



Case Report

From trivial to consequential-a unique approach of buttress bone as an auto-graft for effective restoration

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ABSTRACT

An unusual bony growth evokes suspicion, buttressing bone formation is one such exemplar. Periodontal disease leads to the destruction of soft and hard supporting tissue. The immunoinflammatory process in bone triggers the formation and resorption of bone simultaneously. In an attempt to buttress bony trabecular weakened by resorption, peripheral buttressing bone is formed which sometimes is accompanied by the formation of intrabony defect. In the present case report, A 27-year-old female patient presented with the chief complaint of painless hard swelling on the upper right and left-back tooth region since 5-6 years. The patient was diagnosed with generalized chronic Periodontitis with Bilateral Maxillary buttressing of bone. Conventional Resective osseous surgery was done in one quadrant and respective osseous surgery with the regenerative technique by using the bone obtained during surgery as an autograft to fill the intraosseous defect in the same periodontitis patient. The patient was followed up after 3 weeks, 3 months, and then 6 months. There was no increase in bone growth at the end of the 6th month obtaining the bone as a graft from donor site during the respective osseous procedure serves dual advantage of Recontouring and obtaining desirable bony contours and eliminating any other donor site or another kind of graft material for restoring the intraosseous defect. As in the case presented, the problem was used as a solution. The buttress bone obtained from the respective procedure serves as the gold standard autogenous graft for restoring the intraosseous defect.

Keywords: Autogenous graft, Buttress bone, Intraosseous defect, Resective procedures.

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INTRODUCTION

Periodontal disease has many sequelae to its name, ranging from clinical attachment loss to tooth loss. Soft and hard tissue response to this immuno-inflammatory reaction is clinically perceivable and radiographically appreciable. The morphologic alteration, reduction in height of alveolar bone, and formation of intrabony defects are the aftermath of the effect of periodontitis on the bone. The researchers have witnessed bone destruction accompanying periodontal disease of various forms [1]. When bone is destroyed by the inflammatory process, it's the body's natural mechanism that attempts to reinforce resorbing bone trabeculae by forming new bone sometimes accompanied by the formation of intrabony defect. The term Buttressing bone formation is hence, descriptive to its role According to Schuler [2] the inflammatory process engenders altered outline of the

bony crest, however, the gingiva integumenting it exhibits an attachment memory. This gingival architecture is influenced by the bony architecture beneath. Therefore, to bring about the appropriate probing depth, recontouring of the underlying bone is imperative. Schlugerin 1949, Ochshenbein in 1958 and Prichard in 1961 detailed the osteoplastic and osteotomy techniques for bone recontouring [3].

The case report here presents two treatment approaches- Case I depicts the Conventional Resective osseous surgery and Case II demonstrate Resective osseous surgery with regenerative technique in the same periodontitis patient. In Case II the bone obtained during surgery was used as an autograft to fill the intrabony defect.

Case Presentation

A 27-year-old female patient reported to the Outpatient

Department in the Department of Periodontology, Faculty of Dental Sciences, SGT University, Gurugram, Delhi - NCR. The patient presented with the chief complaint of painless hard swelling on the upper right and left-back tooth region for 5-6 years. The patient also complains of bleeding from gums on brushing since 2-3 years. On taking the further history, the patient had no significant medical and past dental history. The family history was significant as the patient's mother was diagnosed with Periodontitis 15 years back.

Clinical examination revealed the presence of subgingival and supragingival deposits with a deep bite. The gingiva was reddish pink with pale color in the area of enlargement. Generalized bleeding on probing was present. A generalized periodontal probing depth of 5-7mm was noted. Grade II Mobility was present with respect to 11,31,41,13 and Grade I mobility was present with respect to 12,21,32,42. The enlargement was bony hard on palpation and non-tender. A diagnosis of Generalized Chronic Periodontitis was made. The treatment plan consisted of – Phase I therapy of Scaling and Root Planning with oral hygiene instructions followed by a re-evaluation for the surgical phase.

Procedure

The patient's primary complaint was of the painless bony enlargement, hence after reevaluation and proper blood profile investigations, written consent for explorative surgery from the patient was obtained and the patient was informed about the procedure. 2nd quadrant was treated first.



1a

1b

Figure 1a & 1b: Buttressing of Bone in the Left Quadrant and Right Quadrant Respectively. The extension of the enlargement was from the -distal of the first premolar to distal of the second molar in the upper right quadrant and mesial of canine to distal of the second molar in the

Phase I –

Conventional Resective Osseous Surgery: Sulcular incision with one vertical releasing incision distal to lateral incisor was given (Figure 2a). A full-thickness mucoperiosteal flap was raised. The scalloping of the flap should anticipate the final underlying osseous

upper left quadrant.

