

RESTORING A SMILE THROUGH GUIDED BONE REGENERATION IN ESTHETIC ZONE

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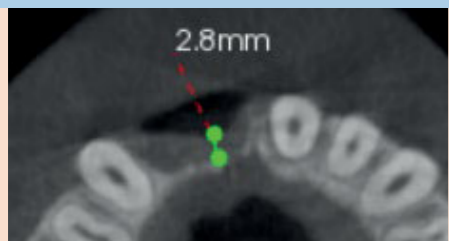
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Introduction: The fundamental idea of guided bone regeneration (GBR) is the use of a membrane to prevent non-osteogenic tissues from interfering with bone regeneration. The primary types of bone graft material are autogenous grafts, allografts, xenografts, and alloplasts, in which the mechanism of regeneration can be accomplished through three different mechanisms: osteogenesis, osteoinduction, and osteoconduction. Xenografts/ alloplasts are typically only osteoconductive whereas autografts involve all the three mechanisms.

Case Presentation: A 24-year-old male patient reported with the complaint of missing teeth in the anterior region and was willing to have an implant supported prosthesis. CBCT revealed a bone width of 2.8mm. To achieve the desired results, a ridge augmentation procedure was carried out using guided bone regeneration through a combination of autogenous and allograft material. A 6-month follow-up revealed a 4.2mm gain in the bone width, following which an implant was placed and immediate loading of the implant was carried out.

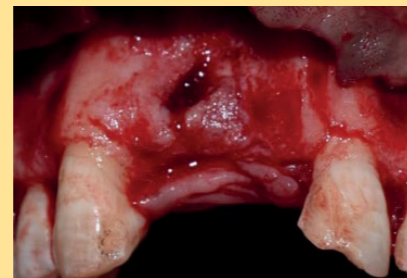


Intraocclusal view depicting resorption of the buccal bone post extraction

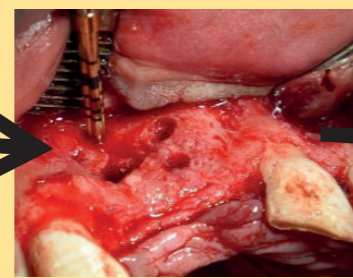


CBCT occlusal view showing 2.8mm width of the defect site

PRE-REHABILITATIVE VIEW



Defect site following flap reflection



Pilot holes drilled in cortical bone



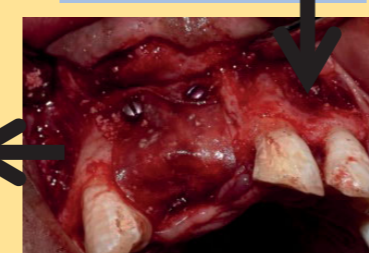
Graft and PRF placement



CBCT following graft placement showing 9.3mm of width

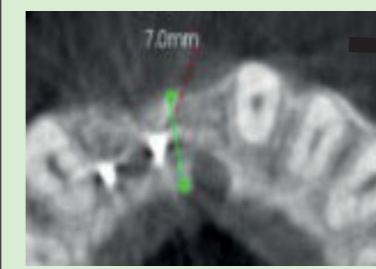


Flap closure

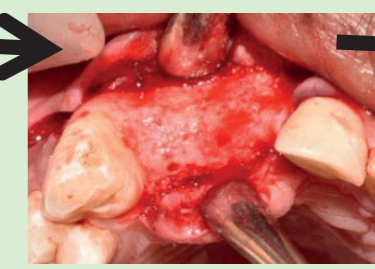


Membrane stabilized using tenting screws

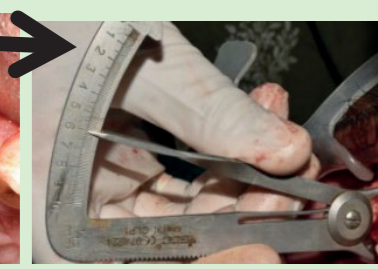
INTRA-OPERATIVE VIEW



CBCT occlusal view after 6 months showing width of 7mm



Augmented site after removal of the tenting screws



Gauge showing total width of 6mm



Frontal view of final prosthesis



Immediate loading of implant



Flap closure following implant placement

POST-REHABILITATIVE VIEW

Discussion: GBR in the present case was performed using a combination of autogenous graft, allograft material and platelet rich fibrin (PRF). Successful bone regeneration depends on multiple variables including the case selection, type of graft, adequate healing period, and operator skills. GBR using the staged approach provided the benefit to augment the alveolar ridge and improve the ridge morphology.

Conclusion: In the present case, GBR with a mixture of autogenous graft, allograft material, and PRF was effective for bone augmentation to allow future implant placement.

References: Liu J, Kerns DG. Mechanisms of guided bone regeneration: a review. *Open Dent J.* 2014 May 16;8:56-65. Kim YK, Ku JK. Guided bone regeneration. *J Korean Assoc Oral Maxillofac Surg* 2020;46:361-366.