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Review Article | Medical Science

Techniques for Impression Making

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Introduction :

An impression in general terms is a mark produced on a surface by pressure. In dentistry, impression is a negative likeness or copy in reverse of the surface of an object, an imprint of the teeth and adjacent structures for use in dentistry. Impression Technique is a method or manner used in making a negative likeness.[1] The contemporary restorative dentist has a host of excellent impression materials available for impression making, the relationship between static and mobile oral structures must be reproduced accurately for an optimum cost. Accurate impression depends on identifying the applications that do or do not fit each materials characteristics. Materials used without adequate knowledge of their characteristics can impair a successful outcome. Often, the choice of impression materials depends on the subjective choice of the operator based on personal preferences and past experienced with particular materials. It would be virtually impossible to perform high quality restorative dentistry without impression materials. The dentist of today has a choice of an impressive array of impression materials that try to cater to his every need, every requirement in every situation. This paper aims to review different impression techniques ,advantages and disadvantages of different impression techniques.

The Putty–Wash Technique:

(Double mix single impression technique or Multiple mix or Twin mix technique,Two Stage Procedure).Preliminary impression is made with putty material(Elastomeric impression material) using a stock tray. This results in intraoral custom made tray formed by the putty. Space for light body ''WASH" material is made either by cutting away some of ''Tray" putty or by using a thin polyethylene sheet during preliminary impression. Light body is used with syringe which is injected onto the tooth preparations and also placed into the putty impression. The tray is seated in the mouth.[2,3]

Squash Technique:

Stock tray is loaded with putty material. Using a syringe light body material is injected around the prepared tooth or teeth. Then the tray is squashed over the syringe material. Hydraulic pressure of putty pushes the syringe material in critical areas. Impression is made with the putty material and the syringe material setting simultaneously.[3]

Monophase / Single Viscosity Technique:

Resin custom tray with 2-4 mm spacing is made. Medium viscosity material is used.Only one mix is required. Part of the material loaded in tray and another portion is loaded in syringe. Advantage of this technique is, problems of using two mixing guns and the need to stock more than one material are avoided, and medium viscosity material will have increased flow compared with the heavy tray material.[2]

Dual-Arch Impression (Closed bite, Double bite or Double arch impression):

Various designs of trays available which aim to achieve the simultaneous recording of the prepared tooth/teeth, the opposing teeth, and their intercuspal relationship. When one or two posterior teeth are prepared for indirect restorations, it is often advantageous to consider using the dual arch or double bite technique.[4] Advantages**:** Less material is needed, it is quicker because both arches are recorded at the same time, and patients have been shown to prefer this technique. Dies have comparable accuracy compared to those obtained from full-arch impressions. Metal trays have been preferred over flexible plastic trays.[5]

A checklist for the dual-arch technique: (1)Check that the tray can be placed into the appropriate position with the tray sidewalls out of contact with the tissues, i.e. is the tray should be wide enough. (2)Check that the patient can close with the tray in place. This is best done before anesthesia so the patient can identify any obstruction. (3)Check that the patient can close repeatedly into intercuspal with tray in place, i.e. not contacting teeth on opposite side. Technique**:** Assistant fills top and bottom of tray (heavy or Monophase) while the dentist syringes impression material around prepared tooth (light or monophase) .Orient and seat tray over arch with prepared tooth. Ask patient to close (into intercuspal position) and maintain closure until instructed to open. Check correct closure using reference teeth noted previously. Once completely set, ask patient to open quickly and forcefully.[5]

The Segmental Impression Technique:

Indicated when simultaneous impression of many prepared teeth has to be made. Conventional technique is difficult due to inherent limits in working time and difficulty in maintaining moisture control. Technique : Commonly used with auto-mix Polyvinyl siloxane materials. The arch to be impressed is broken down into easily managed segments (arbitrarily determined as two prepared teeth per segment) Individual custom trays are fabricated on the diagnostic cast for each segment. 1 mm of wax relief is provided, and the tray should extend 3mm past the gingival margin of the prepared teeth because there are no occlusal stops and because the gingival tissues must prevent over seating of trays. These trays may be made using acrylic resin (24 hrs in advance)**.** They can be made individually or as one tray that is individualized by sectioning with a disc or scalpel. All of the individual trays must be able to seat simultaneously. After an appropriate time, low viscosity material is loaded in to one of the segmental trays and is injected around the preparations and the tray is seated to place. Impression is allowed to set. The tray is not removed. This procedure is repeated with each of the segments until each segmental impression is in place. At this point an over impression is made with a compatible impression material in a stock tray. This impression is then handled in a conventional manner.[3]

Tooth/Implant Impressions:

Indicated when impressions for master casts include implants and prepared teeth. Usually implant copings reduce access to the prepared teeth and impede the extrusion of impression material to the margins of the prepared teeth. So this is a useful method to precisely record the detail of the prepared teeth and the implants in combination. Technique: The teeth must be preliminarily prepared, and a cast of these prepared teeth must be obtained to fabricate the custom impression trays. A wax spacer of approximately 1 mm is placed around the prepared teeth, and acrylic resin custom trays are fabricated with external undercuts to facilitate pick up with an over-impression. Tray adhesive is applied to the custom trays internally and externally and allowed to dry. A heavy-bodied polyvinyl siloxane impression material is placed in the individual custom tray and is seated over the preparations.The set impression and tray are perforated through the occlusal surface of the tray with a no.6 round bur.This preliminary impression is then filled with light-body material and replaced over the prepared teeth. The implant copings are then attached, and an over-impression is made.[3]

Conclusion:

Dentist have relied on impression materials for various uses.Based on the quality of impressions sent to commercial laboratories, it seems that many impressions fall far short of the level of quality made possible by current impression materials. The clinician is urged to review contemporary principles of impression materials and to make impressions consistent with those principles. Clinicians are also urged to familiarize themselves with the various "specialty" impression techniques available and to use them when indicated.

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