

# Topics of Denture

- A. How to use the Perfect-STOX
- B. Maxillary impression procedures
- C. Mandibular impression procedures
- D. Difficult case of complete denture
- E. Placement of direct retainers and indirect retainer
- F. Design of direct retainer
- G. Design of indirect retainer
- H. Preparation of abutment tooth
- I. Design of major connector



# MAXILLARY IMPRESSION PROCEDURES

## Contents

### Anatomical landmarks of maxillary residual alveolar ridge

1. Labial frenum
2. Labial vestibule
3. Buccal frenum
4. Buccal vestibule
5. Hamular notch
6. Maxillary tuberosity
7. Residual alveolar ridge
8. Palatine fovea
9. Posterior palatal seal region
10. Incisive papilla

## References

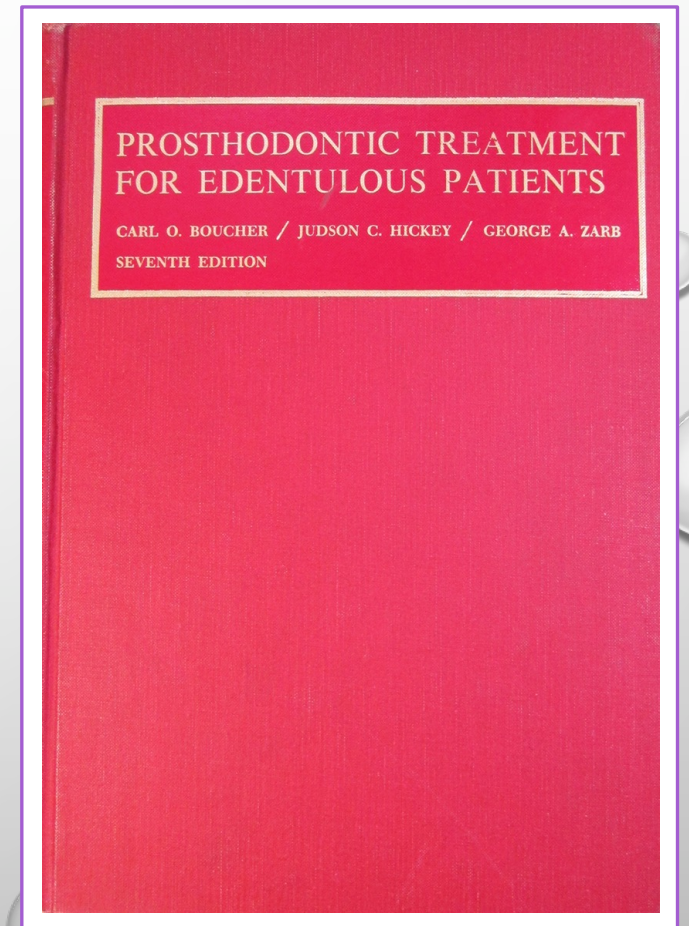


# MAXILLARY IMPRESSION PROCEDURES

## Anatomical landmarks of maxillary residual alveolar ridge

The anatomical landmarks of maxillary residual alveolar ridge are anatomically based morphological features of the mucous membrane flaps to which the denture base limb fits.

Boucher describes the maxillary edentulous residual ridge anatomical landmarks and how to take maxillary edentulous alveolar ridge impressions over 50 pages in Chapters 7-8 of his book shown on the right.



# MAXILLARY IMPRESSION PROCEDURES

## Anatomical landmarks of maxillary residual alveolar ridge

The photo on the right is part of Boucher's book, in which he explains the anatomic landmarks of the edentulous alveolar ridge, impression-taking surface, and anatomic findings.

By understanding the morphology of the anatomical landmarks on the impression surface of the edentulous residual alveolar ridge, the dentist can assess the excess or deficiency of the edentulous impression surface. As a result, the dentist can obtain an appropriate impression of the edentulous residual alveolar ridge.

Next, each anatomical landmark is described separately.

