

Full Arch Rehabilitation: All-on-4™ Restorative Steps *Roadmap for Success*

Treatment Planning/Diagnosis

1. Setup meeting with Treatment Team to discuss case – communication is key

2. Qualifying the Patient

When evaluating a candidate for All-on-4™ treatment, the most essential components are the patients' current esthetics and function. It is important to identify the patient's smile line and vertical occlusal space. If there are noticeable problems with their current esthetics or function, now is the time to correct these.

Examples of issues that may need to be corrected pre-operatively:

- ☐ Poor Fitting Dentures
- ☐ Limited Inter-Occlusal Space
- ☐ Incorrect Bite
- ☐ Insufficient space for prosthesis

3. Treatment Planning Evaluation Questions

Comfort

- ☐ Please describe any type of discomfort or awareness of pain associated with your denture or partial.
- ☐ What is your experience sleeping with dentures in your mouth?
- ☐ Do you notice a burning sensation in your mouth?
- ☐ Do you currently have sore spots with your denture?

Esthetics

- ☐ Have you noticed changes in the appearance of your face?
- ☐ Are you happy with the appearance of your teeth?
- ☐ Are you confident with your smile?
- ☐ Are you concerned with signs of aging (appearance of face)?
- ☐ Do you have sores at the corners of your mouth?

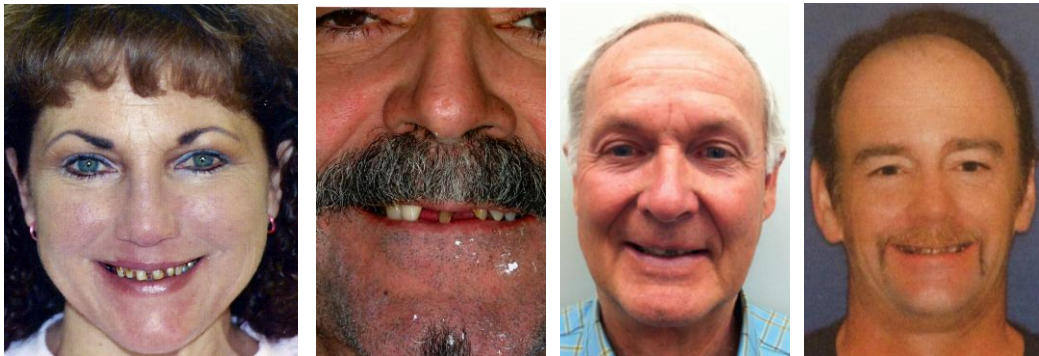
Function – Chew and Speak

- ❑ Can you eat and speak comfortably without pain or looseness of the denture?
- ❑ Do you use denture adhesives? Occasional or routine? What is your attitude toward adhesives?
- ❑ Can you easily eat dry food (for example, a granola bar)?
- ❑ Do you ever notice dryness of your mouth, including your lips?
- ❑ Do you ever feel like your lips stick together?

Dental History

- ❑ When was your last reline or adjustment of denture?
- ❑ How long have you been using dentures/this denture?
- ❑ Did you use a removable partial denture before full?
- ❑ What was the reason for tooth loss? (perio/destructive function/caries)
- ❑ What food limitation have you experience because of chewing challenges? Any special requirements for food preparation?
- ❑ Can you eat what you would like to eat? Why not?

Examples of Candidates for All-on-4™ Treatment:



Examples of Candidates for All-on-4™ Treatment:



4. Capture Vertical Dimension of Occlusion (VDO) for Restoration/Smile Line

- A. Vertical Dimension of Occlusion (VDO), also known as Occlusal Vertical Dimension (OVD) is a term used to indicate the superior-inferior relationship of the maxilla and the mandible when the teeth are situated in maximum intercuspation. A VDO is not only possessed by people who have teeth, however; for completely edentulous individuals who do not have any teeth with which to position themselves in maximum intercuspation, VDO can be measured based on the subjective signs related to esthetics and phonetics. Vertical dimension can be captured using a base plate and bite rim.

