

Quick Technique for Impression Making of Compromised Partially Edentulous Arch

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Abstract

The diagnostic cast for the fabrication of a mandibular removable prosthesis should demonstrate facial and lingual vestibules as well as remaining teeth. However, impression making of a partially edentulous arch is a challenge when combined by periodontally compromised and mobile teeth and excessively resorbed residual ridges. This article describes a method of tray modification for impression making of a partially edentulous arch by creating a hole in the tray.

Keywords: Impression Making; Partially Edentulous Arch; Periodontally Compromised Tooth; Resorbed Residual Ridge; Tray Modification

Introduction

The diagnostic cast for the fabrication of a mandibular removable prosthesis should demonstrate anatomic landmarks of retromolar pads and facial and lingual vestibules as well as teeth and residual ridges [1,2]. However, impression making of a partially edentulous arch is a challenge when combined by periodontally compromised and mobile teeth and excessively resorbed residual ridges [3-5]. The stock tray may not fit adequately in the mouth due to different shapes and sizes of partially edentulous arches. When inadequate, the tray is modified with the flange extended by adding a wax or an impression compound to the periphery [1].

An ideal stock tray should match the heights of the teeth and ridge crest of edentulous areas [1]. The tray should cover the teeth and edentulous areas of the ridge and extend along the facial and lingual vestibules. However, the choice of stock tray is limited because of various distribution patterns of remaining teeth and ridge resorption. The seating of the tray can be restricted by the teeth and fails to seat over edentulous areas of the ridge, in particular when combined by an excessive discrepancy in the vertical level with supraeruption of teeth and atrophic change of residual ridge.

This article describes a method of tray modification for impression making of a partially edentulous arch. A hole is made in the tray corresponding to the location of remaining teeth. The tray can be seated fully over the ridge with the teeth passing through the hole. This procedure is advantageous in reproducing the vestibules of an excessively resorbed arch and reducing the risk of displacement and removal of substantially compromised teeth in periodontal support [5].

Technique

1. Evaluate the partially edentulous mouth for planning of prosthodontic treatment. Note the severe discrepancy in the vertical level of the supraerupted and periodontally compromised mandibular first premolar against the excessively resorbed edentulous areas of mandibular ridge (Figure 1).
2. Select a plastic stock tray matching the size and shape of the partially edentulous arch. Identify an interference of the tray while it is being seated against the mandibular arch.
3. Create a hole in the tray corresponding to the location of the first premolar, using a tungsten carbide bur (E-cutter; Brasseler USA Inc). Note the tooth passing through the hole (Figure 2). Ensure the full seating of the tray over the ridge without disturbing the stability of the mobile tooth. Modify the extension of tray by adding a wax (Utility wax; Kerr Corp) or a thermoplastic impression compound (Impression compound; Kerr Corp) on the periphery, as desired.
4. Make a preliminary impression of the partially edentulous mandibular arch with an irreversible hydrocolloid impression material (Jeltrate; Dentsply Caulk) to generate a diagnostic cast for the design of a free-end base removable prosthesis.

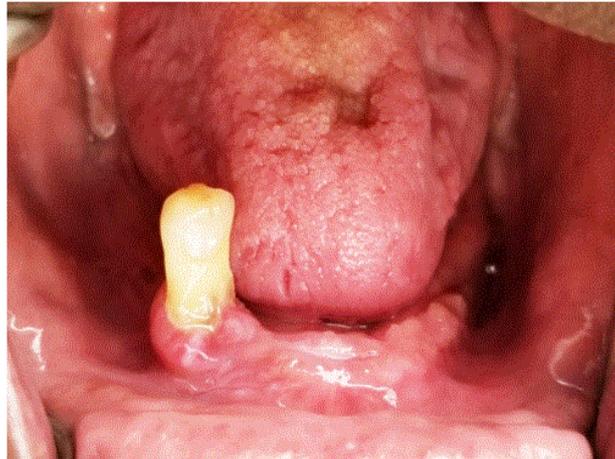


Figure 1: Partially edentulous mandibular arch demonstrating severe vertical discrepancy of supraerupted and periodontally compromised first premolar against excessively resorbed edentulous areas of ridge



Figure 2: Tray seated intraorally against atrophic ridge with first premolar passing through hole.

Discussion

The tray should be rigid to support an elastomeric impression material [1]. The impression can be distorted when the support is inadequate. In addition, the tray should extend to reach the facial and lingual vestibules and cover the retromolar pads, in particular when planning to fabricate a free-end base removable prosthesis [2]. This objective can be a challenge when to making an impression of a partially edentulous arch using a stock tray.

A variety of stock trays has been designed for impression making of a partially edentulous arch. Nonetheless, the choice is limited because of various distributions of remaining teeth and shapes of residual ridge [3]. The tray can be modified using a wax or impression compound in order to extend the flange along the vestibules of the arch [1]. However, this method can be cumbersome when combined by supraerupted and periodontally compromised teeth and excessively resorbed ridge. The patient

has to open the mouth wide for intraoral placement of the tray during impression making.

The labial flange of a stock tray can be cut off when making an impression of a partially edentulous arch demonstrating periodontally compromised anterior teeth [4,5]. However, the application of this procedure is limited when the teeth are supraerupted and associated with an excessively resorbed edentulous areas of ridge. The current method allows the teeth to pass through the hole created in the tray and let the tray seat against edentulous areas of the ridge.

This method eliminates the need of wide mouth opening required when the flange of a tray is simply extended by adding a wax or an impression compound on the periphery. The positional stability of mobile teeth is not jeopardized by relieving the hydraulic pressure built during the impression making [6,7]. However, care should be taken to avoid a distortion of the

impression material extruded through the hole. The impression may need a support when the hole is large for multiple teeth, using a silicone occlusal registration material.

Conclusion

This method of creating a hole in the tray can expedite the impression making of a partially edentulous arch, in particular when combined by supraerupted and periodontally compromised teeth and excessively resorbed edentulous areas of the ridge. Using this method expedites the impression making procedure for a partially edentulous arch for the design of a free-end base removable prosthesis.

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