Procedure of Primary Impression

Impression:

- A negative replica or copy in reverse of the surface of an object.

- An impression can also be defined as an imprint of the teeth and adjacent structures for use in dentistry.

Complete Denture Impression:

A complete denture impression is a negative registration of the entire denture bearing, stabilising and border seal areas present in the edentulous mouth.

Primary Impression:

A primary impression is an impression made for the purpose of diagnosis or for the construction of a tray.

Basic Requirements for Impression making:

- Knowledge of basic anatomy
- Knowledge of basic reliable technique
- Knowledge and understanding of impression materials
- Skill
- Patient management

Anatomical landmarks

- Stress bearing areas or supporting areas
- Peripheral areas or limiting areas
- Relief areas

Anatomical landmarks in Maxilla

Limiting structures:

- Labial frenum
- Labial vestibule
- Buccal frenum
- Buccal vestibule
- Hamular notch
- Posterior palatal seal area

Supporting structures: primary stress bearing areas:

- Hard palate
- Posterolateral slopes of the residual alveolar ridge

Secondary stress bearing areas:

- Rugae
- Maxillary tuberosity

Relief areas:

- Incisive papilla
- Cuspid eminence
- Mid palatine raphae
- Fovea palatine

Anatomical landmarks in Mandible:

Limiting structures:

- Labial frenum
- Labial vestibule

- Lingual frenum
- Buccal frenum
- Buccal vestibule
- Alveolo lingual sulcus
- Retromolar pad
- Pterygomandibular raphe

Supporting structures:

- Buccal shelf
- Residual alveolar ridge

Relief areas:

- Mylohyoid ridge
- Mental foramen
- Genial tubercles
- Torus mandibularis

Objectives of impression making:

PRESS

P=Preservation of the alveolar ridges

R= Retention

E= Esthetics

S= Stability

S= Support

Impression Technique:

- Primary impression- impression compound
- Special tray –base plate

- Bite rims with uniform occlusal surfaces are then made.
- Areas to be relieved are softened and the impression is inserted in the mouth and held under biting pressure for one or two minutes.
- Borders are moulded by asking the patient to perform functional movements.
- A compound impression is made.
- A baseplate wax space is adapted.
- A special tray is adapted over the wax spacer.
- Spacer is removed and an impression is made with a free flowing material with little pressure.
- Escape holes are made for relief.

Advantages:

- Better retention and support

Disadvantages:

- Excess pressure –increases alveolar bone resorption.
- Excess pressure on peripheral tissues and the palate transient ischaemia.
- Tissue rebound when the tissue resumes its normal resting state.
- Pressure on sharp bony ridges –pain.

Objectives of primary impression making

- Retention
- Stability
- Support
- Esthetics
- Preservation of remaining structures

Retention:

Retention is defined as the ability of dentures to resist the displacement against vertical forces.

Retention resists the adhesiveness of food, the force of gravity and the forces associated with the opening of jaws.

Retention begins with the impression. It depends upon factors that produce attachment of the denture to the mucosa.

Factors affecting Retention:

- Anatomical factors
- Physiological factors
- Physical factors
    - Adhesion
    - Cohesion
    - Interfacial surface tension
    - Capillarity and capillary attraction
    - Atmospheric pressure and peripheral seal
- Mechanical factors
- Muscular factors.

Interfacial Surface tension: It is the resistance to separation of two parallel surfaces that is imparted by a film of liquid between them.

It is dependent on the ability of the fluid to wet the rigid surrounding material.

Primary support area: Area of edentulous ridge that are at right angle to occlusal forces and usually do not resorb easily.

Maxillary:

a. Posterior ridge
b. Flat areas of the palate

Mandibular

a. Buccal shelf area
b. Posterior ridge
c. Pear shaped pad

Primary Impression:

- An impression made for the purpose of diagnosis or for the construction of a tray
- There should be at least 5 mm clearance between the stock tray and the ridge
- The tray should extend over the hamular notch and maxillary tuberosity. Mandibular tray should cover the retromolar pad.
- Tray can be extended using modelling wax.

Impression Technique:

A. Amount of pressure used
    a. Pressure technique
    b. Minimal pressure technique
    c. Selective pressure technique
B. Based on the position of the mouth while making impression
    a. Open mouth
    b. Close mouth
C. Based on the method of manipulation for border moulding
    a. Hand manipulation
    b. Functional movements

Selection of Tray:

- The beginning of a good impression starts with the selection of the correct stock tray.
- Tray is a device that is used to carry, confine and control impression material while making an impression.

- The space available in the mouth for upper impression is studied carefully by observation of the width and height of the vestibular spaces with the mouth partly open.
- In the lower case the general form and size of the basal seat is studied.

Pressure theory or mucocompressive theory:

- This theory was proposed on the assumption that tissues recorded under functional pressure provided better support and retention for the denture.
- Greene in 1896 gave this concept.
- Primary impression made with impression compound
- Special tray made using shellac base plate.

Steps in making an impression

- Preliminary examination of the patient
- Seating the patient
- Selection of the tray
- Selection of the material
- Making impression- primary

- A complete case history and thorough clinical examination is done
- Factors that can complicate impression making are identified.
- Patient education.

Primary Impression Procedure:

- First technique-border-moulded special tray
- An edentulous stock metal tray that is approximately 6mm larger than the outside surface of the residual ridge is selected.
- The borders of the stock tray are lined with a strip of soft boxing wax so a rim is created to help confine the alginate material.

- The objective is to obtain a preliminary impression that slightly overextends the borders.
- The tissue surface and borders of the tray, including the rim of wax, are painted and with an adhesive material.
- The loaded tray is positioned in the mouth.
- The tray is left in the mouth for 1 minute after the initial set. The impression is removed and inspected to ensure all basal seats are included.
- The impression is poured in artificial stone.