- 15mm of space (minimum) is required for NobelProcera® Implant Bridge - *Fixed* (Restoration (Measure Length of Central Incisor + 6mm))

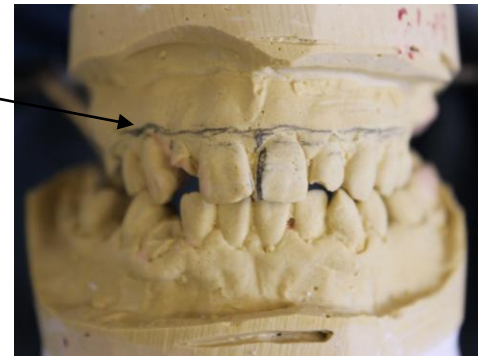


5. Identify Smile Line and Transition Line of Prosthesis - make sure transition line of prosthesis is apical to smile line

- If soft tissue is visible while smiling, measure the distance between the gingiva above central and lateral incisors and the extreme border of the upper lip



Smile Line
Transition Line
of Prosthesis



6. Photographic Evaluation

- ❑ Full Face, Lips at Repose
- ❑ No animation – with and without Denture/Partial
- ❑ Full Face Smiling – with and without Denture/Partial
- ❑ Lips Retracted, Teeth apart – with and without Denture/Partial
- ❑ Lips Retracted, Teeth together – front, right, and left sides
- ❑ Side Profile, Full Face
- ❑ Side Profile, Smile
- ❑ Intra-oral Alveolar Ridge without Denture
- ❑ Denture out of Mouth: Occlusal View and Intaglio View

Example: No Animation with & without Denture/Partial



Example: Smiling with & without Denture/Partial



Example: Retracted with & without Denture/Partial

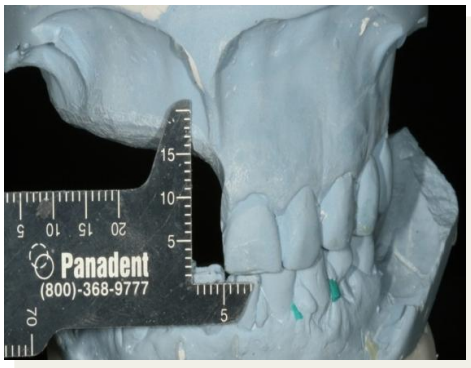


6. Case Evaluation – Esthetics

- ❑ Lip Support
- ❑ Naso-Labial Angle
- ❑ Facial Midline
- ❑ Occlusal Plane
- ❑ Lip Size – Flat and Thin
- ❑ Tooth Display at rest, and when speaking
- ❑ Lip Dynamics
- ❑ Smile Line
- ❑ Transition Zone

7. Ridge Reduction (Alveolectomy)

– determine how much is necessary



8. Take Accurate Records

- A. Assess the condition of the oral mucosa, ridges, facial, cheek, and lip support (contours).
- B. Take Impressions of both arches and Bite Registration. The impressions must include the palate and vestibules in the maxilla and the vestibules and retro molar pads in the mandible.



