ACCURACY OF DIES OBTAINED FROM DUAL ARCH IMPRESSIONS USING DIFFERENT IMPRESSION MATERIALS AND TECHNIQUES

THESIS

SUBMITTED TO CROWN AND BRIDGE DEPARTMENT

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To:

The soul of my father *Dr. Abdelhamid el shazly*

The soul of my friend *Dr. Ahmed abdel hamid*

My wife Safy *, you make my life so much easier as you share it with me.*

My best friend *Dr.Kamal el sayed, I will never forget your constant support, encouragement and assistance.*

My family, *my daughter Jasmen, my son Assem and my brothers Essam& Alaa*

You make me want to be a better person, brother and dad

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INTRODUCTION

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Most of us are familiar with the frustrating and costly experience of trying to cement a bridge or a crown that, regardless of fitting accurately on both the die and the second pour, does not seat totally inside the mouth , has open contact or high in occlusion. Poor fit often result from alteration or other inaccuracies in the impression, some of which can be difficult to notice chair side. If the clinician is ignorant of the critical areas to be checked or lack the proper armamentarium, then many imperfect impressions are forwarded to the laboratory with the mistaken expectation that a satisfactory restoration will result.[1]

A detailed and dimensionally precise impression is necessary for the manufacture of a fixed prosthesis. Accurate registration of oral structures not only needs a precise impression material but also a rigid impression tray to hold the material and a precise impression technique. [2]

One of the advancement in recording impressions is the introduction of double arch impression technique which was first reported by Getz in 1951, the credit for the beginning of this technique for fabricating indirect restorations goes to Wilson and werrin.

The double arch impression technique records the preparation site, the opposing arch and records the bite registration all at once. [3]

An ideal impression material should exhibit certain characteristics in the clinical and laboratory environment, the selection of impression material depends essentially on the personal choice of the clinician which depend on individual preference, handling, and the impression techniques used.[4]

The impression technique also is a critical factor affecting the accuracy of impressions. One – step or double step technique can be used with putty and medium body, heavy body and light body or putty and light body. [5]

This study was conducted to evaluate which impression material, impression technique and tray types are more accurate.


REVIEW OF
LITERATURE

REVIEW OF LITERATURE

Each step of any prosthodontic rehabilitation process must be meticulously executed to yield satisfactory final results. In order to obtain accurate and precise models and restorations with no distortion, it is important to acquire accurate impressions and to use stable and precise impression and die material.

The accuracy of prosthetic restoration depends on several factors including accurate details reproduction of impressions and the corresponding casts from which a restoration can be manufactured in the laboratory. This success rate is imperiled when we look at clinical researches. Impression making is a key stage to get an ideal cast, as the aim of an impression is to create a dimensionally stable “negative” replica to serve as a model.

Criteria of accurate impression

According to Millar et al.(2014) [(1)] the accuracy of impressions depends on many factors; homogeneity of the mix, no show-throw

in the heavy body material, adhesion of the impression to the tray, rigid bond between heavy and light body materials, rigid impression tray, no voids or pulls on margins, axial walls or occlusal , thorough margins with no tears or rough surface, rigid bond between heavy and light body materials and no tooth contact with the tray.

According to Galleos et al.(2013) [(2)]; despite a clinician's best care, an inaccurate impression can result. Common problem include : 1-Ledges in impressions which result from overextended working time, rapid tray seating or insufficient application of wash material 2-Drags which result from insufficient amount of tray material, impression material used beyond its working time or improper insertion(seating the tray in one motion) 3-Folds and pulls which result if the material was used beyond its working time at tray seating 4-Surface inhibition which results if the material is contaminated with sulfur from latex gloves 5-Seating error which results if the tray is moved or disturbed after seating or the teeth hit side of tray 6-Voids, rough margins and tears which result when

using too strong blast of air to thin the light body material prior to seating the tray material, early mouth removal or excessive blood, saliva or water.

Factors affecting the accuracy of impressions

The quality of dental impressions is influenced by many factors such as preparing the impression area, Impression tray selection, the impression material, the impression techniques and pouring of the impressions.

- **Preparing the impression area**

A thorough periodontal lead-up must be performed former to the preparation and impression steps. Use of dental floss, interdental wood sticks and interproximal brushes is essential to decrease bleeding and seepage of inter-crevicular fluids to ensure a perfect recording of the abutment and adjacent soft tissues and to create a stable gingival height once the restoration has been cemented. Delivery of o.12% chlorohexidine gluconate is a main aid in producing more precise impressions. The solution can be