Review Article

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Definitive Obturators in Patients with Maxillectomy

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ABSTRACT

Background: After the completion of the epithelisation & cicatrisation of the remaining tissues, treatment (interim) obturator can be replaced with a permanent (definitive) obturator, twelve weeks after maxilla resection. This timing can change according to patient's general condition, age, the location & size of the resection & is approximately 3-4 months. The application of permanent obturator can be delayed upto 6-12 months due to dosage of radiotherapy. The primary goal of the permanent obturator is to preserve the remaining teeth and tissue & to provide comfort, function & aesthetics to the patient.

Keywords: definitive obturator, upper structure design, lower structure design , buccal extended pooled , hollow bulb.

INTRODUCTION

Regardless of the size or location of the defect and number and position of the remaining teeth, one basic principle is maximum distribution of support for the obturator. This is achieved by incorporating more of the remaining teeth into the design of the framework & maximizing the use of occlusal and cingulum rests & vertical guide planes to distribute the functional load.[2] Obturators can be classified according to the hardness of the material – as rigid, flexible or combined – and they are classified according to their piece number as monoblock or multiblock. The design of the obturators is defined as upper structure or lower structure design. Upper structure design in permanent obturators –

Obturators which include an upper structure prepared from hard materials are called "rigid obturators". obturators which include an upper structure from materials like silicone, soft acrylic and rubber are called "flexible obturators". obturators which are made with a rigid acrylic core covered by soft material are called "combined type obturators". In the combined obturators, usage of silicon as a soft material can form an intermediate phase by easing the union of acrylic & silicon. with this aim, "biocryl" was recommended & used. In order to make the production & the usage of the prosthesis easier, it is recommended to use monoblock obturators, which have only one piece, in all possible cases. but in cases in which the obturator is too large to be placed in the mouth in one piece, a multipiece "multiblock" obturator is required. in these types of studies, slotted pinned or magnetic connections can be used for the union of lower and upper structures. it can be useful if these study models are prepared in two pieces – because the defect undercuts are very large and the defect undercuts are very deep and if these two pieces are united with package rubber during the making of the obturator. The most useful approach is to prepare the upper structure's inside while it is empty. the permanent obturator with an empty inner upper structure is produced in two different types.

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1) open spaced (buccal extended pooled) upper structure

2) upper structure with cover space (hollow bulb)

1) Open spaced (buccal extended – pooled) upper structure: The upper structure which has medial, lateral, anterior and posterior sides have an open top. Basically, it looks like a pool or bowl. the easiest way to make this type of obturator is first to make the prosthesis full and then empty it. but in this method, wall thickness cannot be controlled. currently an orally defined plaster core method is used. this type of upper structure has a positive effect on understandability of a patient's speech.

Plaster core method

Originally, this method is designed for the completely edentulous cases. The study model is opened by scraping the top of the defect. the side walls of the defect are covered with pink wax with a 3mm thickness. The inside of the defect is filled with white plaster. An edentulous alveolar crest look is given to the open surface. in this way, palatinal plate modelling is made on the maxillary model with an anatomic integrity & the acrylic is stuffed. the apparatus which is gained by this method is used in the recording of the relationship between the both jaws, tooth making & trials. It is again taken to the muffle for forming the final shape of the teeth sequence.

The plaster core method defined for edentulous maxilla can be also modified for partial edentulous alveoli. In this method, the defect in the model is filled with silicon putty and an edentulous alveolar back look is given to it. The obturator infrastructure is prepared & brought to the level of the trial with teeth. it does not matter whether the infrastructure is metal casting or acrylic. the infrastructure and defect silicon are removed. the top of the defect is opened by scraping. the side walls of the defect are covered with 3 mm thick pink wax. the inside of the defect is filled with white plaster. Before the plaster freezes, the modelling is placed & the overflow plaster is cleaned. All around the union line between infrastructure plate and model, wax is stuck and the model is muffuled. as the wax covering goes away while melting the wax, a white plaster core stays in the middle of the core defect. Isolation acrylic stuffing & polishing is completed with the known methods.

Covering this open spaced obturator with liquid acrylic in order to fix the unpolished parts of the space is recommended in order to reduce bacteria retention.

2) Upper structure with cover & space (hollow bulb) –

The easiest method for making this prosthesis is to prepare it full & then empty the inside & close with an auto polymerised cover. however, the wall thickness of upper structure cannot be controlled with this method. technical problems other than reducing the weight in the closed space upper structure are obtaining uniform wall thickness & providing impermeability. an acrylic core method which is made for this provides a solution to all these problems, but it is also difficult and time consuming. Infrastructure design for permanent obturators:

The obturator's infrastructure plate is in the shape of a total prosthesis in total edentulous cases when there are no teeth on residual alveolar crests. This infrastructure plate has to reduce the specific chewing pressure by closing the expansion of the defect to the oral cavity & distributing the functional forces over the largest possible area by covering all maxillary tissues until moving tissue borders, as in all prosthesis base plates. additionally, infrastructure design requires a more detailed evaluation in partially – toothless cases which require monoblock casted infrastructures. In these applications, it is necessary to consider functional & parafunctional forces which effect the obturator. The forces affecting the resection obturator may occur during this junction because of the prosthesis own weight & can affect the obturator together in a fairly complicated form[1,3,4,5,6,7,8,9,10,11].

CONCLUSION

These obturators which are used after the treatment, are obturators which are used 3-6 months after the resection. after the application, they do not need to be renewed. permanent adhesion is gained from the undercut area or existing teeth, much like the treatment obturators .[1]

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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