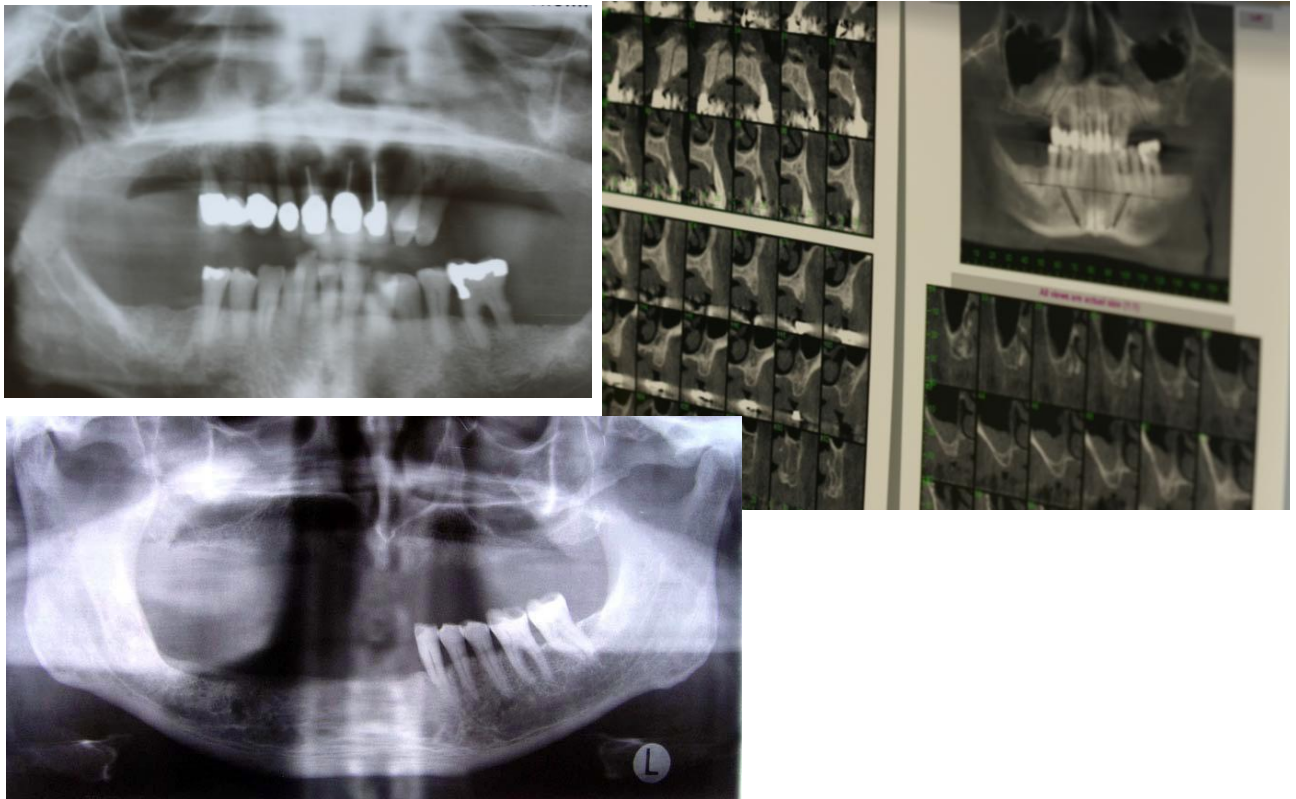
- C. Make sure to include the Edentulous Saddles
 - i. Bite Rims are necessary if edentulous saddles cannot be capture on initial impressions.
 - ii. If bite will be opened, take a new bite registration with wax rims tried in

9. Shade/Mold Information –

- ❑ Consult with patient regarding the color, shape, and size of teeth that will be suitable.
- ❑ Send photos, shade/mold information, measurements, and patient's desires concerning esthetics of denture to Dental Laboratory. The Laboratory will utilize the impressions and other information to fabricate immediate denture to be used as provisional prosthesis on the day of surgery.

10. Evaluate Bone Volume

- ❑ With CT Scan and X-rays determine implant/restorative options based on the amount of bone volume



11. Discuss Patient Symptoms/Issues, Expectations, and Motivation

12. Review steps/coordinate schedules

- ❑ Surgical Specialist based on CT Scan determines and orders Implants and Restorative Components w/alternative sizes/angles:
 - ❖ Multi-unit Abutments: Straight, 17°, 30° angle correction w/varying tissue depth
 - ❖ Temporary Copings Multi-unit + Prosthetic Screws (extra)
 - ❖ Multi-unit Abutment Healing Caps
 - ❖ Impression Copings – Open Tray – for final prosthesis
 - ❖ Multi-unit Abutment Lab Analogs – for final prosthesis

Immediate Provisionalization Materials:

Equipment:

- ☐ Handheld Light Unit
- ☐ Bench Lathe
- ☐ Electric Handpiece
- ☐ Dust Hood with Vacuum (Handler Bench Top Porta-Vac)

