and osteoconduction are the process which grafted autogenous bone heals into growing bone..[2] Autogenous bone grafts and demineralized freeze-dried bone allografts have shown potential for true periodontal regeneration, whereas alloplastic bone grafts merely act as inert fillers of bone defects.[3]

Autogenous bone can be harvested from intraoral sites like, mandibular symphysis, maxillary tuberosity, ramus, and exostosis have proven to be successful in the treatment of intrabony defects. It can be harvested, with or without processing, to yield graft materials of different forms, including cortical chips, osseous coagulum, and bone blend. Superior regenerative response has been proven in the literature when using autogenous bone regardless of the intraoral donor site.[1]

Buccal exostoses are usually found only on the facial surface of the maxillary alveolar bone, especially in the posterior segment. Radiographically, exostosis appears as well-defined round or oval calcified structure superimposing the roots of teeth. No bony exostosis or tori requires treatment unless it becomes large enough to interfere with periodontal health, denture placement, or cause recurrent traumatic ulcerations. When treatment is elected, the lesions should be cut-off or removed from the cortex using bone cutting bur or hand instruments.[4] Resecting the exostosis provides a source of bone without creating a defect at the donor site and also provides an opportunity to restore the normal bony architecture of the alveolar bone.[2] This case report describes the successful management of intrabony defect using an autograft harvested from exostosis on the buccal aspect of maxilla.

## II. Case Report

A female patient aged 32 years was reported to the department of Periodontology with a chief complaint of food lodgement in the upper right side back tooth region since 4 months. It was patient first dental visit. There was no relevant medical or personal history. Oral hygiene status of the patient was found to be fair.

Oral examination revealed bilateral masses just above the premolar and molar region in maxilla and were bony

hard on palpation . On gingival examination, there was Grade II bleeding on probing and gingival margin was seen apical to CEJ on 31,41. On periodontal examination there was 5mm periodontal pocket with 15, 7mm periodontal pocket wrt 16, 6mm periodontal pocket wrt 17. Loss of attachment was seen wrt 11,12,15,16,17,21, 31 and 41.(Fig 1). Radiagraphic evaluation revealed presence of angular defect wrt mesial aspect of 16.(Fig 2) Patient was diagnosed as generalized periodontitis stage II grade B and presence of buccal exostoses wrt 13,15,16,17 and 23,25,26,27.

The treatment plan was explained to patient and informed consent was obtained. Treatment plan included patient education and motivation, along with scaling and root planing was done. The patient was reviewed after 2 weeks and periodontal parameters were re-evaluated. Since the average pocket depth was 5 to 7 mm after phase I therapy, treatment plan consisted of open flap debridement with single flap approach along with regenerative therapy.(Fig 3, Fig 4)

Presurgical rinse with 0.12% chlorhexidine was done. After proper isolation of the surgical field , local infilteration of lignocaine(1:80000) was given. Crevicular incisions were made using a Bard-Parker no.15 blade on the facial surface of each tooth,with segment or area involved (Fig 5). A full thickness mucoperiosteal flap was reflected using a periosteal elevator, taking care to preserve the maximum amount of gingival connective tissue in the flap. The defect was thoroughly debrided and the root surface was the planed and the flap trimmed to remove granulation tissue tags and minimize bleeding. Reflection was done until there was full exposure of the bony exostoses. This was followed by irrigation with Betadine and sterile solution (Fig 6).

A surgical length carbide bur in a high-speed handpiece with external saline irrigation was used to make a groove on the superior aspect of the exostosis. The groove was placed close to the normal contour of the alveolar ridge. The bone was cut into smaller particle size using a bone rongeur (Fig 7). Bony growth was reduced with bone cutting carbide bur(round), under continuous saline irrigation (Fig 8). Smoothening of the rough surface was carried out with bone file The autogenous bone graft thus obtained was mixed with saline and placed in the defect of mesial aspect of 16 (Fig 9, Fig 10). Presuturing was done wrt mesial aspect of 16 to avoid dislodgement of graft and memebrane (Fig 11). This was followed by placement of GTR membrane (**CollaGuide™**) over the defect (Fig 12). The mucoperiosteal flap was repositioned, and primary wound closure was achieved by means of black silk 4-0 sutures followed by Coe-PakTM placement (Fig 13, Fig 14). The patient was given antibiotics (amoxicillin 500mg, metronidazole 500mg) and an analgesic (ketorol DT). The patient was instructed not to use straws or blows her nose and to open her mouth during sneezing. A follow-up appointment was scheduled after 10 days of surgery to check the site and for suture removal. The tissue appeared healed, and the patient was totally asymptomatic after 10 days (Fig 15).

