Masterclass in Clinical Practice

Implant Dentistry with Prof Andre W van Zyl Dr Johan Hartshorne



Anatomic implant impression technique: Transferring soft tissue contour to the lab Gingiva is anchored to a tooth by junctional epithelium and more importantly, by dento-gingival fibres. This will ensure that there is minimum distortion of the gingiva when taking an impression, giving the dental technician a precise impression of the dento-gingival complex. The dental technician has further guidance from the shape of the tooth in creating the perfect emergence and shape of the final crown.

However, when taking an impression of a dental implant, especially in the aesthetic zone, we have no fibre attachment and the shape of the implant plays no role in determining the shape of the crown. To create the ideal aesthetics with an implant crown, one should use a provisional crown to guide the soft tissue. This may take weeks and in extreme cases months.

Within seconds of removing a healing abutment or provisional crown for the impression, the gingiva starts sagging inward, losing its shape. In order to transfer the exact soft tissue contour to the lab, an impression of the soft tissue is needed, with no distortion. However, when a conventional impression is taken, the tissue sags inward as described and is then distorted by the pressure from the impression material and pushed outward. In the aesthetic zone this may be worse than posterior as we often have 4-5mm of unsupported buccal gingiva with no fibres keeping it in place- thereby exacerbating the distortion. When taking a digital impression, one may also lose the exact shape of the gingiva within seconds as it sags inward, and it may impact on the accuracy of soft tissue contour.

The described technique enables an exact transfer of the soft tissue contour according to the shape of the provisional crown. This guides the dental technician in preventing a buccal over contoured crown, which in turn may lead to recession of the buccal gingiva with resultant aesthetic complications.

Step by step procedure for an anatomical impression:

- **Step 1** is the use of a correctly shaped provisional crown to achieve ideal gingival contour (Figure 1). Before removing provisional crown from the mouth, mark the gingival margin for reference (Figure 2).
- **Step 2** is to use the provisional crown to create a customized impression post by using an implant analog embedded in plaster/acrylic as shown (Figures 3-7).
- **Step 3**. The impression post is placed in the mouth. This will create a slight pressure due to the collapse of soft tissue in the minutes it takes to customize the impression pin. It will however not distort the tissue as it will push it back to where it was before removing the provisional crown (Figure 8).
- **Step 4** is to take a conventional impression. As no impression material will be pushed into the subgingival space, no distortion of tissue is possible (Figure 9-10).

Conclusion

The lab should be instructed to follow the subgingival component exactly to ensure no tissue distortion is done. In Figure 11 we see over contouring of a crown which may have been caused by the impression material pushing the gingiva buccally. The technician has no way of knowing how much distortion has taken place and will have no choice but to follow the impression, thereby creating an over contoured crown.

MASTERCLASS IN IMPLANT DENTISTRY



Figure 1: Provisional crown with flowing lines mimicking the natural tooth



Figure 2: Before removing crown from mouth, mark the gingival margin with a pencil



Figure 3: An analog is embedded in acrylic with 2 mm of analog protruding. Crown is placed on analog and the buccal is marked on the acrylic with a pen



Figure 4: Impression or lab putty is adapted to simulate gingiva around provisional crown up to pencil marking



Figure 5: An exact copy of the gingiva as it is in mouth is now obtained. Note marking for buccal on acrylic



Figure 6: Composite is flowed into the space between impression post and "gingiva" just up to the crest. The difference between this and in the mouth is that putty cannot distort, thereby creating an exact copy of provisional crown/gingiva



Figure 7: Before removing the impression post from analog, mark buccal of impression post with permanent marker as shown



Figure 8: Impression post is in position with no distortion or pressure on gingiva. Ensure that buccal markings are positioned correctly



Figure 9: Impression material is flowed around impression post in the usual manner



Figure 10: Final result with composite making up the subgingival part of impression where it is essential not to distort soft tissue



Figure 11: Over contouring of crown on buccal may be due to distortion of gingiva during impression taking