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A SIMPLE TECHNIQUE FOR BEADING AND BOXING OF FULL ARCH IMPLANT IMPRESSIONS

Dental Science

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ABSTRACT

Axially placed or tilted implants can be used to rehabilitate a completely edentulous arch and immediate loading of such implants is now recommended. Hence the need to make an impression and to provide a provisional prosthesis within a short span of time arises. A working cast would be necessary to execute these procedures. This article describes a quick method to generate a working cast or a master model using a simple technique for beading and boxing full arch implant impressions.

KEYWORDS

beading and boxing , implant impression.

INTRODUCTION

Full arch implant supported prostheses have evolved as an established treatment option with an improved understanding of the biologic and mechanical principles of implant therapy.[1,2] Immediate loading of implants for full arch restoration is recommended and this involves completing the majority of procedures in chair side. [3,4] Fabrication of either an implant supported fixed denture or an overdenture requires impressioning the implant positions along with the edentulous ridge in order to create a working cast. A well defined land area in the working cast helps in indexing the temporary dentures and positioning the framework and teeth arrangement. Usually the impression is sent to the dental laboratory for this purpose. However the working cast can be easily fabricated in the dental clinic thus effectively reducing the treatment time. Hence, obtaining a working cast in chair side has many advantages and this requires beading and boxing of the impression made. Beading demarcates the anatomical surface and helps create the land area. Full arch implant impressions are either made with a custom tray or modified stock trays with elastomeric impression materials like polyether or vinyl polysiloxane.[5,6] Some authors have developed tray less impression techniques too.[7] Beading of rubber base elastomeric impression materials with routine beading wax is difficult as they do not adhere well to the impression surface. This article describes an easy and quick technique to bead and box full arch implant impressions made with or without trays.

Procedure :

1. Impression is removed from the patient's mouth and the implant replicas are connected to the impression copings. (open tray or closed tray) .
2. The impression is then disinfected and a soft tissue mask is poured and allowed to set(fig.1)

Fig.1. soft tissue mask is poured using gingisoft material

3. Irreversible hydrocolloid (alginate) is mixed and poured on a clean Macintosh sheet and the entire external surface of the impression is immersed into it except for 2 mm of the impression borders (fig.2)

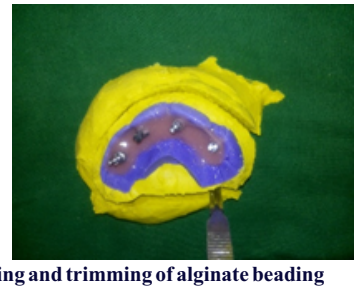

Fig.2. investing and trimming of alginate beading

4. Before it is set, the alginate material around the impression border is shaped with a smooth flat instrument like a wide blade spatula to obtain a flat , wide beading all around.
5. Once it is set, the wide beaded area can be cut with a scalpel so that only 2-4 mm wide area of beading remains around the impression.

Fig.3. Finished alginate beading

6. After removing the excess alginate beading material , boxing wax or modeling wax is cut and adapted to the set alginate beading and sealed with a hot instrument.

Fig .4. boxing wax adapted around the beading

7. Type IV dental stone is mixed and poured into the boxed impression taking care not to incorporate any air bubbles and is allowed to set.

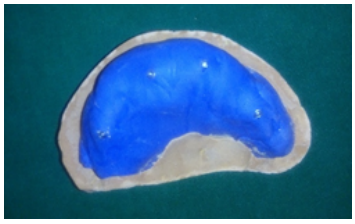

Fig.5. poured cast

8. Once set, the boxing wax and alginate beading can be easily removed and the impression copings are unscrewed in case of open tray transfers and the impression is removed from the cast.

Fig.6. working cast with impression in place

9. The cast is examined and the dimensions of land area, height of the cas, etc., can be modified using a model trimmer if needed [fig.7].

Fig.7.finished working cast

SUMMARY :

An accurate working cast is a prerequisite for the fabrication of a well fitting prosthesis and it is more so in case of implant prosthodontics. Full arch implant supported prosthesis involves the placement of implants and rehabilitation with provisional dentures on the same appointment.[7,8] Hence the need for fabricating a working cast immediately after impression making becomes apparent. Routine beading and boxing techniques either cannot be employed in such situations or are more time consuming.[9,10] The technique described above is quick ,easy can be applied in chair side procedure and alleviates the need to send the impressions to laboratories to obtain the working cast. Also the setting time of alginate can be easily controlled by using cold water for mixing. The land area width can be easily established by contouring the alginate surface and the excess can be trimmed with a surgical blade or scalpel. Even though alginate doesn't adhere firmly to the elastomeric impression material , it remains in place due to its bulk and flow into the undercuts on the external surfaces of the impression and the tray. Beading wax doesn't stick to elastomeric impression surfaces and another alternative is the use of plaster – pumice mixture instead of alginate which is time consuming.[11]

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