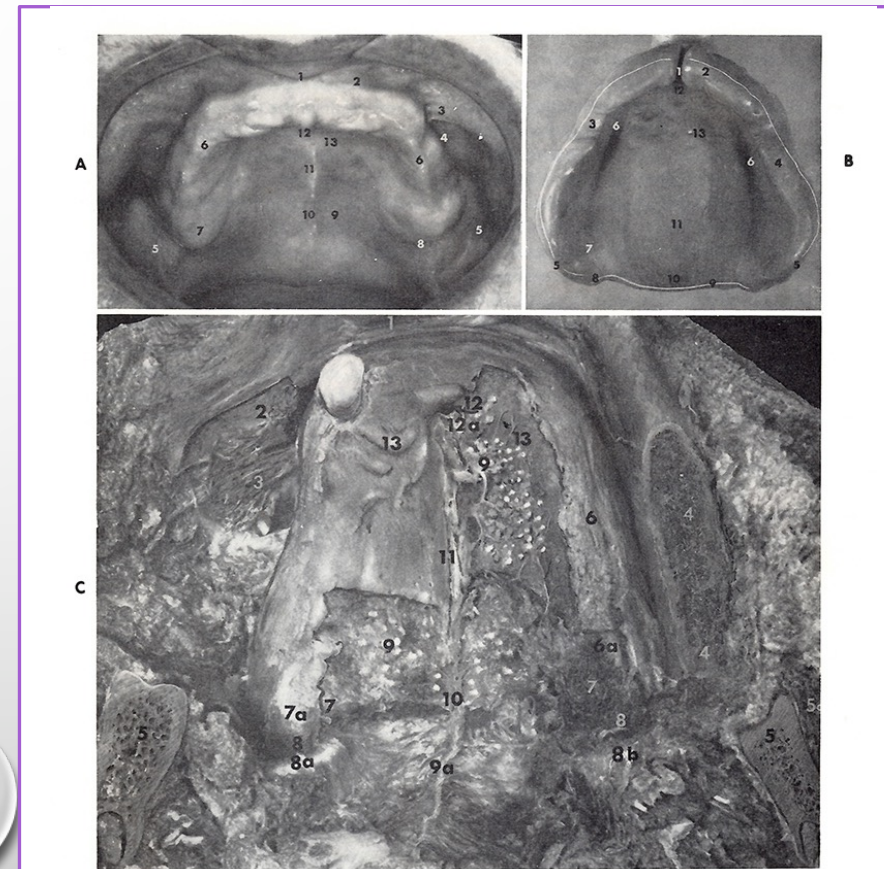


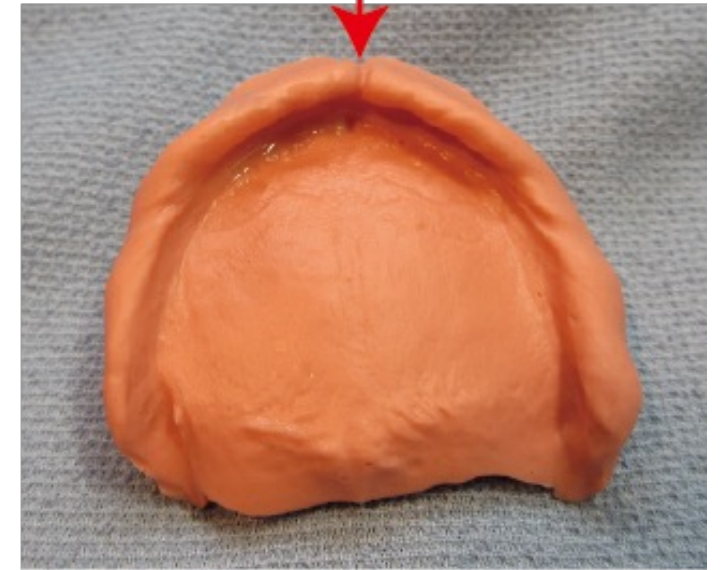
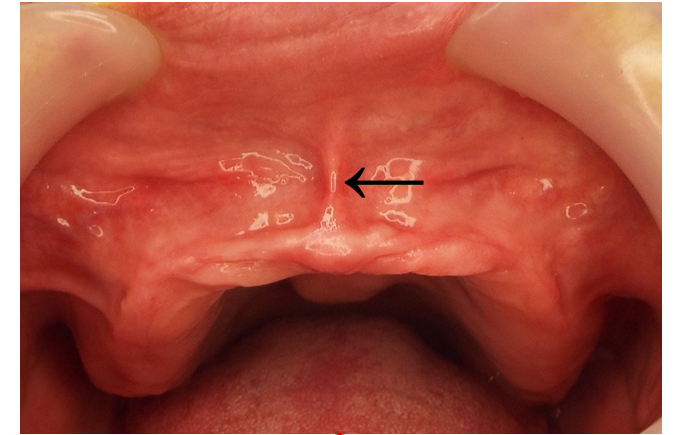
Fig. 7-9. Correlation of anatomic landmarks. A, Intraoral view of maxillary arch. 1, Labial

( From Boucher's Prosthodontic Treatment for Edentulous Patients )