Hand Tools:

- ☐ Rubber Dam Punch
- ☐ Great White Burs (SSW HP-8)
- ☐ #25 Surgical Blades
- ☐ #6R Redwood Plaster Knife
- ☐ #7R Redwood Plaster Knife
- ☐ Small Surgical Scissors
- ☐ Instrumentation: Prosthetic Kit (torque wrench, Unigrip drivers 20, 25, 30mm, multi-unit abutment driver)
- ☐ Perio Probe or Explorer

Supplies:

- ☐ Blue Mousse Bite Material or Similar
- ☐ Rubber Dam
- ☐ Aquasil Ultra XLV Fast Set, Teflon Tape, Cavit or Wax for blocking out screw access holes
- ☐ Exothermic Polymer Acrylic - Cold Cure (3M Secure, Dentsply Dual Line, Unifast Trad, or Quik Set)
- ☐ eFiber and Perma Mesh to strengthen the denture (Preat)
- ☐ Ivoclar Universal Polishing Paste
- ☐ Keystone b12 Brush Wheels
- ☐ Lab Pumice and Rag Wheels
- ☐ Burs and Brushes for Acrylic Finishing
- ☐ Telio TS (Ivoclar light cure composite) to fill in screw access holes over Teflon tape and cotton pellet

Dental Laboratory creates Immediate Denture & Surgical Guide:

1. Wax Try-in Denture

- ❑ Based upon impression and bite registration a Wax Try-in Denture is created by the Dental Laboratory. The Wax Try-in for Immediate Denture is designed to verify vertical dimension, esthetics, phonetics, and facial support. Improvements and modifications to the denture can be made at this time.
- ❑ After modifications are complete, the Dental Laboratory processes an immediate denture



2. Re-mount and Equilibration



3. Cross Mount and Occlusal Guide and Bite Registration



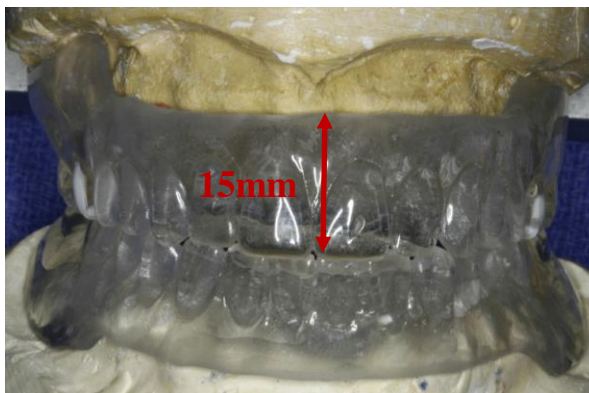
4. Duplicate Denture and Trough out Lingual for Surgical Template



5. Add 30-45 Degree Angulation for Posterior Implant



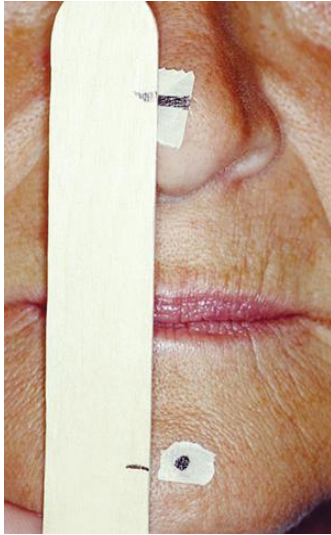
6. Indicate Amount of Ridge Reduction and Mark on Surgical Template



Surgery & Immediate Provisionalization:

1. Measure and Mark Vertical Dimension of Occlusion prior to Surgery

- Surgical placement of dental implants is based off the immediate denture in an effort to maintain the patients' proper vertical dimension. Before extracting the teeth, the surgical specialist will mark the chin and nose and measure the distance while the patient is in occlusion.