**Figure 1: Preoperative**

**Figure 2 : Radiagraphic evaluation revealed angular defect wrt mesial aspect of 16**

**Figure 3: Re-evaluation after Phase 1 Therapy**

**Figure 4: a)Probing depth 7mm wrt 16, b) 5mm probing wrt 15**

**Figure 5: Crevicular insicion**

**Figure 6: Elevation of flap wrt 14,15,16 and 17**

**Figure 7: Obtaining bone graft using bone rongeur**

**Figure 8: Reducing the bony exostosis using round carbide bur**

**Figure 9: Manipulation of bone graft**

**Figure 10 : Placement of autogeneous bone graft in the mesial aspect of 16**

**Figure 11: Presuturing**

**Figure 12: Placement of GTR membrane (CollaGuide™)**

**Figure 13: Placement of single interupted sling sutures**

**Figure 14: Periodontal pack placement**

**Figure 15: Sutue removal and 10 days postoperative showing satisfactory healing**

## III. Discussion:

The ambitious goal of periodontal therapy is to restore the periodontal attachment apparatus to its prediseased state. The proper placement of graft materials for the infrabony defects are one mode of therapy that attempts to restore the lost periodontal attachment apparatus. The bone graft material provides regeneration through inductive or conductive processes. The conductive graft act as scaffold to support the new tissue growth and replaced by the host tissue. The inductive graft stimulates the host tissues to regenerate the lost structures.[5]

Buccal exostoses are non-malignant lesions of little clinical significance. The multiple masses in the maxilla are consistent with multiple buccal exostoses, which are bony protuberances that arise from the cortical plates in the maxilla and mandible. They usually occur in the late teens and early adult years, and many continue to enlarge slowly over time. The etiology of the multiple exostoses remains unknown, although it has been suggested to be the outcome of a mild, chronic periosteal inflammation. The diagnosis of a buccal exostosis is based on clinical and radiographic findings. An additional biopsy for diagnostic support is usually not recommended. It remains important to distinguish exostoses from early osseosarcomas and chondrosarcomas. Furthermore, the patients with multiple bony growths, not in the classic buccal exostoses locations should be evaluated for Gardner's syndrome. Intestinal polyposis and cutaneous cysts or fibromas are other common features of the autosomal dominant Gardner's syndrome.[6] Neither the torus nor the bony exostosis require treatment unless it becomes large enough to interfere with function, denture placement, cause recurring traumatic surface ulceration (usually from sharp food such as potato chips or fish bones) or as used to get autograft as it is a potent donor site.[2] When treatment is elected, the bony mass may be removed using bone cutting bur or chiseled off through the base of the lesion.[4]

Many investigators have reported on the clinically successful use of autogenous bone grafts harvested from intraoral sites in the treatment of intrabony. The majority of literature suggests that regardless of the intraoral donor site, autogenous bone grafts yield regenerative responses superior to those obtained following surgical debridement procedures alone.[7]

The case report presented here describe the management of periodontal osseous defects, which have been treated with autogenous bone graft and GTR membrane. The case was followed up to gather clinical and radiographic evidence of attachment gain. Since surgical re-entry and histologic method (which offers clear evidence of the state of the bone crest) were not feasible due to requirement of unnecessary second procedure,

radiographs were used to assess the defect fill. Radiographs were standardized using a positioning device. Radiographs showed new bone formation at the grafted site. Bone formed in the grafted areas showed comparable clinical features with those of native bone. Thus, exostosis, if properly handled, can be a source of autograft which could be used to regenerate bone at any infrabony defect.

## IV. Conclusion:

In the present case, the reduction of the exostosis and use of that bone graft to resolve the intrabony defect yielded an excellent result. Whenever there is possibility, using bony exostosis is an excellent a source of bone graft for the treatment of intrabony defect.

## References

[1]. Kataria S, Chandrashekar KT, Mishra R, Tripathi V. Autogenous bone graft for management of periodontal defects. Journal of the International Clinical Dental Research Organization. 2016 Jan 1;8(1):70-75
[2]. Puttaswamaiah RN, Galgali SR, Gowda VS. Exostosis: A donor site for autograft. Indian Journal of Dental Research. 2011 Nov 1;22(6):860.
[3]. Reynolds MA, Aichelmann-Reidy ME, Branch-Mays GL, Gunsolley JC. The efficacy of bone replacement grafts in thetreatment of periodontal osseous defects. A systematic review. Ann Periodontol 2003; 8:227-65.
[4]. Medsinge SV, Kohad R, Budhiraja H, Singh A, Gurha S, Sharma A. Buccal exostosis: a rare entity. Journal of international oral health: JIOH. 2015 May;7(5):62.
[5]. Hassan KS, Al-Agal A, Abdel-Hady AI, Swelam WM, Elgazzar RF. Mandibular tori as bone grafts: an alternative treatment for periodontal osseous defects-clinical, radiographic and histologic morphology evaluation. The journal of contemporary dental practice. 2015 Mar 1;16(3):192-200.
[6]. Neville BW, Damm DD, Allen CM, Bouquot JE, editors. Oral and Maxillofacial Pathology. Philadelphia: WB Saunders Co.; 1995. p. 17-20.
[7]. Rosen PS, Reynolds MA, Bowers GM. The treatment of intrabony defects with bone grafts. Periodontol 2000 2000;22:88-103.

Fahizah A, Shashikanth H, Abdul N. "Maxillary Exostosis as a source of autogenous bone graft for the treatment of intrabony defect-A Case Report." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(04), 2022, pp. 51-57.