# MAXILLARY IMPRESSION PROCEDURES

## 1. Labial frenum

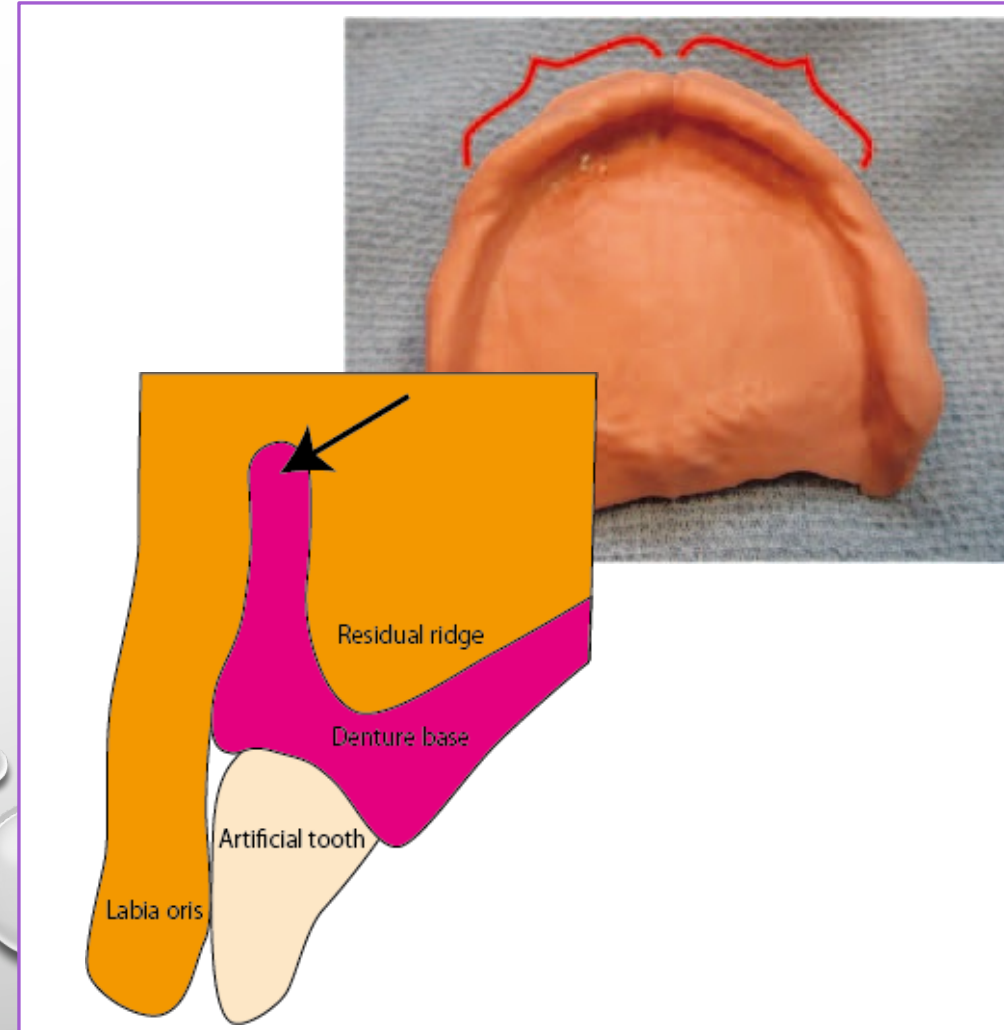
The labial frenum is located in the midline of the maxillary oral vestibule. Since the labial frenum has little lateral movement, there is no need to widen the impression surface more than necessary. However, the labial frenum is easily injured by chronic pressure, so it is necessary to take an accurate impression under pressure-free conditions. Specifically, it is important to leave sufficient space at the edge of the individual tray corresponding to the labial frenum. When an impression is taken, it is important to lift the lips forward to eliminate air bubbles in the oral cavity and to allow the lips to relax without tension while the impression material hardens.



# MAXILLARY IMPRESSION PROCEDURES

## 2. Labial vestibule

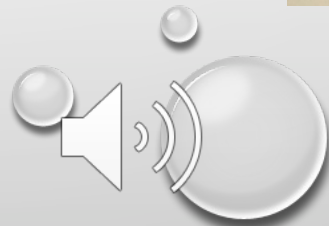
The labial vestibule is the space between the maxillary lip and the anterior residual alveolar ridge. In this area, the mucosa is inverted transitionally from the alveolar ridge mucosa to the lip medial mucosa, forming the mucocutaneous sulcus. If the denture base flanges are oversized, the denture can easily become dislodged and cause decubitus ulcers on the mucosa of the lips. The labial vestibule suitable for the denture base edge is one in which the individual tray edge is positioned in front of the alveolar ridge and moderately supports the relaxed orbicularis oris muscle. By instructing the patient to relax the lips, an impression of the appropriate denture flange form can be taken.



# MAXILLARY IMPRESSION PROCEDURES

## 2. Labial vestibule

If the denture flanges are too thick or too long, the denture can easily dislodge and cause ulceration of the mucosa. By fitting the completed denture and palpating on the skin of the lip corresponding to the denture flanges, the dentist can confirm that the denture flanges are too thick and too long in this area, as shown in the photo on the right. If the denture base flanges are properly adjusted to the mucocutaneous transition zone, this regional irregularity will not be felt.