Figure 2a- 2e: Phase I Conventional Resective Surgery



Figure 2a



Figure 2b



Figure- 2c



Figure- 2d

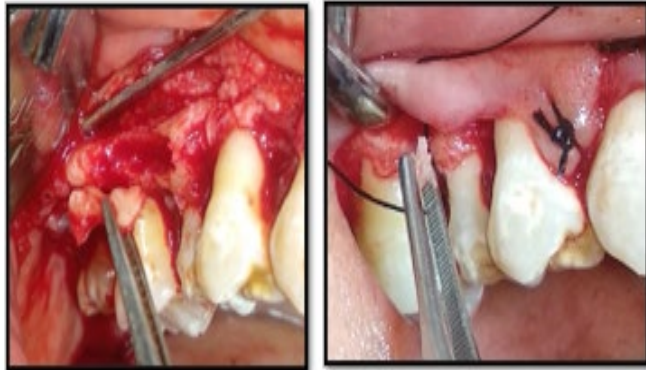


Figure-2e

contour. On flap exposure the bony prominence was well appreciated (Figure 2b). Vertical grooves were marked using carbide burs rotary instruments to reduce the thickness of the alveolar bone and provide prominence to the radicular aspect (Figure2c).

This was followed by Radicular blending which provided a

smooth Surface for good flap adaptation (Figure 2d). After smoothing the bone surface and removing discrepancies on gingival line angles the flap was adapted and sutured with 5-0 silk suture (Figure 2e). Postoperative maintenance was explained and Oral hygiene instructions were given. The patient was recalled after two weeks for suture removal and evaluation of the healing.



3a

3b



3c

Phase II-

Respective Osseous Surgery with regenerative technique On the second visit after suture removal of the initial surgical site, the first quadrant was treated. Gingivectomy was done using electro cautery w/rt 15,16,17. Sulcular incision with one vertical releasing incision distal to the first premolar was given. A full-thickness mucoperiosteal flap was raised. On reflecting the flap, the bony prominence was exposed. Degranulation was done. After vertical grooving using carbide burs, the bone which was obtained (Figure 3a) was collected and crushed with the bone rongers and kept sterile in saline. The alveolar bone on the buccal surface was blended and smoothed. During surgery an intrabony defect was accounted for, which was a bony defect of 3mm. For restoring the intrabony defects various kinds of grafts have been the gold standard. Sufficient evidence augments the formation of new attachment in its flavour [7]. Obtaining the bone as a graft from donor site during the respective osseous procedure serves dual advantage of

Pressuring was done and the crushed bone obtained was used as an autograft (Figure 3b) to restore the bony defect. The site was sutured back (Figure 3c). Postoperative instruction and oral hygiene instructions were given. The patient was recalled after two weeks for suture removal.

RESULT AND DISCUSSION

The patient was followed up after 3 weeks, 3 months, and then 6 months. There was no increase in bone growth at the end of the 6th month (4a & 4b- Phase I and Figure 4e & 4f- Phase II) Gingiva was healthy and in good architecture and there was a reduction in probing depth (Figure 4c & 4d). Patient's response was very satisfactory.

Figure 4a-4f : Pre-operative and Post-operative illustration of the Case.



Figure 4e -Preoperative

Figure 4f- Post Operative- 6 Months

The periodontal therapy aims to maintain a healthy and functional supporting apparatus around the tooth [4]. In periodontitis, the host immune and inflammatory response in bone lead to coupling action, triggering bone resorption, and bone formation. In the endeavor to buttress bony trabeculae which are weakened by resorption, the peripheral bone undergoes buttressing. This leads to lipping, sometimes consorted by intrabony defect [5]. The bone formation which is a reparative process to compensate for the destruction produces robust bone formation, which changes the morphology of the alveolus. The outcome of the buttressing bone formed revolves around the rate of resorption by occlusal forces and the direction in which forces are exerted [6]. If the buttress bone formation does not stride with formed, the bone plate is thinned out and its contour becomes bulbous. The resorption process caused by occlusion, an intrabony defect is advocated in the literature.

Recontouring and obtaining desirable bony contours and eliminating any other donor site or another kind of graft material for restoring the intraosseous defect [8]. As in the case presented, the problem was used as a solution. Recontouring the buttress bone and restoring the defect

with the autogenous bone obtained.

Acknowledgement

All author made best contribution for the concept, assessment and evaluation, data acquisition and analysis and interpretation of the data.

Informed consent

Written and Oral informed consent was obtained from the participant included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Conflict of interest

The author disclosed no conflict of interest.

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