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Evaluation of Conventional Clasping versus Telescopic Attachment Formaxillary Obturator

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Abstract: ***Statement of problem: The majority of maxillary defects can be rehabilitated with conventional simple obturator prosthesis. However, inadequate retention, stability and support may be associated with the use of an obturator. Telescopic crowns have been used to retain obturator for some time. The use of telescopic crown in a dentate maxillectomy patient can yield significant functional improvement while maintaining the obturator's aesthetic advantages, and increase patient's satisfaction. In this study a clinical evaluation was preformed to compare between those type of obutartor's. Subjects and methods: Sixteen patients were selected with unilateral maxillectomy in this study. The criteria for inclusion will be the presence of remaining maxillary teeth adequate for placing conventional definitive obturator and no history or planning for radiation therapy. While exclusion criteria are smokers, tumor recurrence, and patients have systemic metabolic diseases. They were divided into two groups according to treatment modality. Group(1): wearing obturator with telescopic attachment. Group(2): wearing obturator with conventional clasping. After delivery of each obturator type, and at 3,6,9,12 months the clinical evaluation was measured in from of pocket depth ,gingival index to the Abutment , and patient satisfaction. Results: In general there is increase in pocket depth and gingival index of both types of retainer was observed. The pocket depth values recorded were higher in obturator with conventional clasping than that with telescopic crown, While there is no difference occur in gingival index.According to patient satisfaction; patients with the telescopic crown retained obturator were more satisfied than the conventional clasping. Conclusion: Under the limitations of this study we can conclude that: the obturator retained by telescopic crown successful treatment option for unilateral maxillary cases.***

Keywords: Obturator, telescopic crown, retention

1. Introduction

The most common of all Patients with acquired intraoral defects are in the maxilla, inthe form of an opening into the antrumand nasopharynx [1].

Maxillary defects differ from patientswith congenital maxillary defectsbecause of abrupt alteration in the physiologic processes associated withsurgical resection of the maxillae [2].

The etiology and size of the result of trauma, immediate surgicalclosure or reconstruction is indicated. If the defect is large, then a prostheticrehabilitation is required after surgicalreconstruction [3].

Defect are important considerationswhen chose the method of rehabilitation. If the defect is the A firmly retained prosthesiscan provide the patient with psychological support during the difficult period after maxillectomy. Naturally, patients require constant encouragement and usually developgood muscular control of theirprostheses. The quality of retention ofthe denture is dependent on thefollowing Factor addition to thedevelopment of good muscular control: 1) the size of the surgical cavity, 2) theavailability of tissue undercut aroundthe cavity and, 3) indirect and directretention provided by any remaining teeth [4].

In maxillofacial rehabilitation, there is no definite configuration of thedefect anatomy. Therefore, withoutusing any retentive aids, achievingretention is a quite difficult issue andabsolutely the prosthesis may requireauxiliary retentive features [5].

Telescoping crowns were introduced in the 20th century. Telescoping refers to the use of aprimary full coverage casting luted to the prepared tooth with a secondarycasting, which is part of dentureframework and is connected by meansof interfacial surface tension overthe primary casting [6].

Telescoping crowns have proven more effective than other directretainers. Their degree of retention canbe planned to suit different situationsby modifying the design [7]. Telescope crowns are used to retain partial dentures.

The purpose of this article is to compare between the conventional obturator and telescopic one clinically,and to get data on patient satisfactionto treatment.

2. Subject and methods

Sixteen patients Fig.(1) were selected with unilateral maxillectomy in this study. The criteria for inclusionwill be the presence of remainingmaxillary teeth adequate for placing conventional definitive obturator and no history or planning for radiationtherapy. While exclusion criteria are smokers, tumor recurrence, and patients have systemic metabolicdiseases. They were divided according to treatment modality to:

Group (1): wearing obturator with conventional clasping.

Treatment protocol
- Diagnostic casts.
- Preparation of teeth.
- Fabrication surveyed crown.
- Cementation of fixed parts.
- Study model and surveying.
- Special tray and secondary impression.
- Fabrication of metal framework.
- Metal try in and jaw relation.
- Try in, then Insertion of removable prosthesis.

Group (2): wearing obturator with telescopic attachment.

Treatment protocol
- Diagnostic casts.
- Preparation of teeth.
- Fabrication primary copying.
- Fabrication secondary copying.
- Construction of the obturator denture base.
- Insertion of final prosthesis.

Treatment plan for Group (1):
For conventional Obturator prosthesis for the maxillary. A preoperativeradiographs were taken Fig(1).

A primary impression withalginate impression material was, thendiagnostics cast was obtained. Apreparation of abetment tooth toreceive crown surveyed crowns.

Then secondary impression ofprepared abutment was taken. Then cast dies, wax pattern,and casting ofthe surveyed crowns were formed. The crowns were cemented. A secondaryimpression was taken to form metalframework. A metal try in waspreformed, and jaw relation was taken. A try in of partial denture was done then denture then Insertion of removable prosthesis Fig(2).

Figure 1: Pre-operative intraoral

Figure 2: Obturator with conventional clasping

Treatment plan for Group (1):
Mouth preparation of abutments were prepared with a tapered roundend diamond rotary bur with a chamferfinish line for the primary coping. The abutment was prepared with tapered walls (2-5ؚ) and height ofabout 4mm [8].

After the preparation of theabutment, the impression was made by using a polyvinyl siloxane elastomeric impression material (putty and light body).The primary coping were fabricated.

