

Ashna Rana* , **Ranjita Shrestha Gorkhali****

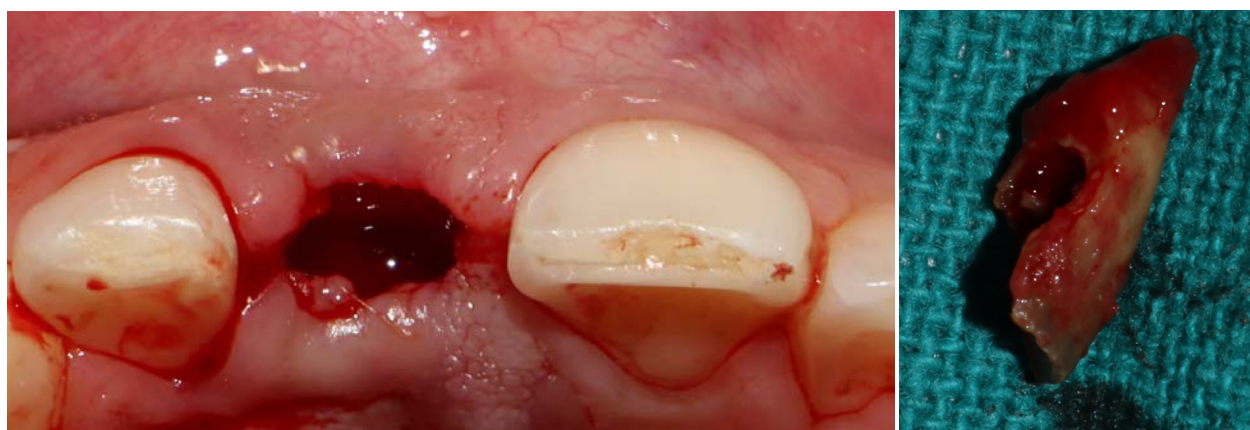
***Post Graduate Resident, National Academy of Medical Sciences; **Associate professor Periodontology and Oral Implantology, National Academy of Medical Sciences, Kathmandu, Nepal**

Introduction

Implant placement in the anterior maxilla is challenging due to high aesthetic demands and significant risk of alveolar ridge resorption. Alveolar ridge preservation techniques aid in ridge volume and contour, surpassing the outcomes of unassisted socket healing, which is crucial for successful implant treatment.³ Guided implant placement employs surgical templates to ensure the precise positioning of implants, facilitating optimal alignment, functional harmony and integration with the surrounding bone.⁶



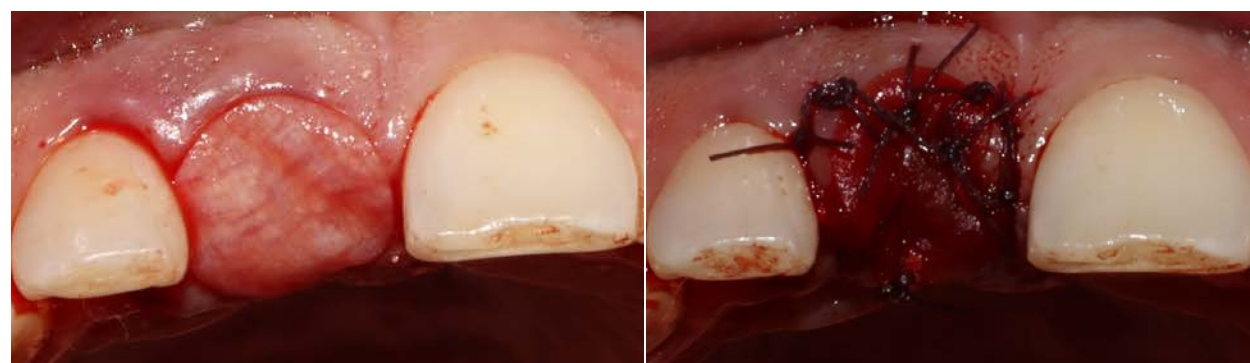
Initial presentation with fractured #11



Minimally traumatic extraction performed with periosteal elevator followed by meticulous debridement of extraction socket



Alveolar ridge preservation with xenograft (Geistlich Bio-Oss Collagen®)



