

# The All-Soft 'Hallowed' Bulb Obturator

*By Tim Lane, CDT*

*Patient photo by Dr. Paivi Samant  
All other photos by Tim Lane, CDT.*



## QUIZ

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See Page 45.

Halloween, with its biting emphasis on jangled toothed jack-o-lanterns, frightfully fanged vampires and other devilishly dentaed demons has always been a season of inspiration for many dental technicians. And yet, my inspiration wasn't the smile of the jack-o-lantern, but its stem capped lid. My blueprint for an all-soft hollow bulb obturator was that festive holiday orb, the pumpkin.

Obturators are appliances that close palatal openings due to cancer, trauma or congenital defects. This patient has a defect as a result of surgery (**Figure 1a**). An obturator will seal the defect and help restore speech and mastication.

We received this case from the prosthodontist set up, waxed, sealed and ready to invest (**Figure 1b**). We begin from there.

Because of its size, it was invested in a Valplast flask. Boilout reveals the defect is located in the right posterior quadrant and on the opposite quadrant are implants with a bar and three Hader clips (**Figure 2**). The attachments will be placed chairside and will not be addressed here, so on to the fabrication of the obturator.

We start by making a silicone (Dentsply's Trixa) matrix for the bulb. Mix the putty and catalyst, flatten it out to a 2mm thickness large enough to cover the defect, press it into the void and shape with fingers being careful not



Figure 1A & 1B



Figure 2

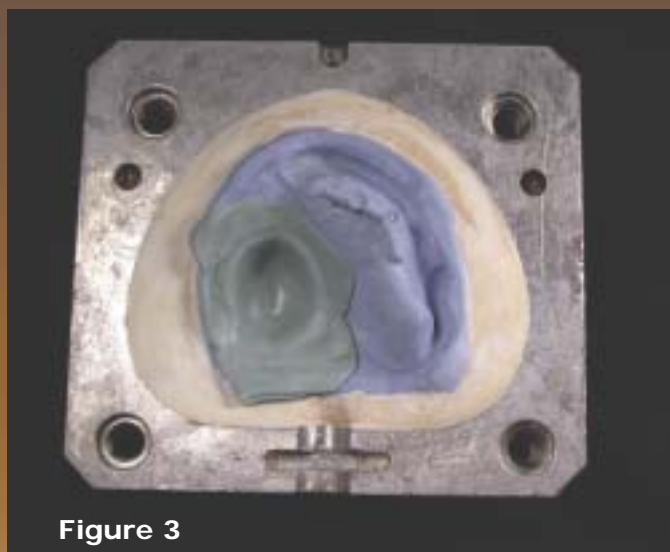


Figure 3

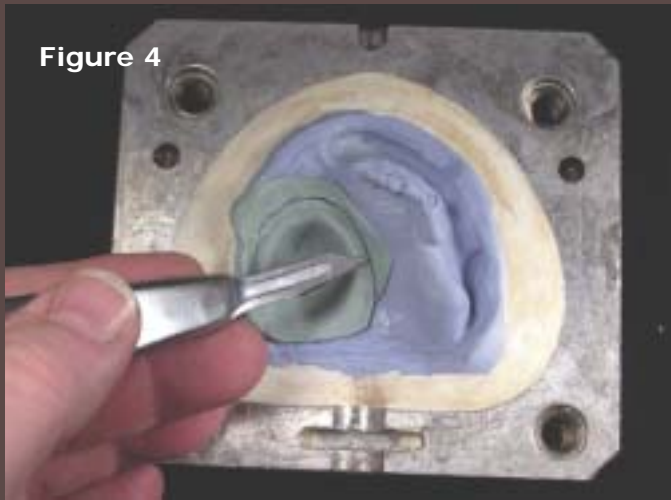


Figure 4



Figure 5

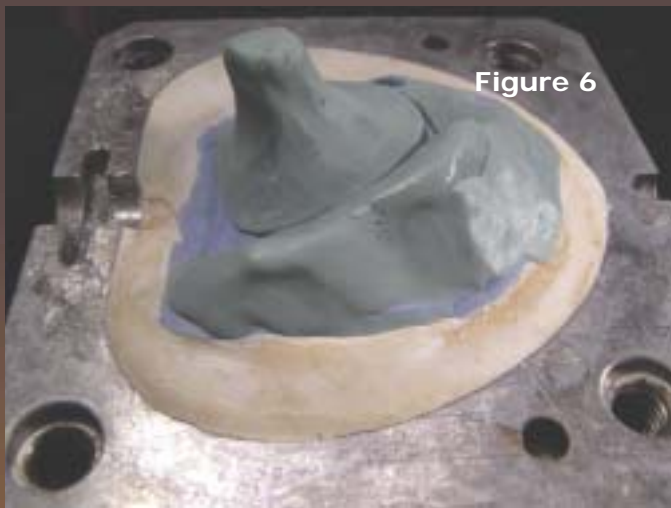


Figure 6



Figure 7



to create undercuts on the concave surface of the matrix (**Figure 3**). After it sets, trim with a knife (**Figure 4**) and adjust the thickness with a bur.

