OSSEODENSIFICATION IS A NOVEL IMPLANT PREPARATION TECHNIQUE THAT FACILITATES RIDGE EXPANSION BY COMPACTION AUTOGRRAFTING.

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Introduction:
- Osseodensification is a non-excavating implant site preparation technique.
- Creates a densified layer of surrounding bone through compaction autografting while simultaneously plastically expanding the bony ridge at the same time.
- Autografting occurs along the entire length of the osteotomy.

Purpose:
- The purpose of this case series report is to evaluate the amount of ridge expansion achieved with osseodensification as directly measured in millimeters.

Materials and Methods:
- 28 implants were placed in 21 patients.
- Alveolar ridge widths were broken down into 3 groups:
  - Group 1: 3-4 mm (n=9)
  - Group 2: 5-6 mm (n=12)
  - Group 3: 7-8 mm (n=7)
- Each ridge was measured utilizing bone calipers at two levels, crestal and an apical position (10 mm apical to the crestal measurement) prior to and post osteotomy preparation.
- Post implant placement insertion torque values were registered and ISQ values were documented.

Results:
- 15 implants were placed in the maxilla and 13 in the mandible.
- Crestal expansion showed greater expansion.
- Group 1 showed a mean ridge expansion of 75% post osseodensification (3.6 mm → 6.3 mm).
- Group 2 showed a mean ridge expansion of 27% post osseodensification (5.37 mm → 6.86 mm).
- Group 3 showed a mean ridge expansion of 17% post osseodensification (7.0 mm → 8.2 mm).
- The average insertion torque was 61Ncm and ISQ value was 77.

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Conclusions:
Based on the limitations of the present study it can be concluded that:
- Greater bone expansion occurred at the coronal position compared to the apical.
- The greatest percentage of bone expansion was recorded on initially narrower ridges compared to wider ridges.
- All implants placed in this study had optimal primary stability with insertion torque values ≥50 N/cm and ISQ values ≥68.
- Osseodensification is a biomechanical site preparation technique that preserves bone bulk and allows for predictable ridge expansion with enhanced primary stability.