

# Trayless implant impression technique for patients with a hyperactive gag reflex

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## Abstract

Complex dental impressions can be a challenge for patients with a hyperactive gag reflex. This article presents a technique to provide the dentist with maximum control over the impression material and avoid contact with intraoral areas that may initiate the gag reflex. A tray is not used, and the rigidity of the impression is provided internally by the immediately loaded provisional prosthesis or an intraorally fabricated acrylic bar.

## Introduction

Dental patients with hyperactive gag reflex present several challenges in prosthetic dentistry. Routine hygiene procedures and radiographic exams are difficult to complete. Patients may avoid dental appointments<sup>1</sup> due to the apprehension and fear associated with the X-ray sensor, mirror, or impression tray that stimulates their gag reflex. As a result of avoiding dental care, many patients will only visit the dentist for emergency treatment and eventually become edentulous. This results in an increased challenge for the patient as fabrication and eventual wearing of a complete denture is difficult for the patient with hyperactive gag reflex. Many techniques have been presented to manage these patients<sup>2-9</sup>; however, success varies with each technique, and no technique has been presented to solve every problem.<sup>10-12</sup>

Patients undergoing full-arch reconstruction with immediately loaded dental implants



Figure 1: Interim prosthesis with guide pins in place

may receive much of their treatment under general anesthesia and avoid many gag initiators during this treatment. This allows for patients with a non-functional hopeless dentition to be restored to function with a fixed prosthesis without having to manage their gag reflex during treatment. Initial treatment consists of diagnostic impressions and jaw relationship records, both of which can be completed with minimal use of fast-setting materials. The challenge to the dentist and patient may arise when making the final impression for a multiple implant restoration. Accuracy of the impression is critical to the long-term success of the restoration.

This article describes an impression technique that minimizes stimulation of the patient's gag reflex. The trayless technique utilizes the patient's interim immediately loaded prosthesis as the internal rigid impression splint.<sup>13</sup> If the patient does not have an interim prosthesis, or if the prosthesis is unacceptable for any reason, a rigid connector bar is fabricated intraorally using a bis-acryl bite registration material (LuxaBite®; DMG America, Englewood, New Jersey).

## Technique (with interim prosthesis)

1. Evaluate the patient, and note which areas intraorally stimulate the gag reflex.
2. Make a jaw relationship record prior to beginning the impression procedure.
3. Verify correct abutment seating and passive fit of the interim prosthesis. If the prosthesis is not passive, or an abutment is not properly seated, an intraoral bar should be fabricated after correcting the abutment placement.
4. Replace the retaining screws with long guide pins (Figure 1). Inject light body fast-set impression material (Aquasil™; Dentsply, York, Pennsylvania) to capture the tissue under the interim prosthesis (Figure 2).
5. Inject heavy body fast-set impression material (Aquasil; Dentsply, York, Pennsylvania) to capture the vestibule and as much of the palate as possible while avoiding areas that stimulate the patient's gag reflex (Figure 3).

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Figure 2: Placement of light body impression material on intaglio surface of the interim prosthesis



Figure 3: Capturing the vestibular depth with a heavy body impression material



Figure 4: Maintaining access to guide pins during the impression procedure

6. Ensure access to the guide pins is maintained throughout the procedure (Figure 4).
7. Remove the impression and verify enough tissue has been captured to proceed with fabrication (Figure 5).
8. Attach abutment analogs and fabricate master cast. The master cast is considered verified if the prosthesis passively fits the abutments intra-orally and the master cast (Figure 6).
9. Use jaw relationship record to articulate master cast prior to returning the provisional prosthesis to the patient (Figure 7).



Figure 5: Intaglio surface of impression



Figure 6: Master cast with interim prosthesis that serves as cast verification

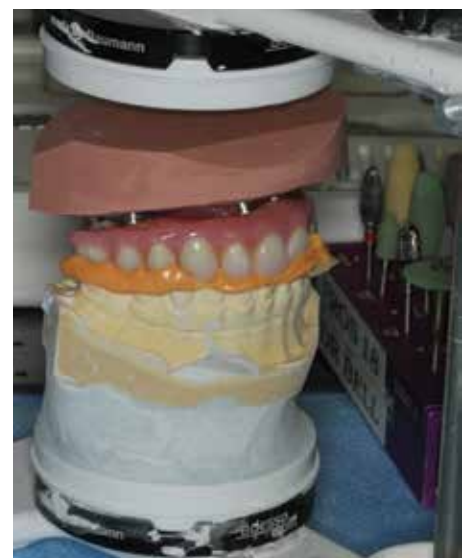


Figure 7: Articulation of the master cast





Figure 8: Impression copings in place and verified seated visually and radiographically



Figure 9: Fabrication of rigid intraoral bar with Bis-acryl material.



Figure 10: Placement of bite registration material to better capture the vestibule and support the palatal area of the impression



Figure 11: Completed impression

## Technique (without interim prosthesis)

1. Evaluate the patient as above.
2. Ensure abutments are properly seated, and secure impression copings (Figure 8).
3. Flow bis-acryl material (LuxaBite; DMG America, Englewood, New Jersey) around impression copings, and ensure intimate contact with the impression copings (Figure 9).
4. Complete impression as described above, and if patient can tolerate the procedure, apply additional bite registration material (O-Bite; DMG America, Englewood, New Jersey) to better capture and support the palate and vestibular extension (Figures 10 and 11).

## Discussion

Making an impression without a tray for an implant-retained and supported prosthesis requires a rigid internal framework to ensure accuracy.<sup>14</sup> Ideally, the provisional prosthesis will serve as this support and then be used to articulate the cast during the same appointment. The use of a bis-acryl material to connect the impression copings provides an acceptable alternative if an interim prosthesis is not available. When applying the bis-acryl intraorally, care must be taken to allow the majority of the material to cure around

each impression coping prior to connecting the implants together. This requires placing material around each impression coping and moving from coping to coping while allowing gaps to remain between the sections of material. After these portions of the bar have cured, then the individual sections can be connected much like sectioning a PMMA fabricated bar and then luting together the pieces with a minimal amount of material.

## Summary

Prosthetic treatment of the gagging patient can be stressful for both the patient and provider. The trayless technique presented allows for easy control over the amount and placement of impression material and may provide a more comfortable and tolerable procedure than a conventional implant pickup impression. **IP**

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