Insert the hollow bulb matrix (**Figure 5**) back into the mold and lubricate its exposed surfaces (petroleum jelly). Make the 'pumpkin' plug. It should fill the bulb matrix and extend just past the matrix's edge. Form the stem of the plug so that it is keyed and curved just enough to keep it from dropping out of the stone and yet still be removable after the stone layer sets (**Figure 6**). Use silicone putty to block out any undercuts on the master model (in this case, the bar/attachment area and labial sulcus area) so that investing stone will not capture it. Using an extra flask top, reinvest the second layer to capture the plug while the blocked out attachment area pulls free – petroleum jelly may be used on the blocked out area but do not use it on the plug (**Figure 7**).

With a scalpel, cut out a collar from the plug. The design of the plug allows for its removal from the mold to facilitate this. Because of the location of the defect, a dome will be placed on top of the collar so that not only the obturator portion of the prosthesis will be hollow but also the acrylic portion of the ridge/tuberosity area. This will help reduce the weight of the appliance (**Figure 8**). If the obturator were in the center of the palate where thickness is a concern, then the interior wall of the collar would need to be cut at an angle to allow the cap (to be processed in a later stage)

to nestle into it without falling into the bulb. This is basic pumpkin carving theory 101.

Discard the collar and pack the resulting void with acrylic (Dentsply's Lucitone 199) (**Figure 9**). Use sheets of plastic (Yates and Bird's Plastipac) on both halves of the mold so that the resulting acrylic collar is sandwiched between them. Close and tighten down the flask. Let the collar bench set for at least an hour to gain the proper stiffness. When the collar is sufficiently stiff enough to facilitate packing the bulb, remove the hollow bulb matrix and slowly press in the soft material (Dentsply's Luci-Sof) to allow the material to flow properly. Multiple trial packs are required. Do not overpack. Add small increments of material to prevent damage to the plunger or distortion to the collar (**Figure 10**). When the void is sufficiently filled, remove the Plastipac between the acrylic collar and soft silicone material but leave the Plastipac between the acrylic collar and the top half of the mold that covers the plunger portion of the plug to prevent the Luci-Sof from bonding to the plunger. Close the flask, secure with screws, and cure at 163° for 90 minutes then boil for four hours.

Do not divest; simply separate the two flask halves. If the obturator is in the center of the palate and a flat cap is needed, then simply cut the stem portion of the plunger even with the top of the collar. Insert the stem back into the mold (**Figure 11**). Cover with Plastipac. Cut the bottom portion of the plunger flush with the bottom of the collar. Insert it into the bulb. Cover with Plastipac. The remaining silicone midsection is discarded. The resulting void forms the 'cap' when packed with acrylic.

However, in a case such as this where much of the ridge is lost, using a dome instead of a cap will make the tuberosity/ridge area hollow. Ideally, this ridge reconstruction is done during the preliminary bite rim/set up stage to determine its correct size and placement. In this case, after removing the stem, the plunger was shaped into a dome. Block out the



