The Utilization of Mineralized Cortico-Cancellous Block Allograft in Alveolar Ridge Defects for Implant Rehabilitation – A Case Report

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**Purpose:** Residual alveolar ridge defects are common due to progressive alveolar resorption following complicated and uncomplicated dental extractions. This postoperative scenario creates a challenge to perform implant therapy. The utilization of mineralized cortico-cancellous block allograft has shown to restore an ideal bone volume, architecture and quality to provide successful implant rehabilitation. The purpose of this scientific poster is to highlight the use of human mineralized cortico-cancellous block allograft as an ideal choice of grafting biomaterial to augment severely atrophied alveolar ridges without harvesting an autogenous block graft from the patient.

**Materials and Methods:** A human mineralized cortico-cancellous block allograft [5x10x20] (Rocky Mountain Tissue Bank, Aurora, CO) was customized to the residual alveolar defects of 18 & 19. Tricortical stabilization was performed using fixation miniscrews (Salvin Dental, Charlotte, NC) to prevent micromovement of the graft in the prepared bone bed. A resorbable Type I collagen barrier (Biomend; Zimmer Dental) was applied and flap was re-approximated to achieve primary closure. At the 4 month post-operative period, bone morphometric analysis was performed using the histological sample obtained from the regenerated osseous ridge with bone trephine (Salvin Dental, Charlotte, NC). Two 4.7mm by 11.5mm, tapered Screw-Vent] implants were placed in the region of 18 & 19.

**Results:** Histological evaluation revealed 69.3% of vital bone replacement from the mineralized cortico-cancellous block allograft. Active bone remodeling was observed around the block allograft indicating ongoing graft turnover. Furthermore, viable bone formation around the block allograft was evident.

**Conclusion:** The utilization of mineralized cortico-cancellous block allograft helps creating optimal ridge relationship and ideal biomechanical support for implant restorations with minimal local and distant donor site morbidity. In addition, it also affords utilization of wider diameter implants.