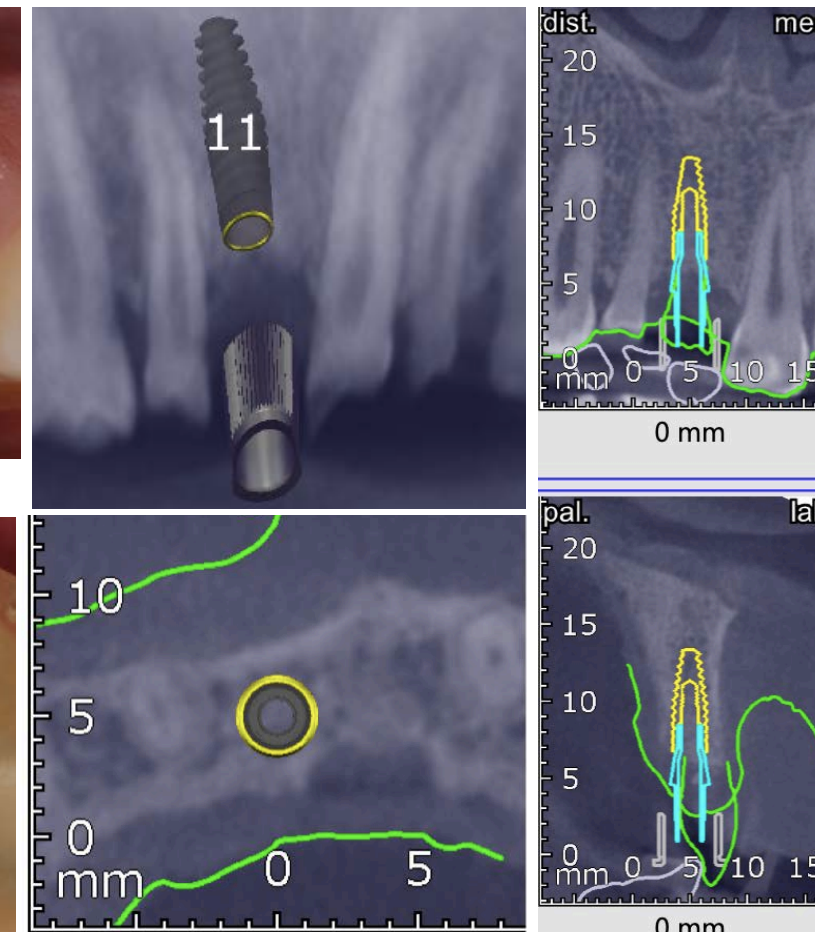
Soft tissue substitute (Mucograft®) placed over the site and closure done with 5-0 PGA sutures



Healing after 4 months



Surgical guide for precise implant positioning



CBCT showing implant site #11 and software analysis for guided implant surgery



Drilling through the template to the predetermined depth and angulation



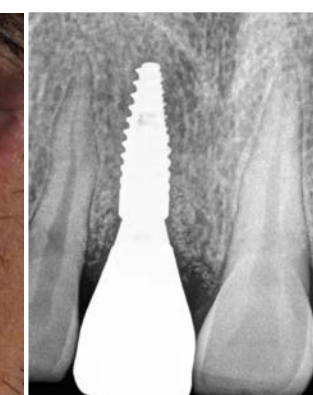
Insertion of Straumann® BLT 3.3*10 mm implant through the guide



Final position with torque >35 Ncm followed by placement of gingival former



Final prosthetic restoration with Monolithic Zirconia and IOPA with final prosthesis



Materials and methods

After a comprehensive evaluation, a two-phase surgical approach was implemented. The first phase involved the extraction of tooth #11, followed by alveolar ridge preservation using a bone substitute with collagen (Geistlich Bio-Oss Collagen®) to facilitate bone regeneration and maintain the dimension of the ridge and a soft tissue substitute (Geistlich Mucograft®) to protect the graft and support soft tissue healing.

Four months later, a second-stage guided implant surgery was performed to accurately determine the ideal implant position. A fully guided technique with a drilling guide was used for the implant osteotomy, and a Straumann® BLT 3.3*10 mm implant was placed using a surgical guide. After three months, successful osseointegration was confirmed, and the final restoration with monolithic zirconia was completed.

Results

Results showed good healing and osseointegration and a favourable aesthetic outcome at the 6-month follow-up with adequate implant stability.

Conclusion

The integration of alveolar ridge preservation with guided implant placement has been shown to improve implant stability, aesthetic results, and overall success rates, effectively addressing both functional and esthetic concerns in the anterior maxilla.

Bibliography

- Willenbacher, M., Al-Nawas, B., Berres, M., Kämmerer, P.W. and Schiegnitz, E. (2016), Alveolar Ridge Preservation. Clinical Implant Dentistry and Related Research, 18: 1248-1268.
- DeAngelis P, DeRosa G, Manicone PJ, De Giorgi A, Antonio D'Addona, et al. (2022) Hard and soft tissue evaluation of Alveolar ridge preservation compared to spontaneous healing: A retrospective Clinical and volumetric analysis. Int. Journal of Implant Dentistry 8: 62
- Avila-Ortiz G, Chambrone L, Vignoletti F (2019) Effect of Alveolar ridge preservation intervention following tooth extraction: A systematic review and Meta-analysis. Journal of Clinical Periodontology 46: 195-223
- Roberto C, Paolo T, Giovanni C, Ugo C, Bruno B, Giovanni-Battista MF. Bone remodeling around implants placed after socket preservation: a 10-year retrospective radiological study. Int J Implant Dent. 2021 Jul 29;7(1):74. doi: 10.1186/s40729-021-00354-7. PMID: 34322836; PMCID: PMC8319280.
- Jung RE, Schneider D, Ganeles J, et al. Computer technology applications in surgical implant dentistry: a systematic review. Int J OralMaxillofac Implants. 2009;24(Suppl):92-109
- Rosenfeld AL, Mandelaris GA, Tardieu PB. Prosthetically directed implant placement using computer software to ensure precise placement and predictable prosthetic outcomes. Part 1: diagnostics, imaging, and collaborative accountability. Int J PeriodonticsRestorative Dent. 2006;26(3):215-221