

IMPLANT PLATFORM: A SPECIAL JUNCTION

When preparing teeth, we keep prep margins near the gingival margin (or just below it in esthetic cases). We don't want open margins or cement too deep or near the bone which can cause infection, bone loss, pockets, recession, exposed crown margins and esthetic issues.



Tooth Prep

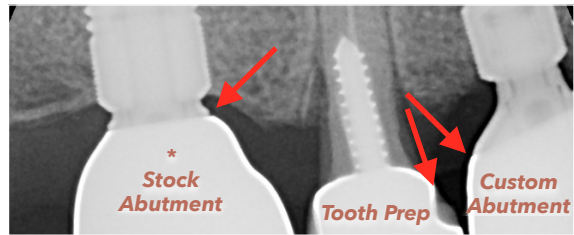
Implants seem different because they are not teeth, but open margins and cement at the implant platform can cause the same problems that happen to teeth to happen to implants as well. That is why we want custom abutments to mimic tooth preparations and move restorative margins coronally, away from the implant platform. Don't use stock abutments, even if cemented in the lab as the margin is too close to the bone, and will cause bone loss as well (see below).



Custom Abutment



Stock Abutment



The red arrows point to the abutment crown interface. The imperfect stock abutment interface is near the bone, and the custom abutment interface is near the gingiva, similar to the tooth crown adjacent. After 5 years (not shown), there is bone loss around the implant with the stock abutment, but no bone loss around the implant with the custom abutment. Both crowns are screw retained.

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IMPLANT RESTORATION

Last quarter I shared my aunt's case to highlight some unique ways I restored her implants. In the process, I realized that there is a lot of background discussion to be had on the decisions made for her apart from the overview provided and the recommendations for restorative dentists.



I want to start by highlighting a case that has held up long term, and how we got to where we are, then review what was done to keep it where it is. The patient below had combination therapy of extraction with implant, bone and soft tissue grafting; and use of a temporary implant crown to shape tissues



after implant integration. The implant used had a conical internal connection, and a platform switch, both of which help maintain ideal bone levels. A screw retained crown on a custom abutment were used to restore #8. The images on the front panel are the 10 year recall.

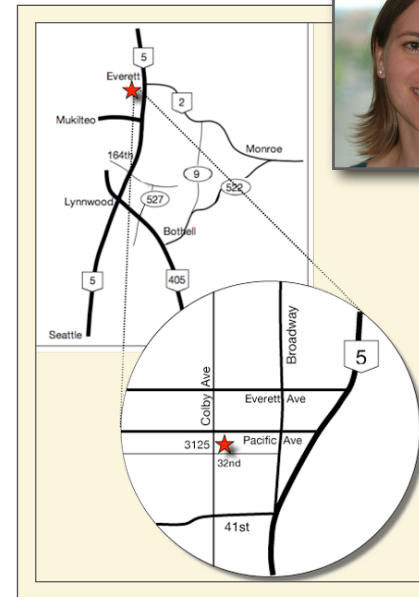
This issue of **ProbeTips** is devoted to detailing implant restoration including impression techniques, abutment options (angled abutments and angled screw channels), screw retained restoration tips and tricks, and more. All this in an effort to help achieve ideal implant restorations that will be not only esthetically pleasing, but also long lasting.

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PERIODONTOLOGY IMPLANTOLOGY ORAL MEDICINE

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She is driven to achieve esthetic and predictable outcomes, particularly for anterior implant cases, and is always looking to improve processes and results. You can email her directly below with questions, comments, or suggestions for future newsletters.



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PROBE TIPS

A QUARTERLY PERIODONTAL NEWSLETTER

BY PAMELA NICOARA DDS MSD

Implant Restoration from a Periodontal Perspective



10 yr Recall

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Implant Restoration from a Periodontal Perspective



1. Cement Retained Restoration Risk:

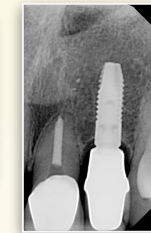
A very well known risks to long term implant health is subgingival cement, shown adjacent on the same patient. Even though issues may not be immediate, or in every patient, infections particularly in thinner biotypes can cause severe bone and soft tissue loss. This is both a cosmetic and hygienic concern since depressions or defects in the soft tissue are food traps retaining plaque that further exacerbate inflammation and tissue loss with time. Screw-mentable restorations cemented outside the mouth are an option, as long as the abutment is a custom abutment, bringing cement margins coronally away from bone. If cement must be used, choose radio-opaque cements visible radiographically.