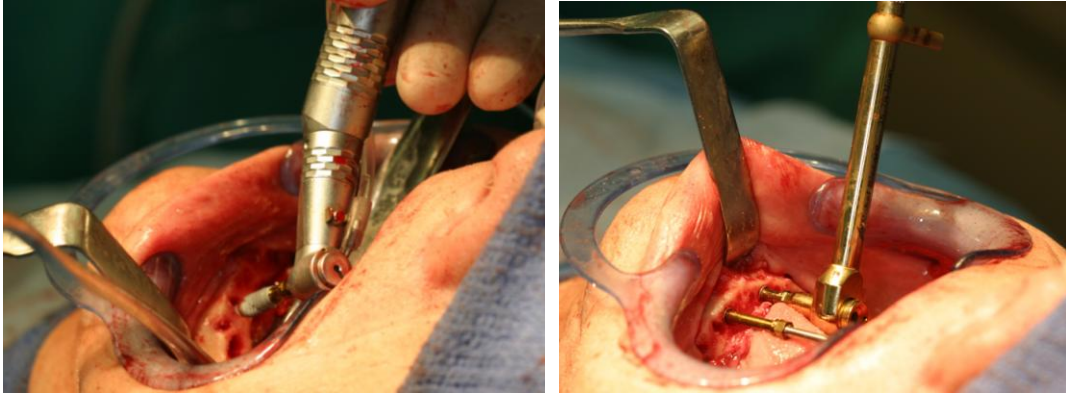
2. Extract Teeth and Reduce Ridge (alveolectomy)

- Ridge is reduced based on pre-determined amount indicated in surgical template (necessary to accommodate prosthesis).



3. Placement of Dental Implants

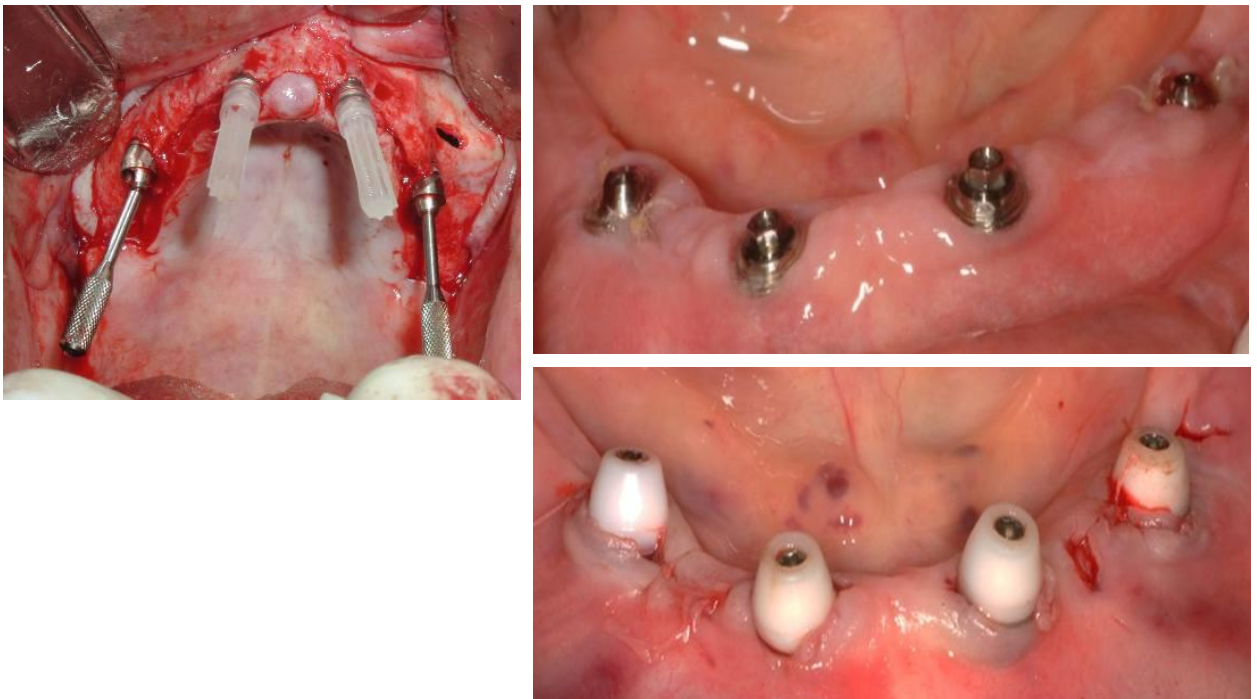
- Implants are placed in the arch, equally distributed and angulated to avoid the natural anatomy (sinus and nerve). Implants must achieve initial stability of at least 35Ncm of torque in order to immediately provisionalize the implants with the patients' immediate denture.



