

Simple Solution To Socket Preservation - The "CollaPlug™" Technique

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Post-extraction bone resorption data for maxillary anterior region has shown an average of 40% to 60% loss of original height and width, with the greatest loss occurring within the first year. This negatively influences future dental implant placement in esthetic zone.^{1,2}

This clinical tip discusses Colla Plug™ technique which involves placement of completely resorbable Type I Collagen Sponge (CollaPlug™ Zimmer Dental, Carlsbad, CA) immediately at the time of extraction.³ This technique allows controlled bone remodelling with simultaneous preservation of osseous anatomy and soft-tissue at the future implant site.⁴

CASE REPORT

A 23 year old male presented with traumatized left central incisor showing discolouration. Following radiographic evaluation, it was observed that there was vertical root fracture in the same and it was established that it required extraction owing to its poor prognosis. The site was planned for rehabilitation with implant therapy. Immediate implantation was ruled out due to lack of sufficient thickness of bone at labial aspect of the site as inferred from the CBCT scan. Stage one surgery was done to preserve the existing socket dimensions as much as possible for early implant placement.

Minimally traumatic extraction was done using periostome and subsequent debridement of socket was done prior to placement of CollaPlug™. Ovate shaped pontic (fabricated beforehand) was modified intraorally. Surgical re-entry was done 4 weeks later to assess the site and considering the sufficient width of bone attained, implant placement was done and primary stability was attained. Site showed positive results in 3-month post-operative radiographic evaluation.

Following is description of 6 step procedure:

1. **Minimally traumatic extraction** of the remaining tooth structure using periostomes / elevators / root forceps. Periostomes are employed at mesial or distal walls avoiding any trauma to facial bone wall.
2. **Decortication of socket** with either curettes or a no. 1/2 round bur to ensure complete removal of soft tissue fragments or infected granulation tissues from the socket. This procedure is considered to trigger regional acceleratory phenomena, which is known to stimulate new bone formation and graft incorporation.⁶
3. **Bioabsorbable collagen** wound dressing material (CollaPlug™) was gently packed into the socket.
4. An ovate shaped pontic (fabricated

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beforehand on diagnostic model and relined intraorally at time of placement) was placed into the socket to maintain soft tissue envelope contour and volume during the healing process.

5. The **postoperative care** instructions were given to patient comprising rinsing twice daily with warm salt water for the first 2



Fig. 1: Minimally Traumatic Extraction of Maxillary Left Central Incisor



Fig. 3: Clinical View of Socket filled with CollaPlug™

weeks before switching to twice daily rinsing with 0.12% chlorhexidine gluconate mouth rinse for the next 2 weeks.

6. **Early implant placement** was done after 3 weeks with tension free primary soft tissue closure.



Fig. 2: CollaPlug™ Being Placed Inside Extraction Socket



Fig.4: Ovate Pontic Supporting Soft Tissue Contour

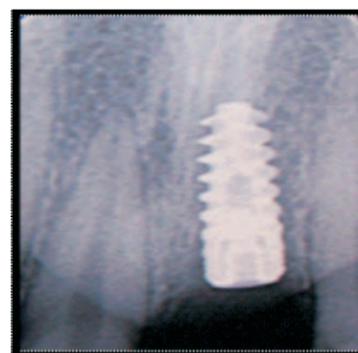


Fig.5: IOPA Radiograph 3-month Evaluation

CONCLUSION

Socket preservation with collagen plug is a beneficial modality in 4-5 bony wall defects. Collagen dressing acts as a hemostatic agent, stimulates platelet aggregation and enhances fibrin linkage, which may lead to initial clot formation, stability, and maturation. Furthermore, collagen shows chemotactic action for fibroblasts, and hence, enhances cell migration and promotes primary wound coverage that are fundamental for bone growth.² Hence, every extraction should be considered as an opportunity in developing future implant site.

REFERENCES

1. Polizzi G, Grunder U, Goene R, et al. Immediate and delayed implant placement into extraction sockets: A 5-year report. *Clin Implant Dent Relat Res.* 2000;2:93-99
2. Wang HL, Tsao YP. Mineralized bone allograft-plug socket augmentation: rationale and technique. *Implant Dent.* 2007;16:33-41
3. Sclar AG. Strategies for management of single-tooth extraction sites in aesthetic implant therapy. *J Oral Maxillofac Surg.* 2004;62(9 Suppl 2):90-105
4. Berglundh T, Lindhe J: Healing around implants placed in bone defects treated with Bio-Oss: An experimental study in the dog. *Clin Oral Implants Res* 8:117, 1997
5. Melsen B. Tissue reaction to orthodontic tooth movement-A new paradigm. *Eur J Orthod.* 2001;23:671-681