

Custom Single Unit Locator Abutments

CASE REPORT: FABRICATION OF A MAXILLARY OVERDENTURE SUPPORTED BY CUSTOM WAXED AND CAST LOCATOR ABUTMENTS

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A twenty eight year old Asian female presented with maxillary and mandibular complete arch porcelain fused to metal cemented fixed partial prostheses (Fig.1). There was advanced bone loss around all the abutment teeth with concomitant mobility of the splinted abutments and prostheses.

After the mandibular arch was treated and screw type of implants were surgically placed, allowed to heal for four months, uncovered, and loaded with a metal supported second stage screw retained provisional prosthesis. Then the maxillary prosthesis was sectioned, and a clasp retained cobalt-chrome clasp retained removable partial denture made and inserted as an immediate appliance.



The left maxillary posterior abutment teeth were extracted and a left sinus-lift bone graft performed. Simultaneous implant placement was not possible due to the inability to stabilize the implant bodies. They were placed after nine months. Four maxillary anterior implants were surgically placed at this time. After uncovering four months later, the deviation from the vertical was about 30 degrees. This was due to the lack of anterior alveolar bone. However, implants were placed so that a maxillary overdenture could be retained and stabilized after bilateral maxillary sinus lift and implant placement surgery. These anterior implants

would, after uncovering of the bilateral sinus lift implants, be incorporated into the maxillary screw retained hybrid prosthesis.

Custom waxed and cast locator attachments were planned to be created in order to support the transitional removable partial denture, so that the right clasp assembly could be cut off and the right posterior remaining teeth extracted and a sinus bone graft placed. This removable partial

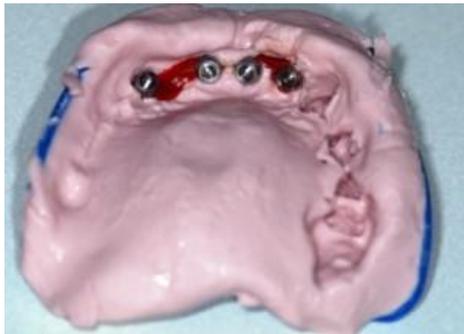


overdenture was converted to a complete maxillary overdenture when the right posterior teeth were extracted and a sinus lift graft placed surgically.

Technique for creation of customized angulated maxillary anterior Locator attachments involves the taking of an elastomeric impression with an open tray at the implant level after healing of the soft tissues

Fabricate an acrylic resin customized tray with anterior opening for an open-tray impression at implant level. Screw to place four impression copings with guide pins for an open tray impression. Ensure the seating of the hexes with right angled radiographs.

Take an elastomeric impression. Syringe the light bodied material around the four impression copings. After set, unscrew the impression copings and remove with the impression.



Secure the implant level analogues in place. Spray a separating medium for silicones. Syringe a gingival simulation material around the impression copings. Allow the material to set and then box and pour the cast with die stone. This allows the practitioner to create a soft tissue cast for simulation of the patient's gingiva.

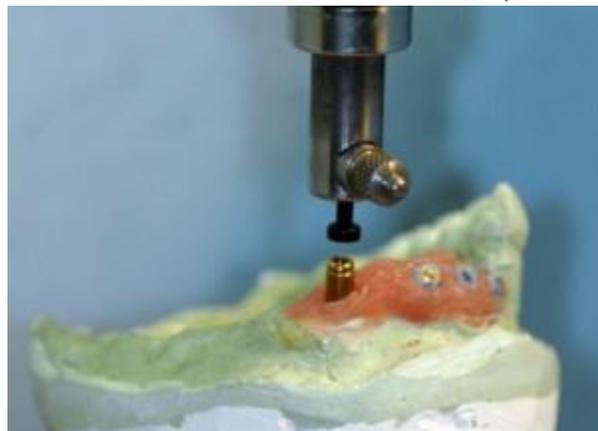
Verify the hex positions and the positions of the implant head to the impression copings and alter the cast if necessary.

Mount the maxillary and mandibular casts in a centric relation position at the desired VDO.



