

Interocclusal Record for Porcelain-Fused to Metal Bridge - New Approach

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Abstract: **Background:** The fit and accuracy of inter-occlusal record effects the relationship of working cast and therefore the success of the prosthesis. **Material and Method:** This technique usually used for short span bridge with vertical height maintained by unprepared tooth. Metal coping will be made for the porcelain fused to metal with vertical height maintained and should be checked for fit. After evaluating the fit in patient mouth. Mount both the cast using this indentation of inter-occlusal record made by self-cure acrylic along with coping. With this technique we can get accurate and stable inter-occlusal record. **Conclusion:** A new approach for recording an accurate, stable, useful and safe inter-occlusal record, without any extra procedure required.

Keywords: interocclusal record, interarchrelationships

1. Introduction

Interocclusal records are the most important maxillomandibular records used to transfer interarch relationships from the mouth to an articulator.^[1,2] These interocclusal registration material records the occlusal relationship between the natural and artificial teeth for planning occlusal rehabilitation and for fabrication of removable and fixed partial dentures. The successful removable and fixed partial denture can be achieved when maxilla-mandibular relation is recorded accurately.

When both maxillary and the mandibular casts are to be articulated together in a stable and reproducible manner, a tripod of vertical support as well as a satisfactory horizontal stability is necessary.^[2] Tripod contacts in the cast is essential for vertical support is to prevent the rocking of the casts during mounting. Whereas horizontal stability is essential to prevent the horizontal rotation or translation between the casts and is generally present when good intercuspation exists between the two opposing arches. An interocclusal record is mainly used to achieve the horizontal stability. Hence, when both, tripod of vertical support and good tooth intercuspation is present, the casts can be mounted directly without an interocclusal record. However, most of the patients undergoing prosthodontic rehabilitation present with poor intercuspation of the remaining dentition. In such cases, the casts cannot be positively articulated in a reproducible position and the use of interocclusal record medium becomes a must.

When a unilateral fixed partial denture (FPD) involving terminal teeth is prepared, a stable and accurate interocclusal record is necessary. A number of techniques using several materials have been described to record the maxilla-mandibular relationship.^[3,4]

Different material used for Interocclusal Records should have ideal requirements as follows:

- The materials should offer limited resistance before setting to avoid displacing the teeth or mandible during closure, whereas after setting, it should be rigid or resilient, with minimal dimensional change

- It should be easy to manipulate with no adverse effects on the tissues involved in the recording procedures
- It should accurately record the incisal and occlusal surfaces of teeth
- It should be verifiable.^[5-10]

2. Technique

Once the maxillary and mandibular full-arch impressions are made after tooth preparation, cast were poured with die stone and proceed with coping fabrication and registration as follows:

- Step 1. Wax pattern was made with inlay wax for coping for metal fused to ceramic restoration.
- Step 2. Once wax pattern was analysed properly then sprue was attached and invested, finished and polished accordingly.
- Step 3. Coping trial was done
 - ask the patient to close into MIP.
 - verify that there is adequate occlusal clearance.
- Step 4. Lubricate occlusal surfaces of antagonistic teeth with petroleum jelly. Add small quantities of auto-polymerizing acrylic resin to the occlusal surface of the coping and ask the patient to close into maximum inter-cuspation .
- Step 5. Keep teeth in contact until complete polymerization occur. After polymerization, the record is trimmed to remove flash, leaving the impression of the opposing cusp tips intact.



Figure 1: Master cast with coping



Figure 2: Painted autopolymerizing resin on coping



Figure 3: Patient in maximum intercuspation position



Figure 4: Coping with interocclusal record



Figure 5: Mounted coping with interocclusal record

3. Discussion

Construction of a fixed prosthetic restoration involves many steps in its fabrication and it is important to understand that incorporation of error can occur at any step. Most of the error occurs is while making the interocclusal records and transferring them to the articulator while mounting.

It becomes increasingly difficult to articulate full arch casts accurately as fewer posterior teeth are available to provide the third leg of the tripod for mounting. Accurate articulation of full arch casts is achieved only when there is equilateral tripod stability. In these situations, clinicians will be using elastomeric impression material to capture the third missing

leg and record interocclusal relationships; however, failure to remove areas of the record that contact soft tissues and the axial surfaces of teeth will prevent the dentist from visualizing areas where the casts and the record touch, ensuring that the record provides only horizontal support, with contacting teeth providing the vertical support.

Polymethyl methacrylate (PMMA) resin when manipulated in the prescribed manner, is used to register inter-occlusal records. Pattern resin offers minimal resistance to closure; therefore, periodontal proprioception is not compromised and no deviation of mandibular closure into MIP occurs.^[6,7]

Copings can provide a stable, accurate, versatile, and easily verified method of recording inter-arch relationships. The copings are safely and precisely fabricated on the cast and then tried in patient mouth.

Goal of inter-occlusal recording is to obtain maximum stability of both casts during articulator mounting, only two contacts with opposing dentition are theoretically necessary. This has been achieved by joining copings together while they are seated on the prepared teeth.

4. Conclusion

A new approach for recording an accurate, stable, useful and safe inter-occlusal record, without any extra procedure required. To properly evaluate a patient's occlusion and to build up an artificial dynamic occlusal scheme, it is mandatory that the diagnostic casts and the final casts are placed in an articulator in approximately the same relationship to the temporomandibular joint as it exists in the patient.

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