The fit of the primary copingwere evaluated in the patient's mouth, and cemented on the abutment with glass ionomer cement fig (3). Another impression was made by two step puttywash technique after the cementation of the primary copings, by using a custom acrylic resin tray to obtain acast on which the secondary copingswill be fabricated. The fit of the secondary copings over the primarycopings were evaluated in the patient's mouth. The secondary copings consisted of small metal projections, known as retention rods Fig(4). After delivery of each obturator type, the clinical evaluation was measured infrom of gingival index to the Abutment, and patient satisfaction was takenusing evaluation sheet. Fig(5)

NO. (OHIP-14 form) at delivery ,6,9,12 months intervals. All data will be then calculated, tabulated and statistically analyzed [9].

Figure 3: Cementation of primary coping

Figure 4: Obturator with telescopic crowns

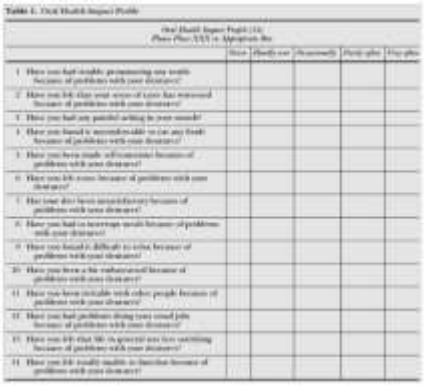

Figure 5: Satisfaction sheet (OHIP-14form)

3. Results

1) Gingival index

There were statistically significant differences between sequential measurements in the twogroups between (Pre) and (12 m).

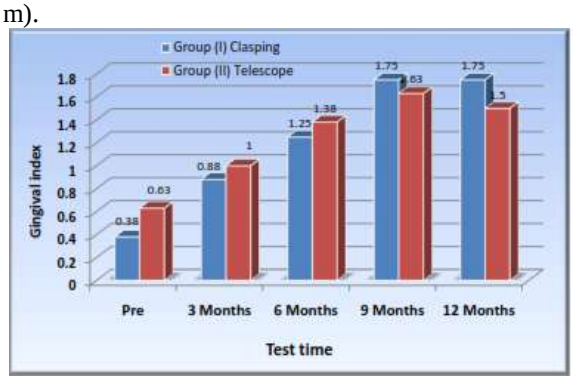

Figure 6: Showing the differences between themeans differences in two groups in measurement of gingival index

2) Patient satisfaction

There are statistically significant differences between the first andsecond groups in the mean of thedifferences (tribal and 12 months) forvariable.

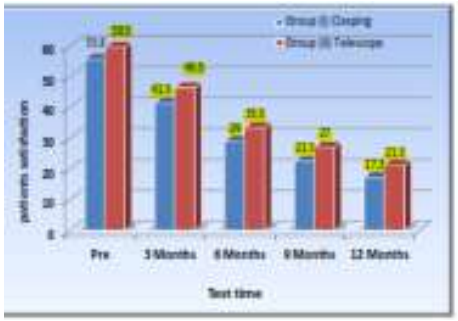

Figure 7: Showing the differences between the means differences in two groups inmeasurement of patient satisfaction.

4. Discussion

Investigations have confirmed the effectiveness of obturatorprostheses in terms of speech,masticatory function, swallowing andappearance [10].

Oral restoration based on acombination of fixed removable partialdentures and involved with precisionattachments and telescopic proceduresrepresents one of the highest levels offunctional and esthetic therapy [11].

In this study a comparison between conventional clasping and telescopicobturator. Telescopic obturator denture was chosen for the maxillaryarch, because of its good retentive and stabilizing properties.

With telescopic dentures, the insertionand removal is much easier for thepatient and thus improves theprognosis of the complex partialdenture.

This type of telescopic retainerprovides guidance, support, andprotection from dislodgement and ittransfers bite forces along the long axisof the abutment teeth [12].

In this study a conical telescopic crown was used in the abutment nearthe defect. This telescope typedecrease the forces of the abutment,While a hybrid telescopic crowns wereconstructed to increase the retention of
the prosthesis.

Milling of the crowns to achieveparallelism and the clearance forrotationoffered more frictional retention and greater stability for the prosthesis.

A small metal projections, known as retention beads, which helped in the mechanical interlockingof the secondary copings in the denturebase

The disadvantages of this type of attachment are the loss of tooth substance during preparation andpossible over contouring of the crown.In some case an endodontic treatment waspreformed due to pulp exposure.

The other treatment optionsincluded a conventional cast partial denture.

It is axiomatic that the prognosisimproves with the availability of theteeth to assist with the retention,support and stability of the complexpartial denture. It is essential that thebasic principles of clasp design befollowed, to allocate, neutralize or control the anticipated functionalforces,so that each supporting or retainingelement of the oral cavity could beused with maximum effectivenesswithout being stressed beyond itsphysiologicallimits [13].

RPD's must have sufficient supportingability for proper occlusal rehabilitation. Support ability dependson the fit, size, shape, and location of the occlusal rest [14].

There significant increase in pocketdepth along the follow up period with the conventional obturator. This due to the approximation of the retentive tip to the free gingiva,that lead

to plaqueaccumulation, gingival inflammation,then increase pocket depth.

There gingival index showsignificant increase in both group. Thisis due difficulty in continuespreservation of oral hygiene.

The patients which receive telescopic obturator were more satisfied than conventional one this dueto esthetics consideration and weight.

5. Conclusion

Depending on the amount andnature of the residual tissues, theretention and stability achieved inprosthesis could vary from optimum to maximum. The telescopic systemprovides suitable abutments for theprosthesis even when the remainingteeth are compromised. This optionprovides additional support andretention to a conventional obturator and renders such a procedurebeneficial to the patient. Under thelimitations of this study we can conclude that: the obturator retained bytelescopic crown successful treatment option for unilateral maxillary cases.

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