“Simpler to Learn, Simpler to Use”

Surgical Placement ND O Ring Implants: Mandible

Although many dentists place immediate load Narrow Diameter implants into the maxilla supporting Soft Tissue Supported Overdentures, I do not recommend it. The bone in the maxilla is much less dense than found in the mandible. As a result, the osseointegration process is jeopardized with the less denser bone. It is better to begin with placing implants into the symphyssis of the mandible as your chances of success are much greater.

**Patient Selection:** The ideal patient is younger, in good health, with maximum healing potential. On average most lower denture wearers are older and their health more likely to have challenges. When placing implants, you should always try to minimize loads and increase support especially during the initial healing stages. Females tend to have lower biting forces and are less likely to overload the implants than men. By occluding with an upper denture, load factors are minimized. The greatest amount and the densest bone is usually found in the symphysis of the mandible. This provides the best support. With your initial implant cases, try to find patients with the following criteria.

1. Lower denture patient.
2. Healthy patient with adequate healing potential.
3. Non smoker
4. Non osteoporotic
5. Non Diabetic
6. Bone height greater than 13 mm
7. Four implants
8. Grade I Dense bone
9. Female
10. Occluding against upper denture

Lower denture patients are the group that can benefit the most from Narrow Diameter implants with sufficient implant/bone surface to support the loads. This is the group that has the best benefit/risk ratio and has most of the above criteria for success. You should start your implant practice by placing Narrow Diameter Implants in Lower denture patients.

**General:** Although ND implants are successful, it is important to understand some of the reasons why they fail.

1. **Inadequate bone quality:** A minimum of 10 mm of bone depth and 3-4 mm in a bucco-lingual direction is required.
2. **Excessive thickness of soft tissue:** A maximum of 2 mm of soft tissue is recommended. Greater than this can cause a long crown/root ratio lever arm resulting in high lateral stresses on the implant. Remove excess tissue using a laser or scalpel before or during the implant placement procedure.
3. **Improper paralleleism:** Divergence between implants of as little as 10 degrees can cause lateral loading problems. Use of the Simpler Paralleling Guide is recommended to ensure paralleleism.
4. **Poor bone density:** Grade I bone as found in the symphysis of the mandible is recommended. Recent and immediate extraction sites are NOT recommended.
5. **Too few implants:** Fewer than 4 ND implants is NOT sufficient to support immediate loads. Use 4 or more.
6. **Poorly adjusted occlusion or too early loading:** Excessive loading especially during the healing phase can prevent integration of the implants. Use a soft silicone cushion liner during the first month or two.
7. **Un-Coated implants:** It is well documented that HA coated implants bond more quickly and more strongly than uncoated implants. HA coated ND implants are recommended for immediately loaded implants.

**Location:** Although a minimum of two and a maximum of four implants are required, it is highly recommended to place four rather than a lesser number of implants. If placing more than two implants, the first two should be placed at least 5 mm anterior to the mental foramina on either side to avoid the mental nerve. This can best be determined from the radiograph especially Tomograms. If three implants are being placed the third should be in the mid line. If two are being placed, they should be in the lateral incisor area. If four implants are being placed they should be equidistant from each other. Use of the “Little GEM™” Edentulous Mandible Guide can assist the clinician in determining the mesio-distal locations. To determine the bucco-lingual location, the entrance hole should be through Attached Gingiva and located to utilize the most available bone. Once these positions are determined, a surgical guide can then be made if needed.
Angulation: All implants should be parallel mesio-distally and bucco-lingually with each other and vertical to the occlusal plane. At no time should the Parallelism of any two implants be more than 10 degrees divergent. The Simpler Paralleling Guide is an excellent instrument to assure parallelism of all the implants.

Depth: The implants should be long enough to engage the lower border of the mandible without perforating the lower border. Determine the length of the implant from the radiographs.

Diameter: The diameter of the implant is predetermined as all Simpler Narrow Diameter implants are 2.5 mm in diameter.

InterProximal Distance: This distance is only critical when placing implant for Crown & Bridge in order to maintain the papillae. It is not critical for Soft Tissue Supported Overdentures as there is no papillae. However, the implants should be no closer than 3 mm from each other edge to edge.

Surgical Placement Procedure

1. Incision: If you are using a Surgical Guide, drill through the mucosa and penetrate the surface of the bone. In most cases it should not be necessary to raise a surgical flap but only make a mesio-distal stab incision through the mucosa at the site.

2. Osteotomy: Using a 1.5 mm Twist Drill and the Simpler Paralleling Guide, make an entry hole through the stab incision in the mucosa into the underlying bone to a full depth.

3. Parallelism: Place a paralleling pin in the osteotomy site. Assess the angulation of the pin from both a mesio-distal and a bucco-lingual direction. Adjust the Simpler Paralleling Guide making any necessary correction to angulation to ensure correct angulation from both a mesio-distal and a bucco-lingual direction. Drill the other holes using the Simpler Paralleling Guide.

4. Depth: Once satisfied as to angulation and parallelism of the starter holes, extend the depth of the holes to the depth of the intended implant.

5. Packaging: The implant is packaged inside an inner vial with a plastic cap. The inner vial and cap are enclosed inside a second plastic “Pillow Box”. The “Pillow Box” is covered with a tamper proof shrink wrap seal. The entire assembly is electron beam irradiated to ensure sterility.

6. Ensure the shrink wrap is intact prior to opening the package. Remove the shrink wrap exposing the “Pillow Box”.

7. Open the “Pillow Box” and “pour” the sterile inner vial and attached cap onto the surgical tray.

8. Carefully remove the cap from the inner vial.

9. Attach the External Hex Driver for C/A to the 32:1 handpiece and ensure the motor is set for 70 to 50 RPM.

10. Snap the open end of the External Hex Driver for C/A over the head of the implant inside the vial allowing the rubber O ring on the Hex Driver to snap over the head of the implant. The implant is now secure enough to the Hex Driver to transfer the implant to the osteotomy site.

11. Transfer implant to osteotomy site: Transfer the implant attached to the Hex Driver to the site and place the pointed end of the implant into a osteotomy site.

12. Threading the Implant Using Handpiece: Using the motor, thread the implant slowly (50 to 70 RPM) into the site until the threads of the implant are engaged sufficient to hold the implant stable.

13. If resistance is met to the threading, it could be due to dense bone. DO NOT force the implant in further. Slowly reverse the implant using the motor and remove the implant and place it back into the vial to maintain the sterility as much as possible.

14. Dense Bone: Enlarge the osteotomy site to full depth using the 2.0 mm Twist Drill. Repeat Step 12.

15. Final Threading of Implant Using Ratchet: Once the threads of the implant are engaged, remove the C/A Hex Driver from the implant.

16. Attach the External Hex Driver for Ratchet into the Ratchet and continue threading the implant into the osteotomy site until the bottom of the hex portion is level with the mucosa.

17. Grind the inside of the denture out with an acrylic bur and check to ensure the denture does not hit on the implants when seated.

18. Fill the space with Silicone Liner and trim off the excess. Paint the margins with Silicone varnish.

19. After 6 weeks, remove the silicone liner and replace it with rubber O rings and keepers. The implants should be integrated sufficiently to accomodate the loads produced by the removal and inseretion of the denture.