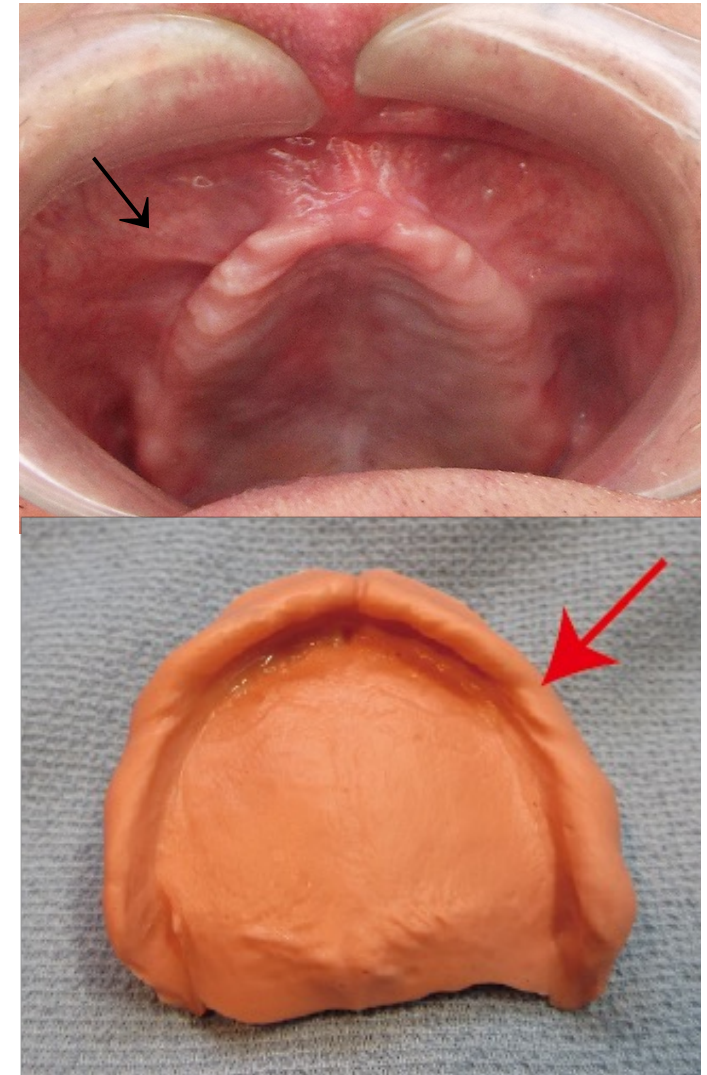


# MAXILLARY IMPRESSION PROCEDURES

## 3. Buccal frenum

The buccal frenum is a fold located on the buccal side of the maxillary premolar residual ridge, as indicated by the arrow in the upper right photo. It is believed that the buccal girdle moves back and forth due to contraction of the buccal muscles. Therefore, border molding in this area is performed with the buccal muscles contracted so as not to interfere with the movement of the buccal frenum. Specifically, the modiolus is gently pulled forward by the dentist's fingers to reproduce the movement of the buccal frenum.

Modiolus is a nodule formed by the orbicularis oris muscle and other facial muscles in the centrum of the mouth. It may become dimples on the skin of the cheeks in some people.



