

A modified technique for preparation of guiding planes for removable partial dentures

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Proximal tooth surfaces that bear a parallel relationship to one another must either be found or be created. More often they should be created in the patients mouth. Past literatures show that several attempts have been made to achieve parallel guiding planes. in the patients mouth. However, they are met with limited success. This article describes a predictable method of achieving parallel guiding planes in the patients' mouth.

Key words: Dental surveyor, guiding planes, parallelism

The objective of a removable partial denture is to make a prosthesis that the patient can easily seat and remove from the mouth and yet when seated, the prosthesis will resist the dislodgement potential caused by masticatory function.^[1]

Dental surveyor forms an important part of the armamentarium, which is at the dentists disposal. It essentially helps determine the most favourable path of insertion and removal of prosthesis. In addition to this, a surveyor is utilized to assess the optimum path of insertion in the light of other factors like soft and hard tissue interferences, esthetics and so on.

The determination of guiding planes is paramount to begin the treatment of patient with removable partial denture. Guiding planes are vertically parallel surfaces on abutments and other teeth oriented so as to contribute to the direction of the path of placement and removal of a removable partial denture.^[2]

Visualization and preparation of planned guiding planes in the mouth is a difficult process. In the past several methods have been proposed by various authors^[3-6] to overcome this particular problem, however no technique assures the parallelism of the planes.

This article describes a simple technique to prepare parallel guiding planes in the patient's mouth.

Procedure

The step-by-step procedure to prepare the guiding planes in the patient's mouth is as follows:

1. Duplicate the diagnostic cast using a duplicating material. Pour the mold in dental stone.
2. Fabricate a matrix using 0.60 mm thick thermoplastic material by adapting it on the diagnostic casts with a vacuum former.

3. Place the diagnostic cast in a surveyor; select a path of placement.
4. Prepare parallel guiding planes on the cast by recontouring selected proximal surfaces of the abutment teeth using a laboratory milling machine and tungsten carbide fissure bur, which are attached to the surveyor.
5. Place the previously made thermoformed matrix onto the prepared diagnostic cast. With a hot scalpel remove areas of the thermoformed matrix, which overlay the prepared guiding planes.^[6]
6. A straight bur shank is cut to provide a rod of 20-25 mm long.
7. With the cast and matrix on the surveyor at the proper tilt, replace the analyzing rod with the shortened bur shank [Figure 1]. This prepared rod now assumes the direction of the path of insertion.
8. Secure the rod onto the matrix on the buccal surface of the matrix using self-cure acrylic resin [Figures 2 and 3].
9. Now this index is placed in the patient's mouth. The shank attached to the index acts as a visual guide for the operator in the preparation of parallel guiding planes.

DISCUSSION

The guiding planes are flat axial surfaces in an occluso-gingival direction on abutments. They limit the number of path of placement and removal of a removable partial denture.

They aid in stabilizing the removable partial denture against horizontal forces. They also reduce wedging stresses and provide some retention. It is therefore

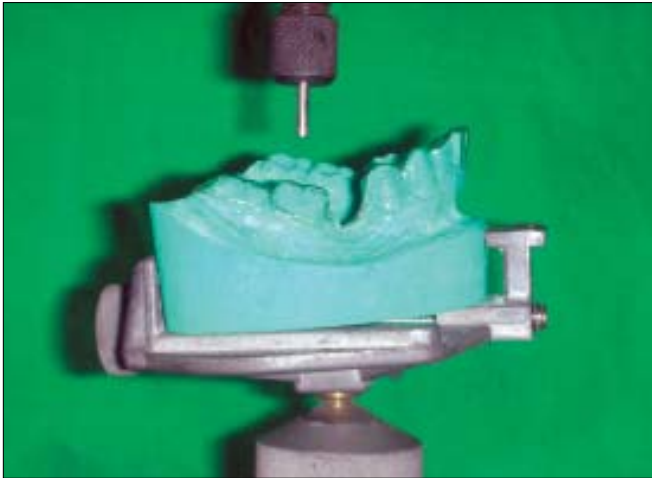


Figure 1: Shank of the bur attached to the surveyor

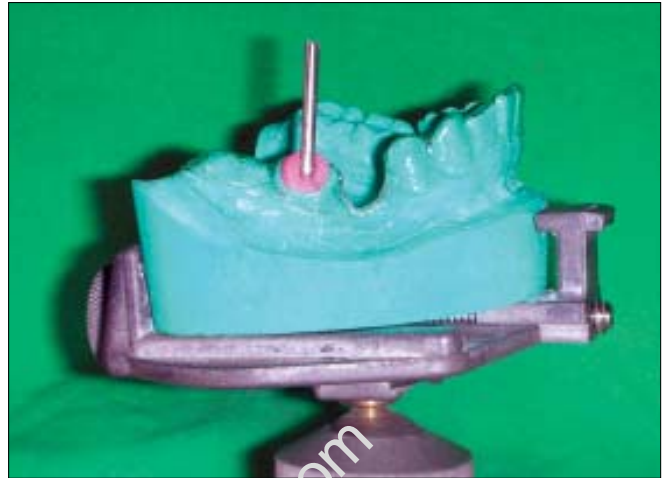


Figure 3: Shank of the bur secured to the matrix



Figure 2: Shank of the bur attached to the matrix with the surveyor in place

essential to accurately transfer the parallel guiding planes achieved on the diagnostic casts to the natural tooth. However, this is a challenging task. Several authors have used various techniques to achieve parallel guiding planes.

Krikos A suggested the use of modeling plastic index^[3], Jochen DG suggested the use of acrylic index,^[4] Mc Carthy MF suggested the use of an intraoral surveyor,^[5] Scott W and Dusan suggested the use of thermoform matrix as index.^[6] But each one of these techniques had their own disadvantages and they did not assure

parallelism of the guiding planes when prepared in the mouth. This article describes a technique for preparing parallel guide planes, which offers several advantages over the previously suggested techniques.

There is a direct transfer of the index from the surveyor to the mouth. The clinician can establish perfect parallelism. However, care must be taken in achieving accuracy in adaptation of the matrix to the cast.

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