

Case Report

Stability of facial soft tissue contour and bone wall at single maxillary tooth gap in early implant placement with contour augmentation: A case report

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Summary

Stability of esthetic implant buccal soft and hard tissue contour using freeze-dried bone allograft in early implant placement with contour augmentation.

Introduction

Early implant placement with contour augmentation using autogenous bone plus deproteinized bovine bone mineral (DBBM) has been documented to rebuild stable facial hard-tissue and soft-tissue contours that are esthetically pleasing [1-4]. For the bone substitute materials, freeze-dried bone allograft (FDBA) has been shown to achieve adequate ridge width during implant placement [5,6]. A comparative randomized study demonstrated autogenous bone plus DBBM and FDBA each combined with a collagen membrane both resulted in a stable implant buccal hard and soft tissue contour in early implant placement with contour augmentation after 1 year [7]. This case report showed stable implant buccal hard and soft tissue contour in early implant placement with contour augmentation using FDBA after 6 years loading.

Case report

A 32 years old non-smoking female who denied any systemic disease or drug allergies complaint of biting pain on maxillary anterior region. Clinical examination showed no obvious gingival inflammation and normal probing depth without bleeding on probing. Periapical radiograph showed incomplete PDL lining and radiolucent shadow on tooth 21 root surface, however, a bone sounding examination indicated that buccal crest remained intact. The clinical was diagnosed tooth 21 external root resorption (Figure 1a-c).

More Information

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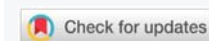
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Tooth 21 extracted by less traumatic approach using periosteal flap elevation then extract tooth with forcep (Figure 1d) After 8 weeks of healing, a full thickness flap with single vertical release from maxillary canine to canine. Ridge preparation following implant drilling protocol and 4.1 mm x 10 mm Straumann Bone Level implant was placed in ideal 3D position, and cover screw was placed. Freeze-Dried Bone Allograft was placed on top of implant bony defect to augment the buccal contour, then covered with two layers of collagen membrane, primary wound closure was then performed. Wound healing uneventfully during 2-week suture removal (Figure 1e-k).

3-month after implant placement, a small U-shaped flap was performed on top of implant, cover screw was removed, impression was taken at the same time then healing abutment was placed. Two weeks later, implant provisional was performed for implant soft tissue modeling (Figure 1l-o). Three months after tissue modeling, definitive prosthesis was delivery. Clinical showed stable implant buccal hard and soft tissue contour (Figure 1p,q), 1-year after implant loading, clinical implant buccal hard and soft tissue contour remain stable. Computed tomography also showed stable buccal wall (Figure 1r-t). After 6-year follow up, clinical implant buccal hard and soft tissue contour still remain stable (Figure 1u,v).

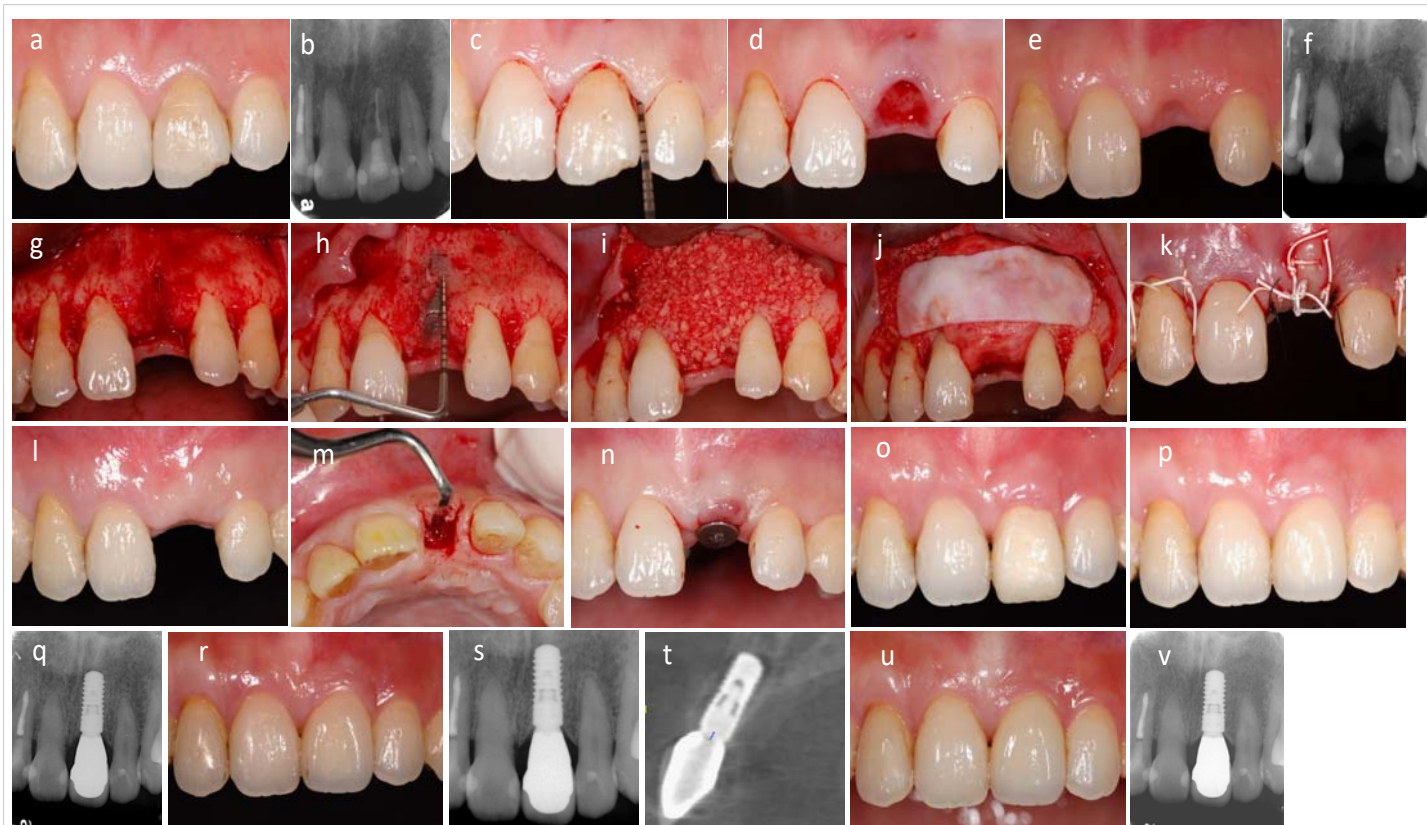


Figure 1: (a,b): Root resorption of tooth 21 was diagnosed, (c): 3 mm bone sounding on buccal and mesiodistal aspect, (d): Less traumatic tooth extraction, (e,f): 2-week after tooth extraction, (g): Full thickness flap elevation, (h): 4.1 mm x10 mm Straumann bone level implant was placed in 3D position, (i-k): Freeze-dried bone allograft placed on the top of implant bony defect, two layers of collagen membrane was covered then primary closure was performed, (l-n): 3-month after implant placement, a U-shaped flap elevation for placement of healing abutment, (o): Provisional soft tissue modeling, (p,q): Final prosthesis delivery, clinical showed esthetic implant buccal hard and soft tissue contour, (r-t): 1-year post loading, clinical implant buccal hard and soft tissue contour remained stable, computed tomographic also showed even buccal bone wall, (u,v): 6-year follow up, clinical implant buccal hard and soft tissue contour still remained stable.

Conclusion

Early implant placement with contour augmentation using FDBA may rebuild stable implant buccal hard and soft tissue contour in long term result.

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