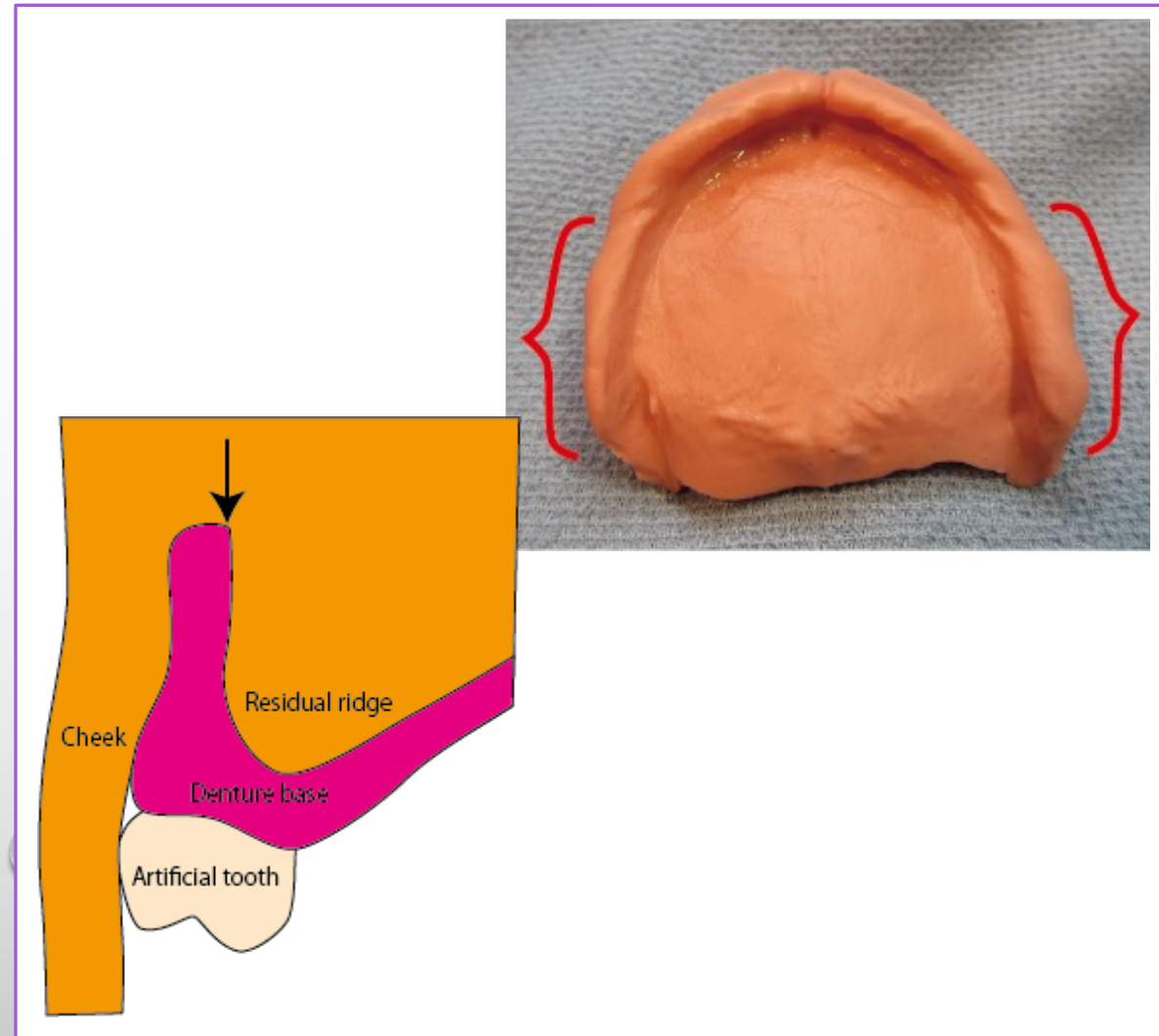


# MAXILLARY IMPRESSION PROCEDURES

## 4. Buccal vestibule

The buccal vestibule is the groove between the buccal frenum and the hamular notch (see below) located on the buccal side of the maxillary residual ridge, as indicated by the brackets in the upper right photo. The outer buccal vestibule is covered with the buccal muscle.

Since the buccal muscles originate almost perpendicularly to the external surface of the alveolar region, the cross section has a near-perpendicular morphology, as indicated by the arrow in the lower right figure.



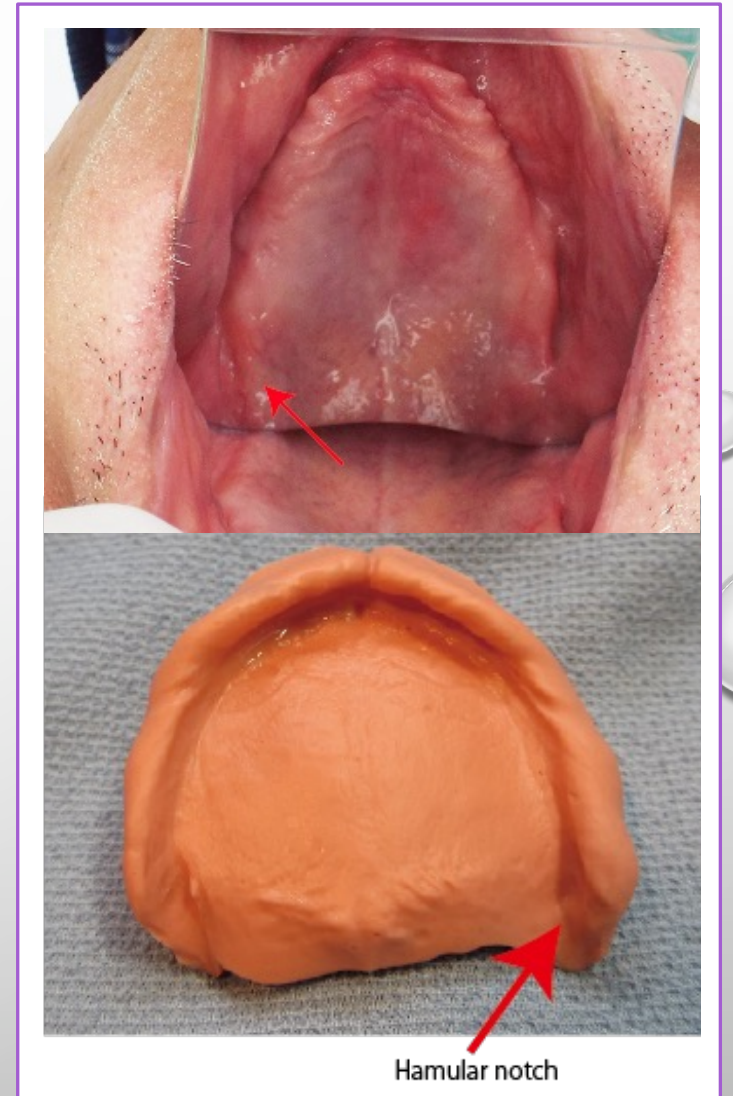
# MAXILLARY IMPRESSION PROCEDURES

## 5. Hamular notch

The hamular notch is a depression posterior to the maxillary tuberosity, as the upper right photo shows.