2. Screw Retained Stock Implant Abutment Risk:

Although screw retained restorations eliminate excess subgingival cement risk, when stock abutments are used, they do not eliminate subgingival bacterial harboring cement marginal gaps near the bone level, whether cemented by a lab or cemented chair side prior to seating as a 'screw-mentable' restoration. In addition, stock abutments can be too wide for smaller spaces. In the case shown, a stock abutment was used for the temporary screw retained restoration on implant #10 but was modified to be narrower to fit the space and prevent impingement on the bone. The final restoration, however, did not modify the stock abutment or use a custom abutment, and this caused excess pressure on the surrounding bone causing bone loss and soft tissue loss between #9 and #10 in particular that the patient was unhappy with. Therefore always ask for custom abutments that are anatomically shaped or narrower.



Screw retained temporary



Final stock restoration with loss of papilla #9/10

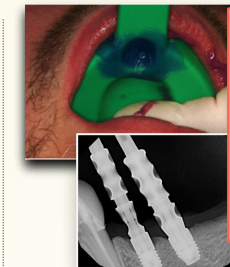
3. Eliminating Undercuts on Surrounding Teeth ☞ Impressions with Open Tray, Closed Tray or Scan Bodies:

The way information is transferred to the laboratory is also important for achieving a well fitting restoration that will be easy to seat chairside with minimal adjustment, particularly with screw retained restorations. Starting with surrounding teeth, any undercuts should be managed prior to the impression to avoid open contacts in the final restoration.

We are all familiar with 'closed' tray impressions in traditional dentistry on teeth. But an impression coping on an implant in a closed method leads to errors because the impression coping is hand placed back into the impression after it is taken, and there can be significant 'play' between the coping and the impression tray material leading to inaccuracy. Open tray copings and digital scan bodies significantly reduce inaccuracy. All copings, however, should be radiographed to confirm seating prior to the impression, and digital scanners should be calibrated regularly and mirror tips clean to ensure accuracy.



Avoid Closed Tray Impressions



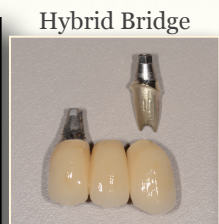
Radiograph to confirm seating



Open Tray Impressions or Digital Scan Bodies are more accurate



Angled Screw Channel



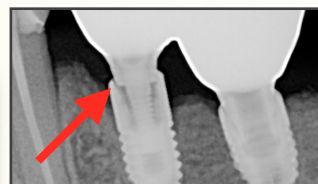
Hybrid Bridge



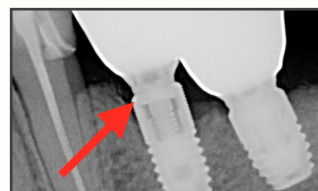
Angled Abutment



One Non-Hexed Abutment



Internal connection before and after mesial contact reduction



4. Angled Abutment Options ☞ Seating Tips and Tricks:

Implant positioning and angulation plays a significant role in the restorative process. I use surgical guides regularly now to ensure an implant angle that should easily allow for a screw retained restoration. For single molars, this is relatively easy, but for anterior teeth, particularly with significant facial flare, if a screw access from the cingulum isn't possible, an **Angled Screw Channel** is needed to allow for screw retention without compromising esthetics facially. For multiple molars, draw is also not easy to achieve, in which case several options are available: 1. **Hybrid Restorations:** One custom abutment is screw retained and one custom abutment is cement retained, 2. **Angled Custom Abutments:** for a cement retained finish. 3. **Non-Hexed Abutment:** One abutment is not hexed or is cut off to remove the hex to allow some rotational flexibility of the abutment inside of the internally hexed implant.

When it comes to seating the restoration, I rely heavily on radiographs to guide where I am relative to the implant when seating temporary crowns. Using floss alone may bind tightly at both contacts, and you don't want to reduce the wrong contact. In the radiographs adjacent, you can see a gap inside the implant where the premolar implant crown abutment is pushed distally meaning the contact with the tooth mesial to it is too heavy. Once reduced and confirmed with floss, you can see very nice radiographic contact of the abutment inside the implant.