

Stabilizing the Carbon Marker During Surveying: An Innovative Technique

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Abstract Dental surveyor has been defined as an instrument used to determine the relative parallelism of two or more surfaces of the teeth or other parts of the cast of a dental arch. Therefore the primary purpose of surveying is to identify the modifications of oral structures that are necessary to fabricate a removable partial denture that will have a successful prognosis. It is the modification of tooth surfaces to accommodate placement of the component parts of the partial denture in their designated ideal position on abutment teeth that facilitates this prognosis. Routinely, during marking the survey line, the carbon marker breaks many a times, as it is somehow brittle in structure, even after holding it in the metal sheath. This unnecessarily lengthens the working time of the operator as well as laboratory personnel. In the above mentioned new technique, the plastic refill sheath holds the carbon marker easily and securely. This serves the marking on the cast without breakage of carbon marker, thus saves the operator's time. The plastic refill sheath is easily available and economical.

Introduction

Surveying the dental cast is the most important step in removable partial dentures. Dental surveyor has been

defined as an instrument used to determine the relative parallelism of two or more surfaces of the teeth or other parts of the cast of a dental arch. Therefore the primary purpose of surveying is to identify the modifications of oral structures, to accommodate placement of the component parts of the partial denture in their designated ideal position on abutment teeth, that are necessary to fabricate a removable partial denture that will have a successful prognosis [1], [2].

During surveying, the graphite marker (Fig. 1) is moved around the tooth and along the alveolar ridge to identify and mark the position of maximum convexity (survey line) separating non-undercut from undercut areas. When surveying a tooth, the tip of the marker should be level with the gingival margin allowing the side of the marker to produce the survey line [3].

A false survey line will be produced if the tip of the marker is incorrectly positioned. This may be produced if the carbon marker breaks repeatedly. This is seen particularly in some surveyors, where the carbon marker is directly attached to the mandrel or if is not properly attached along with the metal sheath to the mandrel during surveying procedure. In the example (Fig. 2a, b) there is not, in fact, an undercut area on the tooth although an incorrect surveying technique has indicated one. Even a small amount of movement within a carbon marker and metal sheath will create more difficulty in marking a survey line. In the tilted cast also, due to movement of carbon marker, if the false line is used in designing an RPD, errors will be encountered in the positioning of components, especially clasps, creating faulty framework and ultimately failure of the final prosthesis [4]. Therefore it is important to mark the survey line on the cast more precisely. To avoid the repeated breakage of carbon marker, instead of metal sheath, use of plastic sheath is suggested here.

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Fig. 1 Carbon marker with metal sheath



Fig. 4 A close-up of the split refill fitted to carbon marker scoring the survey line

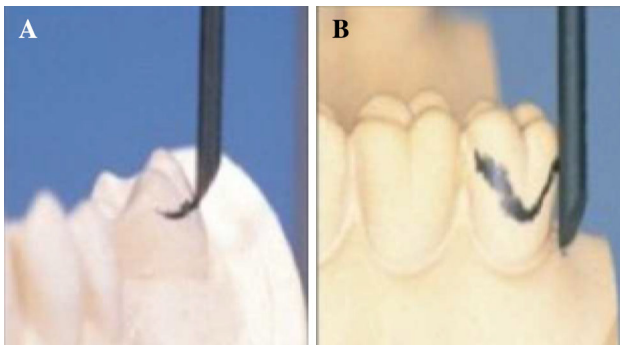
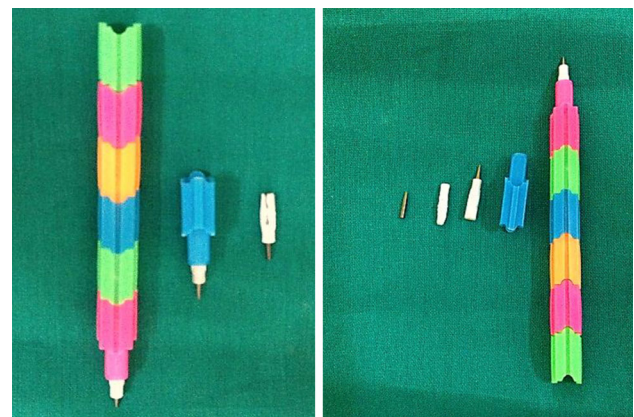
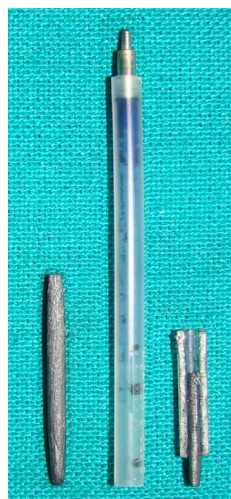


Fig. 2 a, b Faulty and correct survey line

Fig. 3 Carbon marker and modified plastic refill sheath attached together



Figs. 5–6 Pencil with lead sheath attached to plastic holder



Fig. 7 A close-up of plastic holder with lead sheath scoring the survey line

Technique

The new technique to stabilize the carbon marker during surveying is mentioned as follows:

- (1) Take an empty plastic refill generally used in ball pen.
- (2) Cut it in required length of the carbon marker.
- (3) Cut 2/3 of its circumference to accommodate the carbon marker, thus marking on large teeth will be easy. (Fig. 3)

- (4) Insert the sufficient length of carbon marker in the modified empty refill.
- (5) Attach the assembly to the surveyor tool holder.
- (6) Secure the cast in proper position on surveyor table.
- (7) Complete the marking of survey line on the cast. (Fig. 4)

Another simple technique is use of pencil, wherein the lead sheath is attached to plastic holder (Fig. 5–6). This plastic holder along with the lead sheath is attached to the surveyor tool holder and after securing the cast properly on the survey table, survey line is marked on the cast (Fig. 7).

Summary

Routinely, during marking the survey line on the cast, the carbon marker breaks many times, even after holding it in the metal sheath, as it is somehow brittle in structure. This unnecessarily lengthens the working time of the operator as well as laboratory personnel.

In the above mentioned techniques, the plastic refill sheath and the plastic holder of pencil holds the carbon marker easily and securely. The plastic refill sheath as well as pencil are easily available and economical. This serves the marking on the cast more accurate, without breakage of carbon marker, thus saves the operator's time.

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