This Hamular notch is used as a landmark for positioning the posterior margin of the maxillary denture. This area of the notch is an area where pressure can be applied, as there are no muscles or ligaments. Therefore, the posterior margin seal of the denture is set at this deepest point.

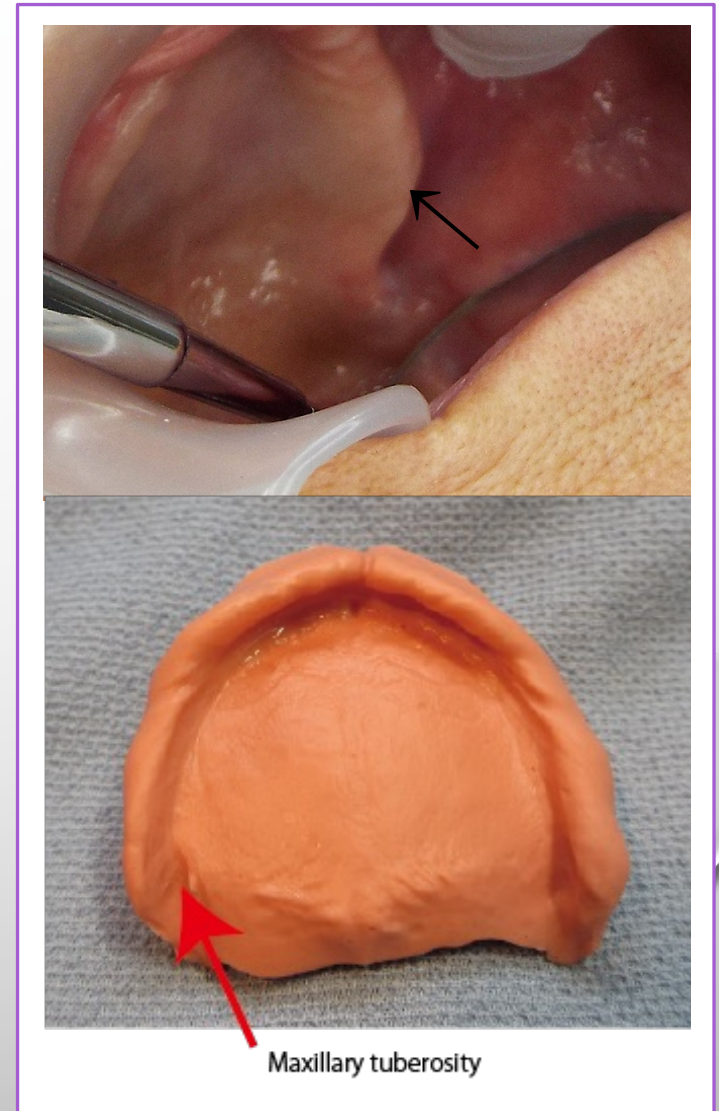
Whether or not the hamular notch is properly impressed is one of the most important points to check when taking an impression of the edentulous maxilla.



# MAXILLARY IMPRESSION PROCEDURES

## 6. Maxillary tuberosity

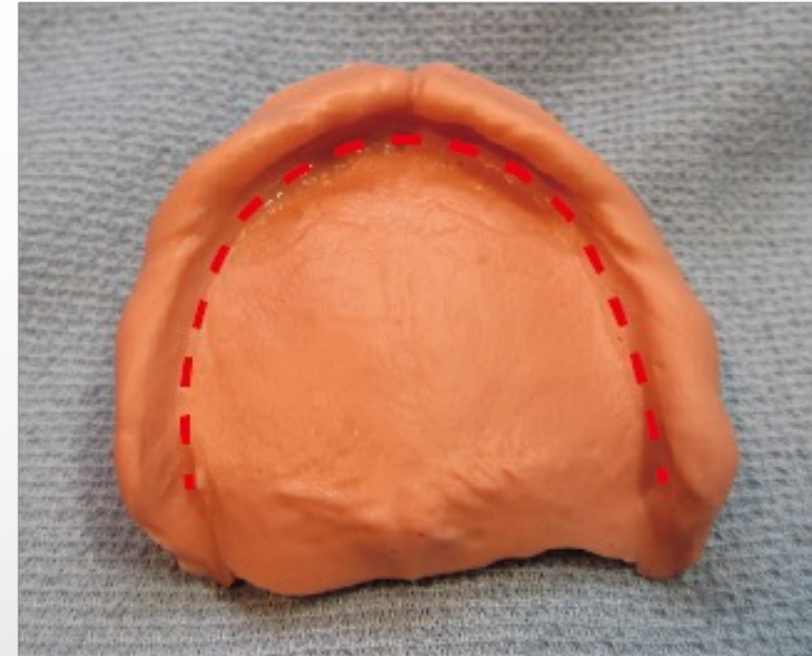
The maxillary tuberosity is the ridge at the distal end of the maxilla, as indicated by the arrow in the upper right photograph. It is adjacent to the mucocutaneous translation of the buccal vestibule and the winged maxillary incisor, and thus serves as a guide in evaluating the success or failure of the impression taking.



