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Case Report

Modified Pick Up Impression: A Case Report

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Abstract

Impression procedure proves to be a vital initial step in achieving an accurate, passively fitting prosthesis which is an important factor for success in implant-supported prosthesis. This case report highlights a method to modify the conventional pick up technique by splinting Impression copings with dental floss and auto polymerizing acrylic resin in order to improve the accuracy of the impression.
Keywords: Technique pick up; self-Curing Resin; Dental Floss; splinting impression copings.

INTRODUCTION

Precision fit of the fixed implant-supported restoration is dependent on the accuracy of the location of the implant analogs within the definitive cast [1] as the prosthesis and the framework will be created using this cast.

Mechanical complications such as improper fit, imprecise adaptation, and unfavorable anti-rotational capacity can generate considerable stress and lead to the loss of the screws, screw fracture, implant fracture, disequilibrium of the occlusion and even bone loss around the implant, interfering with the osseointegration process [2].

The two types impression elastomeric material, most widely used and shown to be the most appropriate, are polyether and silicone

The fidelity of impressions over the use of pick up type impression copings alone has been written and improved by, many article and in vivo studies [1].

The precise transfer of relationship of multi-unit implants from mouth to the master cast demands a rigid splinting of impression copings. It depends on the tray type, impression material and impression techniques used.

The evaluation of impact of the impression techniques and the different dental materials related on the accuracy of prosthetic components and dental implants have been performed by several studies ,but there is a disagreement about which impression techniques are superior [3].

CASE REPORT

A 54year-old healthy patient was referred to our dental clinic for restoration of edentulous area in maxillary anterior region. After clinical and radiographic examinations, it was decided to restore the edentulous area with two 3.5 × 11.5 mm and 3.5 x 10 mm internal connection implants (intra lock system Europa, spa).

After the placement of implants and a healing period of six months, the prosthetic phase of the treatment was initiated (Figure-1).

Fig-1: Healing screws in situ

In the first step ad after removing of healing screws (Figure-2), the two impression copings were connected to each implant (Figure-3) and the proper cervical adaptation of the two transfers should be verified by retro alveolar X-rays.

Fig-2: Removing of healing impression implants

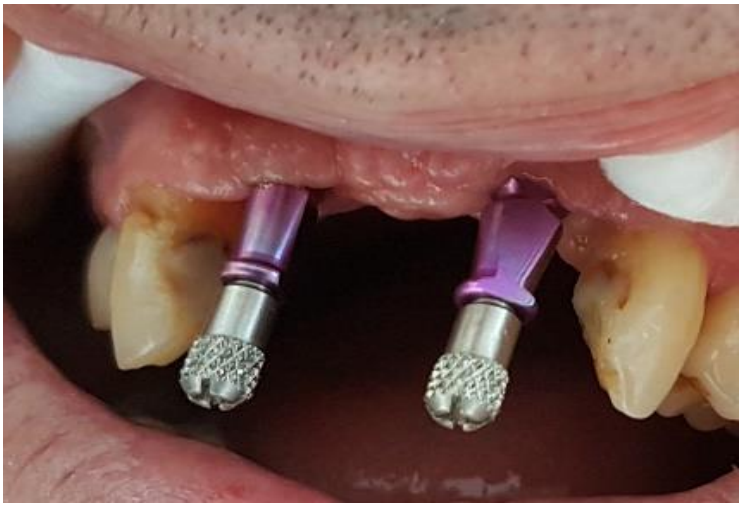

Fig-3: Copings were connected to each screws

In the second step, a dental floss with appropriate length was used to splint the two Impression copings (Figure-4).

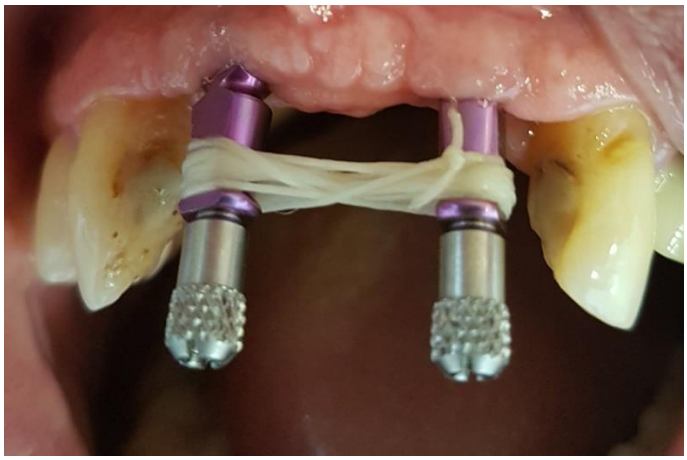

Fig-4: Dental floss allows splinting of impression copings

Then an auto polymerizing acrylic resin (Duralay), (Figure-5) was placed by little amount on the dental floss. It covered all the length of the dental floss between the two copings without interfering with the gum. A spray of cold water was used to minimize the exothermic reaction of the resin.