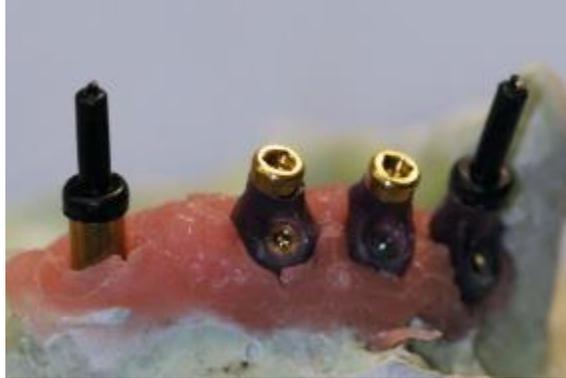
Castable UCLA types of cylinders were screwed to place on the analogues. Custom waxed angulated heads are waxed; a stainless steel wire is prepared and placed in each wax up for positioning of the Locator heads, invested and cast in the preselected metal.

Use the paralleling mandrel to set the castable threaded inserts (with the threaded male inserted).



Survey and place the Locator female attachments parallel to each other using the paralleling mandrel or black paralleling post.

These custom waxed and cast angulated abutments were only necessary on the two central incisor and right lateral incisor implants. The angulation of the left lateral incisor implant did not need a custom abutment. All the abutments were aligned using a parallelometer.



After casting, divest but do not place in acid for gold cleaning until the metal wire is removed. Then the casting can be placed in acid for cleaning of the metal alloy.

Use the Locator Bar tap clean out the cast threads.

The threaded Locator female allows retrievability if servicing is required on the attachment.

Removal of the investment material from the threaded insert without damage using an ultrasonic cleaner solution, shell blast, bead blast, or use a [Fiberglass or Brass Pencil](#).



Finish and polish the casting in normal manners.



Locator black processing cap males are inserted into the metal housing for chairside pick-up into the denture. These are snapped onto the Locator females which are already in place in the patient's mouth.

Sufficient room is cut out from inside the patient's removable prosthesis to fit over the Locator attachment systems.

Place a white block-out spacer over the head of each Locator abutment. This spacer will block out the area surrounding the abutment

Ensure that there is sufficient space between the denture base and the Locator male cap.

Cut a lingual escape vent, verify that all undercuts are completely blocked out, and mix autopolymerizing denture resin into a loose mix and place it into the prepared recesses of the denture base. Then seat the denture into the mouth and hold in place until the resin sets. Remove the denture. The Locator male attachments should be incorporated in the denture base.



Carve and polish the maxillary removable denture with the incorporated denture base.

Seat metal analogues into the Locator male attachments that have been previously incorporated into the denture and pour a mounting cast.

Using a face-bow index and verified maxillo-mandibular records the maxillary prosthesis is mounted on a semi-adjustable articulator and the occlusion equilibrated.

Adjust the occlusion for bilateral balance, as would be for any other complete removable denture.

Insert the overdenture; maintain a labial flange to mask the custom waxed and cast angulated abutments.

After any posterior surgical procedure, line the denture base with a tissue treatment material as the surgical area heals.



This overdenture will be used until the posterior implants are uncovered.

Then a screw retained provisional prosthesis will be made for the maxillary arch.

The custom waxed and cast Locator abutments are changed to manufactured angulated abutments and incorporated into the screw retained provisional prosthesis.

Thus, sequential treatment planning, after a thorough diagnosis, avoids the patient wearing a mucosal retained maxillary complete denture. This type of situation requires the restorative dentist to have a clasp retained, cobalt-chrome framework fabricated by the laboratory technician prior to removal of any teeth, or other surgical procedures, and to explain to the patient what will be performed.





The posterior cobalt chrome clasp assembly is removed prior to extraction of the maxillary right posterior teeth. This is done after insertion of the anterior custom waxed and cast angulated Locator abutments and after patient is acclimated to the prosthesis. After healing of the left posterior quadrant, four implants are surgically placed using a surgical template for guidance. Four to six months after implant placement, the soft tissues will be opened and the implants uncovered. Healing abutments will be installed by the surgeon, the transitional prosthesis will be relieved and the right posterior quadrant will have 4 posterior implants placed with a sinus lift procedure



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