# MAXILLARY IMPRESSION PROCEDURES

## 7. Residual alveolar ridge

The residual alveolar ridge is the crest-like area formed by the loss of teeth, as shown by the dashed line in the photo on the right. This is the area that can bear the most occlusal pressure.

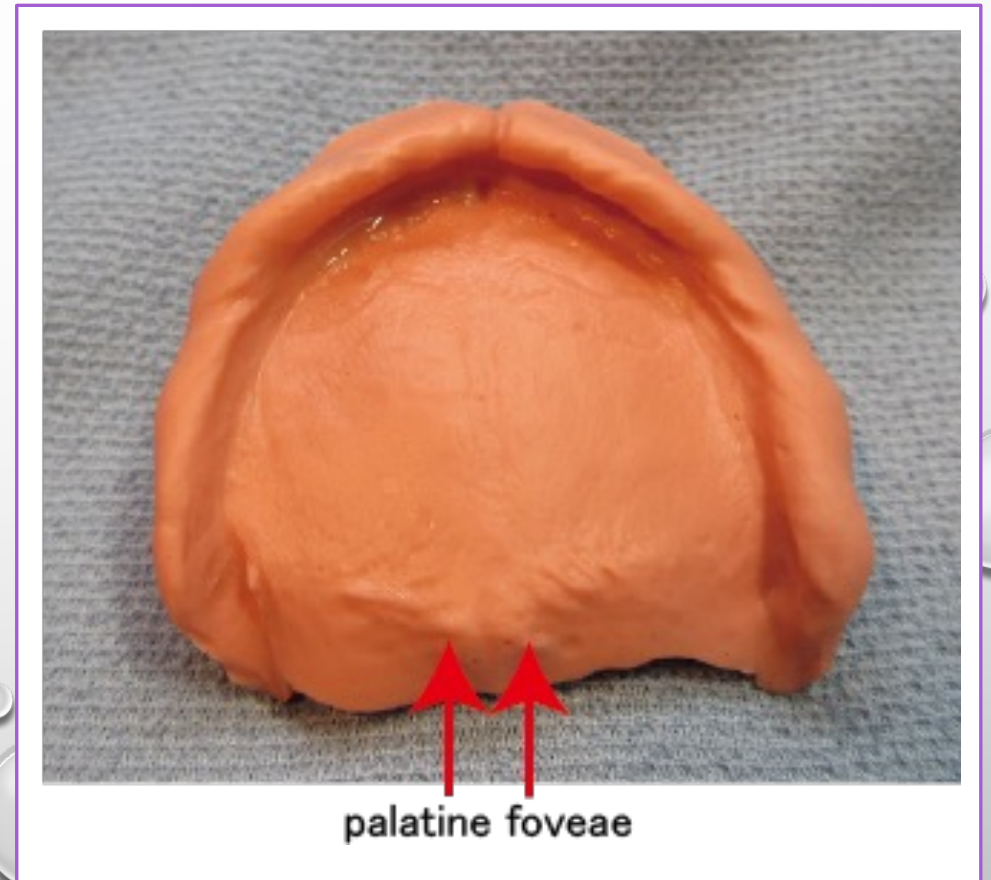


# MAXILLARY IMPRESSION PROCEDURES

## 8. Palatine fovea

The palatine foveae are indentations created by the fusion of several mucus line ducts, indicated by the arrows in the right photograph on the right, and they are located in pairs near the midline of the soft palate.

Because of the presence of the palatal fossa on the soft palate, the posterior margin of the denture should be set 1 to 2 mm anterior to the palatal fossa.