- In the case of a dual arch surgery, the upper denture should be provisionalized first, utilizing the palate as a guide in the maxilla and the retro molar pad and bite registration in the mandible.

4. Attach Multi-Unit Abutments

- Once implants are placed, multi-unit abutments can be placed - 30° Multi-Unit Abutments in posterior/tilted implants and Straight or 17° Multi-unit Abutment in anterior. Hand tighten – take X-ray to verify seated properly. Torque to appropriate Ncm – Angled (15Ncm)/Straight (35Ncm). Attach Multi-unit Abutment Healing Caps prior to suturing.

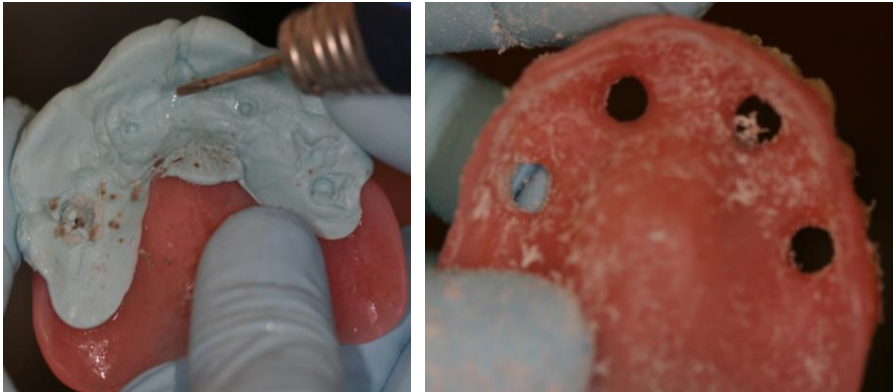


5. Index position of Multi-Unit Abutments

- Use Blue Mousse to line the intaglio surface of denture to index position of abutments.



6. Hollow-out space in denture for Temporary Coping Multi-unit



7. Attach Temporary Coping Multi-unit to Multi-Unit Abutments

- Place hollowed-out denture over Temporary Coping Multi-unit cylinders (passive fit)



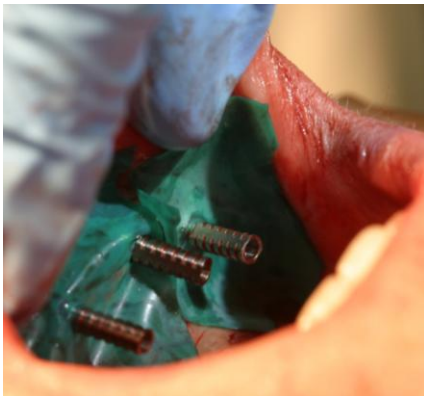
8. Reduce Height of Temporary Coping Multi-Unit

- With Sharpie marker, mark the height the Temporary Coping Multi-unit cylinders need to be cut down to allow the patient to bite down. Remove Temporary Coping Multi-unit cylinders and trim to appropriate height. Can be done before or after pick-up with acrylic.



9. Attach Rubber Dam

- Place Rubber Dam around Temporary Coping Multi-unit cylinders (barrier between surgical and restorative materials). Place Light Body Impression Material, wax, or Teflon Tape in top of Temporary Coping Multi-unit cylinder to prevent acrylic from getting inside. Verify proper seating and alignment of denture with pre-operative Bite Registration.