Figure 8

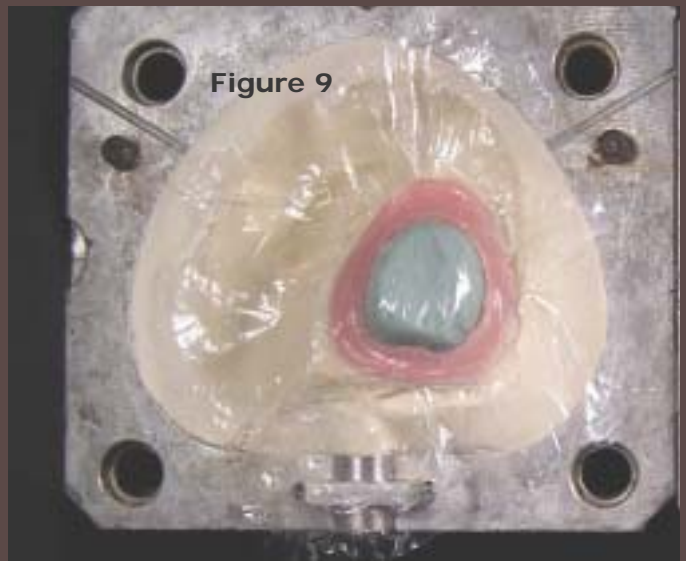


Figure 9

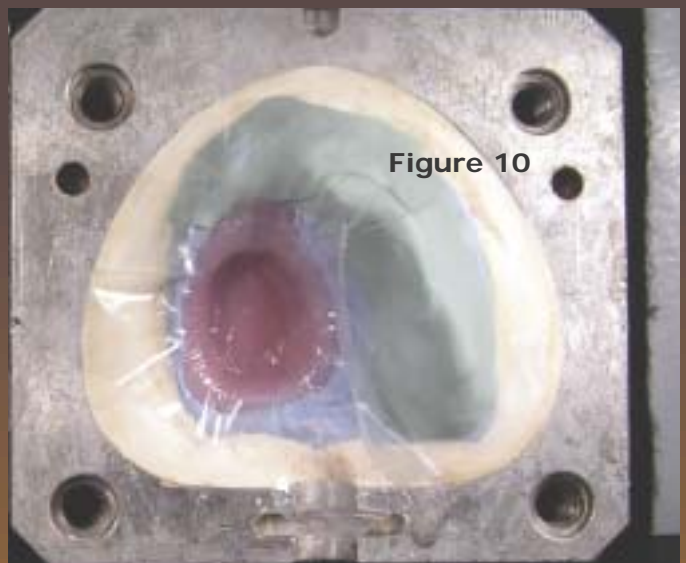


Figure 10

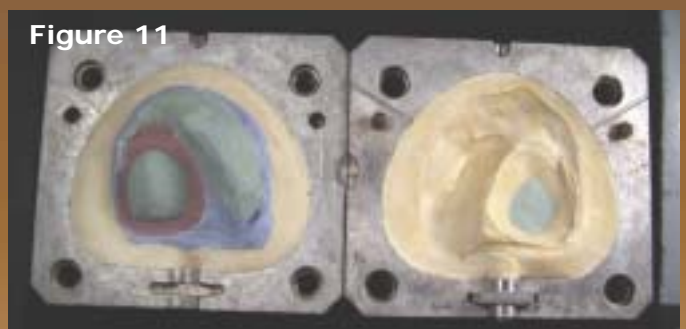


Figure 11

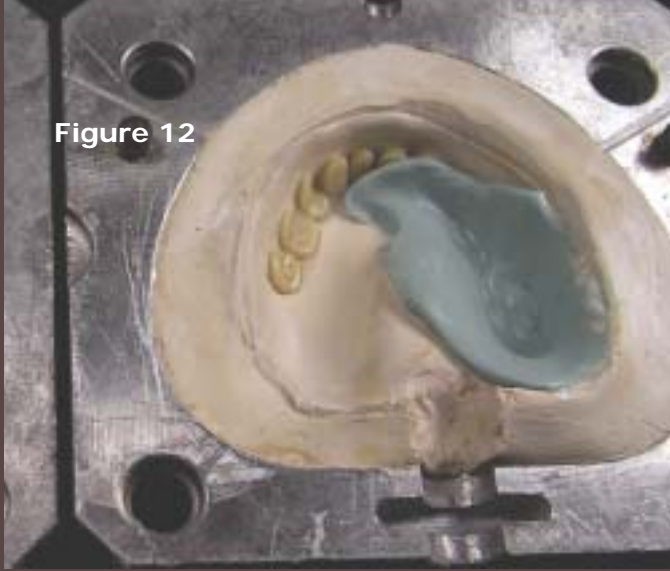


Figure 12

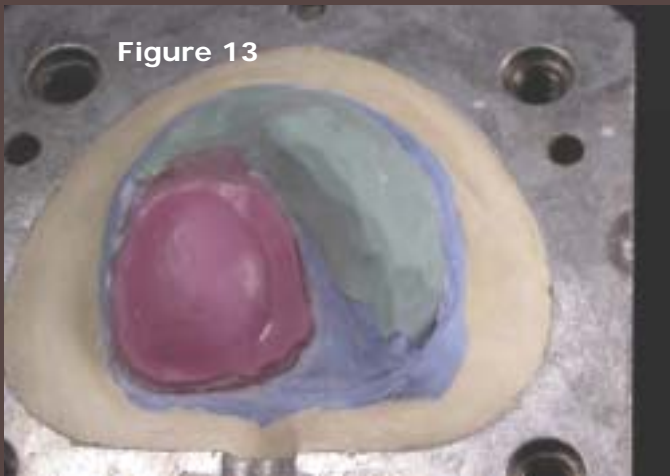


Figure 13

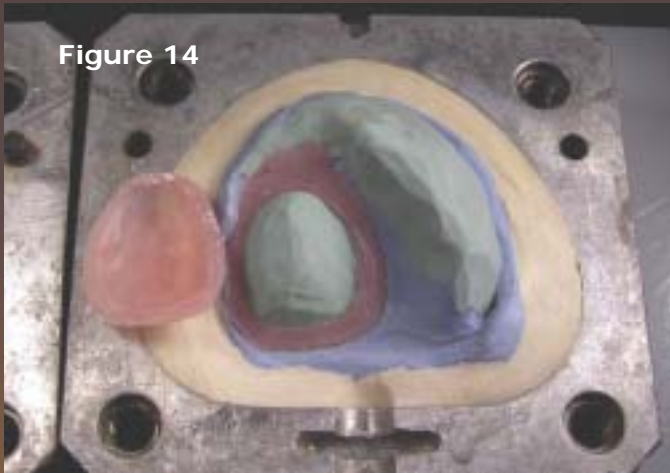


Figure 14

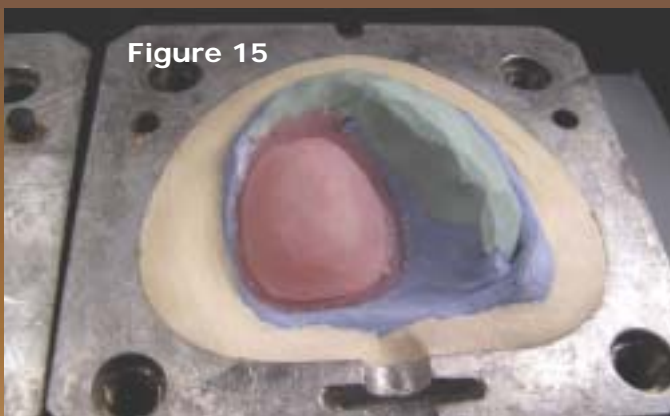


Figure 15

original upper flask half with more putty to approximate an acceptable denture base thickness (Figure 12). Make a wax shim (Figure 13) and verify the clearance using the two halves.

After clearance verification, use another top flask half to reinvest. Boil out and pack the acrylic dome. Important: on the final close, leave a sheet of Plastipac between the collar and the new acrylic so that after curing, the two halves will separate and the putty plunger-dome can be removed. Close, cure, cool and separate the two flask halves (Figure 14). Remove the putty plunger/dome and discard. Trim the dome so that half of the collar lip is exposed (Figure 15). Paint the contact area of the processed dome with a small even amount of self-curing acrylic just enough to lute it to the collar. Let this bench set. Do not put it in a pressure pot, as this will introduce moisture into the bulb. The final pack will finish sealing the two halves and the exposed collar lip will bond to the denture base to ensure the bulb will not separate from the base.



Remove the extra block out putty from the master model in the original top flask half. Verify that the flask halves will close properly. Mix acrylic for the final pack. Place the new acrylic in the upper half of the flask. Carefully trial pack. Do not over fill to prevent crushing the dome. Verify the integrity of the dome after each trial pack. When ready for final closure, wet the dome and collar assembly with monomer to promote a good bond with the new acrylic and close. Process and finish as you would a normal denture following the manufacturer's directions (**Figure 16**).

The softness of the material combined with the hollow aspect of the bulb (**Figure 17**) allows for easier, more comfortable seating into the patient's defect and greatly reduces the total weight of the appliance. **JDT**

### About the Author:

Lane owns Cynosure Dental Laboratory, CDL, which specializes in removable prosthodontics in Memphis, Tenn. He is a past president of the Tennessee Dental Laboratory Association, a moderator for the InternetDentalForum's dental laboratory mailing list and a frequent poster at [www.dentalab.us](http://www.dentalab.us), an interactive forum for the worldwide dental community.



Figure 16



Figure 17

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