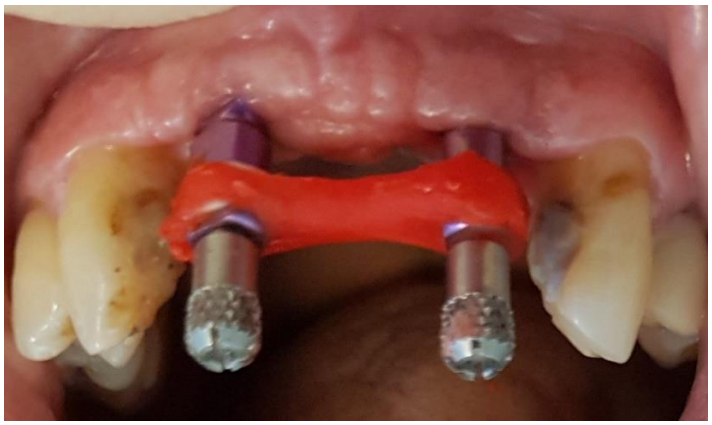

Fig-5: Transfer copings with splinted pattern resin (Duralay)

After complete setting of the resin, the impression was taken using silicone impression materiel and an open tray or custom tray with access to the impression coping screws. It require access to the retaining screw to allow releasing of the screw prior to removal of the impression coping — impression assembly. The analogues are attached to the impression copings while they are embedded in the impression tray (Figure 6 & 7) [4].

Fig-6: Open tray impression with pick up copings

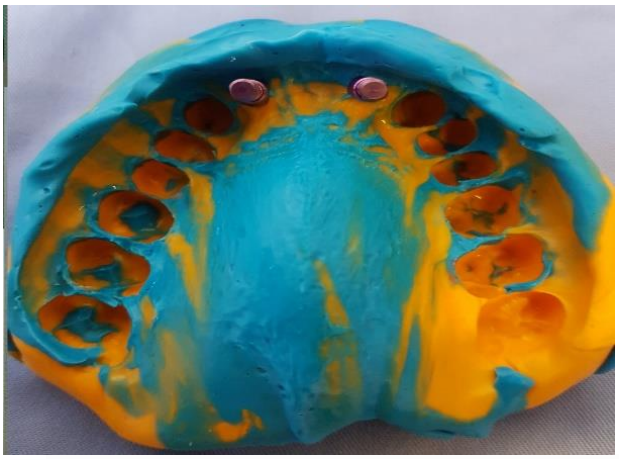

Fig-7: Abutment analogs are connected to attached coping

DISCUSSION

The aim of the impression in partial rehabilitation with implant-supported prostheses, is the spatial registration of the position of the implants and to provide passive adaptation of the prosthetic superstructure.

Accuracy of impression techniques has improve by numerous techniques. One technique involves tying open-tray impression copings together with floss, then splinting them together with self-curing resin [5].

Many articles have been written and many in vivo studies have been carried out to improve the fidelity of impressions over the use of pick up type impression copings alone [1].

The effect of heat on the implant-bone interface has been studied by Ormianer. Direct application of Duralay® or GC Pattern® auto polymerizing resin on transfer's results in an average increase of 4 to 5° C (up to 6° C maximum) at the implant / bone cervical interface [6].

In our clinic case and to avoid the exothermic reaction during the setting of the resin which can be transmitted to the transfers, a spray of air-water syringe was applied on resin to cool it around the transfers.

Not only pattern resin can be used for splinting of impression copings, but also acrylic resin, plaster, composite are reasonable alternatives [7].

The most commonly used material for such splinting is self-curing acrylic resin which exhibits polymerization shrinkage resulting inaccurate transfer of spatial relationship of implants from mouth to the master cast [8].

Some studies indicate that there is not statistically significant improvement when splinting impression copings with acrylic resin

There is no consensus related to direct technique which may be carried out by using splinted or non-splinted implants impression copings [9, 10].

The accuracy of the impression evaluated by Several studies which concluded that some variables were observed, such as the impression material, impression technique, type of stone, time and method of manipulation, type of tray used, mandible or maxilla, disposition of the implants and the master cast that simulates the edentulous arch [11].

In our technique the use of dental floss played the role of a support and could strengthen the splinting of self-curing resin.

Nevertheless, the achievement of this type of splinting is time and material consuming

CONCLUSION

An accurate registration of the intraoral position of implants is a paramount of a precision of cervical passive fit of implant-supported Prostheses.

Splinting implant with dental floss and self-curing resin provide more likely more stability of the connected copings in the impression and oppose any rotation and displacement of the abutment analogs.

The decision to splint or not splint impression copings is personal preference of the clinician since additional materials and extra chair time are required when the splinted technique is utilized.

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