Reconstruction of the maxilla and mandible with particulate bone graft and titanium mesh for implant placement.

PURPOSE: The purpose of the study was to evaluate the magnitude of ridge augmentation with titanium mesh, overall graft success, anatomic location of ridge defects and their relationship to mesh exposure.

MATERIALS AND METHODS: This retrospective study evaluated 44 patients who received mandibular or maxillary reconstruction with autogenous particulate bone graft and titanium mesh for the purpose of implant placement. Autogenous bone graft was harvested from the iliac crest, tibia, and mandibular symphysis. A total of 45 sites were included in the study. Average augmentation bone heights were measured and compared. Statistical analysis was done with ANOVA and Student's t test. Histomorphometric analysis was performed on the soft tissue specimen found between the mesh and the bone graft.

RESULTS: Twenty-nine sites underwent mandibular reconstruction and 16 underwent maxillary reconstruction. The mean augmentation in partial maxillary defects was 11.33 +/- 1.56 mm, and in complete maxillary augmentation, the height achieved was 14.3 +/- 1.39 mm. In the mandible, mean increase in height for partial defects was 14 +/- 1.42 mm and for complete augmentation it was 13.71 +/- 1.14 mm. The mean augmentation for all sites was 13.7 mm (12.8 mm in the maxilla and 13.9 mm in the mandible). A total of 82 implants were placed in
the maxilla and 92 implants were placed in the mandible. In the maxillary group, 7 sites had exposure of the titanium mesh and 16 sites were exposed in the mandible. The success of the bone grafting procedure was 97.72%.

CONCLUSIONS: Porous titanium mesh is a reliable containment system used for reconstruction of the maxilla and the mandible. This material tolerates exposure very well and gives predictable results.

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