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## Horizontal Ridge Augmentation with Simultaneous Implant Placement using A Composite Bone Graft and Collagen Membrane

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**ABSTRACT:**

**Purpose:** Tooth loss leads to inadequate quality, quantity, and loss of contour of alveolar ridge which impairs implant placement. This can be managed by grafting procedures, prior to or simultaneously with implant placement. This case series aimed to assess clinically and radiographically the efficacy of a composite graft of autogenous bone and anorganic bovine bone mineral for the management of horizontal ridge augmentation along with simultaneous implant placement.

**Methods:** Twelve systemically healthy patients with localized horizontal ridge defects of ridge width of 2mm to < 5 mm were included in this prospective case series. Implants were placed into the prepared osteotomy site following which the defects were augmented with a composite graft of autogenous bone and anorganic bovine bone mineral covered with a collagen membrane. The clinical measurements of ridge width were done preoperatively and six months post operatively. The radiographic (CBCT) measurements are done preoperatively, immediately post-operative and six months post operatively.

**Result:** Six months following the procedure, mean gain in ridge width from baseline to six months post-operatively was 2.77±0.09 mm, 2.71±0.33 mm respectively, which was found to be statistically significant (p<0.01). The graft appeared to be consistently incorporated into the new bone and optimal peri-implant bone regeneration was observed.

**Conclusion:** Within the limitations of the case series, the data suggests that the composite graft of autogenous bone and anorganic bovine bone mineral stabilized by the collagen membrane is effective in management of horizontal ridge defects with simultaneous implant placement.

**Keywords:** Autografts; Anorganic bovine bone; Bone regeneration; Collagen; Dental implants; Heterografts; Membranes

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