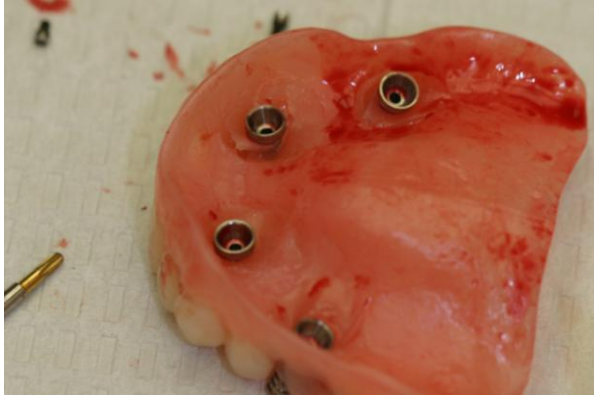
10. Pick-up Temporary Coping Multi-unit cylinders

- Use Cold Cure Acrylic (any Exothermic Polymer Acrylic e.g., 3M Secure, Unifast Trad, or Quik Set). Allow Cold Cure Acrylic to set-up.



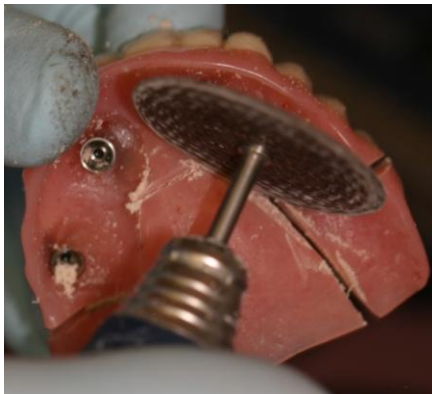
11. Remove Prosthesis with Temporary Coping Multi-unit cylinders processed in acrylic

- With UniGrip Driver unscrew prosthesis and remove Prosthetic Screws with a Perio Probe (wax block-out may make Prosthetic Screws difficult to remove). Attach the white Healing Cap Multi Units on the Multi Unit Abutments while the provisional prosthesis is being finished.



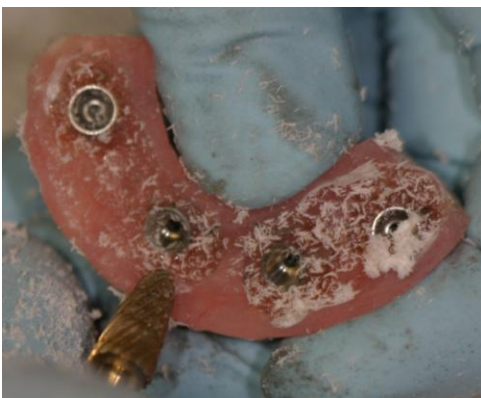
12. Convert from Immediate Denture to Fixed Implant Bridge

- Trim palate, borders, phalanges, and remove distal cantilevers beyond 3mm.



13. Polish and Smooth Surface of Fixed Implant Bridge

- Maintain intaglio surface of denture – create ovate pontic contour for ease of maintenance/hygiene for patient. Remove any sharp angles or edges



14. Attach Provisional Fixed Implant Bridge Prosthesis w/Prosthetic Screws

- ❑ Torque Prosthetic Screws with Unigrip Driver to 15Ncm.
- ❑ Fill in screw access w/Teflon Tape and composite.
- ❑ Adjust occlusion using articulation paper – reducing any high spots to level occlusion.



15. Recommended Diet during Healing Phase

- ❑ A semi-solid/soft food diet is recommended while the implants Osseo integrate – 3-4 months. The patients can eat anything they can cut with a fork (cooked vegetables, canned fruits, well-cooked meat/fish/chicken, etc. Avoid raw vegetables, fruits, and nuts until the implants have Osseo integrated.)

