

# Evaluation of Conventional Clasp 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 performed to compare between those type of obturator'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, in the form of an opening into the antrum and nasopharynx [1].

Maxillary defects differ from patients with congenital maxillary defects because of abrupt alteration in the physiologic processes associated with surgical resection of the maxillae [2].

The etiology and size of the result of trauma, immediate surgical closure or reconstruction is indicated. If the defect is large, then a prosthetic rehabilitation is required after surgical reconstruction [3].

Defect are important considerations when chose the method of rehabilitation. If the defect is the A firmly retained prosthesis can provide the patient with psychological support during the difficult period after maxillectomy. Naturally, patients require constant encouragement and usually develop good muscular control of their prostheses. The quality of retention of the denture is dependent on the following Factor addition to the development of good muscular control: 1) the size of the surgical cavity, 2) the availability of tissue undercut around the cavity and, 3) indirect and direct retention provided by any remaining teeth [4].

In maxillofacial rehabilitation, there is no definite configuration of the defect anatomy. Therefore, without using

any retentive aids, achieving retention is a quite difficult issue and absolutely the prosthesis may require auxiliary retentive features [5].

Telescoping crowns were introduced in the 20th century. Telescoping refers to the use of a primary full coverage casting luted to the prepared tooth with a secondary casting, which is part of denture framework and is connected by means of interfacial surface tension over the primary casting [6].

Telescoping crowns have proven more effective than other direct retainers. Their degree of retention can be planned to suit different situations by 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 satisfaction to treatment.

## 2. Subject and methods

Sixteen patients Fig.(1) 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 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 preoperative radiographs were taken Fig(1).

A primary impression with alginate impression material was, then a diagnostic cast was obtained. A preparation of abutment tooth to receive crown surveyed crowns.

Then secondary impression of prepared abutment was taken. Then cast dies, wax pattern, and casting of the surveyed crowns were formed. The crowns were cemented. A secondary impression was taken to form metal framework. A metal try in was performed, 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 chamfer finish line for the primary coping. The abutment was prepared with tapered walls (2-5°) and height of about 4mm [8].

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

The fit of the primary copings were evaluated in the patient's mouth, and cemented on the abutment with glass ionomer cement fig (3). Another impression was made by two step putty wash technique after the cementation of the primary copings, by using a custom acrylic resin tray to obtain a cast on which the secondary copings will be fabricated. The fit of the secondary copings over the primary copings 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 from gingival index to the abutment, and patient satisfaction was taken using 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

Table 5. Oral Health Impact Profile

Oral Health Impact Profile (OHIP-14)  
 Please Place 'X' in the Appropriate Box

	None (0)	Slightly (1)	Moderate (2)	Very (3)	Very (4)
1. Have you had trouble performing any tasks because of problems with your dentures?					
2. Have you felt that your sense of taste has worsened because of problems with your dentures?					
3. Have you had any problem eating in your mouth?					
4. Have you found it uncomfortable to put any foods because of problems with your dentures?					
5. Have you been made self-conscious because of problems with your dentures?					
6. Have you felt some tension or pressure with your dentures?					
7. Have you also been made unhappy because of problems with your dentures?					
8. Have you had to increase mouth hygiene of problems with your dentures?					
9. Have you found it difficult to relax because of problems with your dentures?					
10. Have you been a embarrassment because of problems with your dentures?					
11. Have you been unable to smile or people because of problems with your dentures?					
12. Have you had problems doing your usual jobs because of problems with your dentures?					
13. Have you felt that you're speaking less because of problems with your dentures?					
14. Have you had trouble smiling or laughing because of problems with your dentures?					

Figure 5: Satisfaction sheet (OHIP-14form)

### 3. Results

#### 1) Gingival index

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

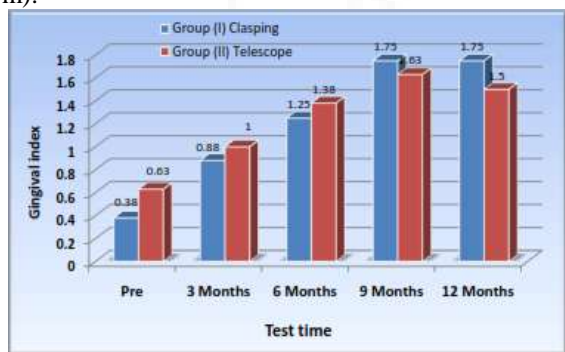


Figure 6: Showing the differences between the means differences in two groups in measurement of gingival index

#### 2) Patient satisfaction

There are statistically significant differences between the first and second groups in the mean of the differences (tribal and 12 months) for variable.

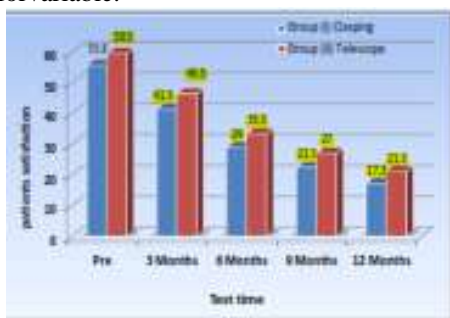


Figure 7: Showing the differences between the means differences in two groups in measurement of patient satisfaction.

### 4. Discussion

Investigations have confirmed the effectiveness of obturator prostheses in terms of speech, masticatory function, swallowing and appearance [10].

Oral restoration based on a combination of fixed removable partial dentures and involved with precision attachments and telescopic procedures represents one of the highest levels of functional and esthetic therapy [11].

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

With telescopic dentures, the insertion and removal is much easier for the patient and thus improves the prognosis of the complex partial denture.

This type of telescopic retainer provides guidance, support, and protection from dislodgement and it transfers bite forces along the long axis of the abutment teeth [12].

In this study a conical telescopic crown was used in the abutment near the defect. This telescope type decreases the forces of the abutment, while a hybrid telescopic crowns were constructed to increase the retention of the prosthesis.

Milling of the crowns to achieve parallelism and the clearance for rotation offered more frictional retention and greater stability for the prosthesis.

A small metal projections, known as retention beads, which helped in the mechanical interlocking of the secondary copings in the denture base.

The disadvantages of this type of attachment are the loss of tooth substance during preparation and possible over contouring of the crown. In some cases an endodontic treatment was performed due to pulp exposure.

The other treatment options included a conventional cast partial denture.

It is axiomatic that the prognosis improves with the availability of the teeth to assist with the retention, support and stability of the complex partial denture. It is essential that the basic principles of clasp design be followed, to allocate, neutralize or control the anticipated functional forces, so that each supporting or retaining element of the oral cavity could be used with maximum effectiveness without being stressed beyond its physiological limits [13].

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

There is a significant increase in pocket depth along the follow up period with the conventional obturator. This is due to the approximation of the retentive tip to the free gingiva, that leads

to plaque accumulation, gingival inflammation, then increase pocket depth.

There gingival index shows significant increase in both group. This is due to difficulty in continuing preservation of oral hygiene.

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

## 5. Conclusion

Depending on the amount and nature of the residual tissues, the retention and stability achieved in prosthesis could vary from optimum to maximum. The telescopic system provides suitable abutments for the prosthesis even when the remaining teeth are compromised. This option provides additional support and retention to a conventional obturator and renders such a procedure beneficial to the patient. Under the limitations of this study we can conclude that: the obturator retained by telescopic crown successful treatment option for unilateral maxillary cases.

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