16. Hygiene and Maintenance

- ❑ For the first 14 days following All-on-4™ Surgery & Provisionalization – have the patient rinse with Peridex Oral Rinse.
- ❑ After 2 weeks, use a water pick and soft bristle toothbrush with non-abrasive tooth paste to clean.
- ❑ Regular hygiene visits are recommended every 6 months. Evaluate prosthesis for plaque build-up or red/inflamed soft tissue. If tissue appears healthy, have hygienist clean around implants like an ovate pontic on a bridge.
- ❑ Remove prosthesis if tissue is red/inflamed or calculus is built up on prosthesis. Use Unigrip Driver to remove Prosthetic screws and clean in the ultrasonic. Use ProClean (tartar and stain remover) for cleaning the prosthesis. Soak screws in alcohol or sterile water. Replace Prosthetic Screws with new screws after removing more than 2 times. Torque Prosthetic Screws to 15Ncm with Unigrip Driver.

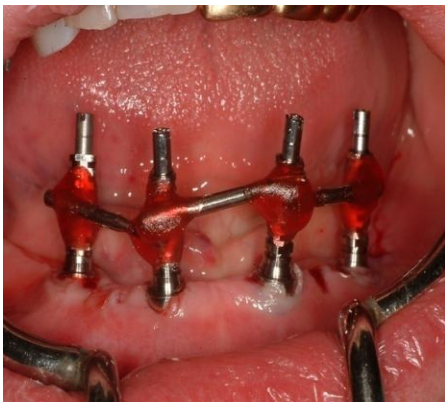
Final Prosthesis – NobelProcera® Implant Bridge:

1. Custom Tray Impression

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Take an Alginate Impression for custom trays to be manufactured
- ❑ Take an impression of the opposing arch, if needed
- ❑ Take impressions of temporary dentures, to indicate the patients likes/dislikes of existing dentures

2. Final Impression

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Attach Open Tray Multi Unit Impression Copings to Multi Unit Abutments – take X-ray to verify seated properly. Lute impression copings together with ortho wire and light cure material or pattern resin – create a rigid frame to ensure accuracy. The Dental Laboratory will lute the Multi Unit Abutment Replicas together when attaching to the impression copings and pouring up the master cast to ensure accuracy.
- ❑ Make sure the custom tray clears the Open Tray Impression Copings, adjust tray if needed.
- ❑ Use heavy body impression material around the impression copings and a medium body impression material for the tissue area



3. Verification of Master Cast and Final Records

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Take a Bite Registration
- ❑ Mark Midline, High Lip Line, Incisal Edge and Shade
- ❑ Verification Jig Try-in - The Jig MUST sit passively to each implant/abutment. Take an X-ray to verify seated properly. If the jig does not fit passively, section the jig and re-take final impression with the custom tray over the jig.



4. Wax Try-in

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Wax Try-in - If esthetics, phonetics, function, and lip support are acceptable, send to lab for the NobelProcera® Implant Bridge Titanium framework to be milled. Note: the lip support is provided by the gingival third of the tooth. There is no denture flange to provide bulk. If more support is required than what is provided by the wax try-in, then the necks of the teeth will need to be brought forward.
- ❑ Try in Jig (if didn't fit passively the first time)



5. NobelProcera® Implant Bridge Titanium framework Try-in

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Try-in the NobelProcera® Implant Bridge Titanium framework, verify passive fit with each implant/abutment
 - ❖ Teeth will be set in wax



6. Seat the NobelProcera® Implant Bridge - Final Prosthesis

- ❑ Un-screw the provisional implant bridge with Unigrip Driver
- ❑ Seat the final prosthesis - Take X-ray to verify seated properly. The final prosthesis should seat firmly against the soft tissue, like an ovate pontic. The design of the tissue interface should be such that it causes the tissue to roll over the prosthesis on the buccal and lingual aspects.
- ❑ Torque the Prosthetic Screws with Torque Wrench to 15 Ncm when attaching to Multi-Unit Abutments. Always use new prosthetic screws to seat the final prosthesis.
- ❑ Block out screw access holes to protect screw head with Teflon Tape, Foam, etc. Seal screw access areas with Acrylic
- ❑ A night guard is provided