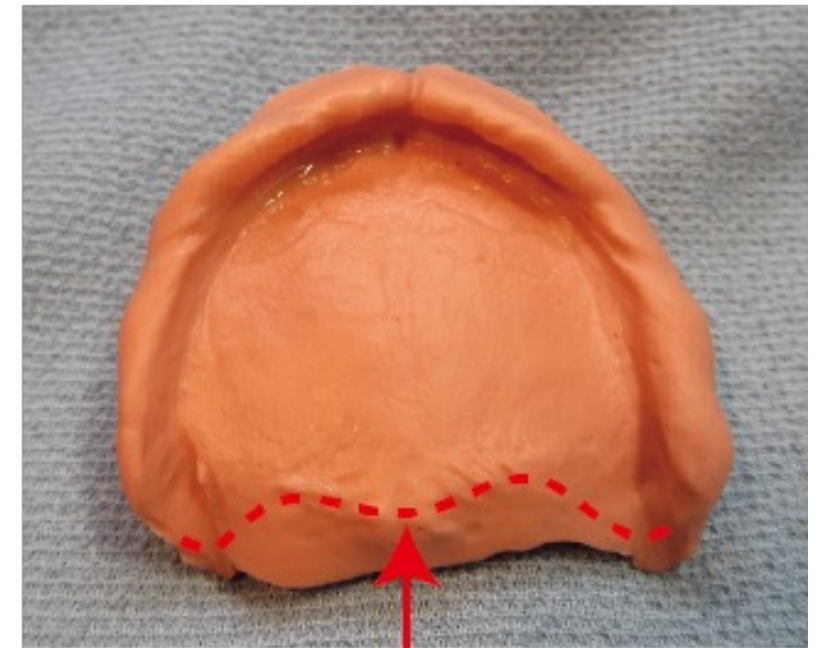


# MAXILLARY IMPRESSION PROCEDURES

## 9. Posterior palatal seal region

The posterior palatal seal is the area with a certain width where the soft palate begins to move, as indicated by the dashed line in the photo on the right. The movement of the palate can be seen when the patient says "Ah".

This area is set at the posterior edge of the denture. Therefore, it is very important that an impression be taken of this area.



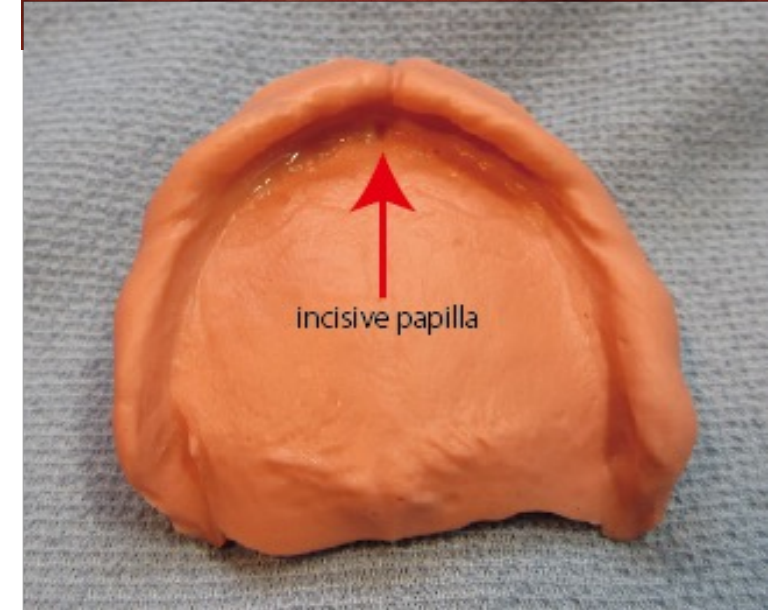
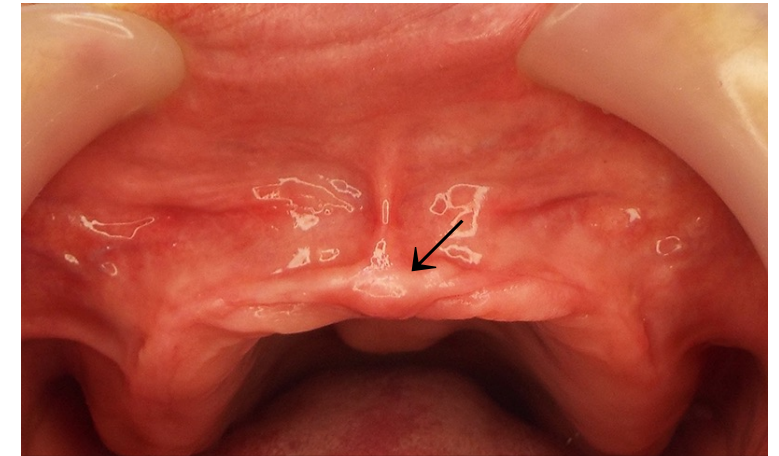
Posterior palatal seal region



# MAXILLARY IMPRESSION PROCEDURES

## 10. Incisive papilla

The incisive papilla is located on the midline just behind the central incisors, as indicated by the arrows in the upper right photo. The incisor papilla covers the opening of the nasopalatine canal (incisal foramen), which contains the nasopalatine vessels and nerves. The incisor papilla is used as a reference for the position of the anterior tooth prosthesis.



# MAXILLARY IMPRESSION PROCEDURES

## References

- 1) Boucher, C.O., Hickey, J.C. and Zarb, G.A. :Prosthodontic treatment for edentulous patients 7th ed., 107~157, C. V. Mosby Company, Saint Louis, 1975.
- 2) Sotokawa, T. : Measurement of Distances between Anatomic Landmarks on Casts for Edentulous Patients -Trays Fitting to Edentulous Alveolus Ridges-, J Jpn Prosthodont Soc, 37 : 469^479, 1993.
- 3) Sotokawa, T. : An Evaluation of Improved Trays for Wdentulous Alveolus Ridges of Japanese Patients, J Jpn Prosthodont Soc Tohoku Hokkaido Chapter, 2004: 15.
- 4) Sotokawa, T. : Evaluation of Trays Designed for Edentulous Alveolus Ridge Based on Statistical Analysis, J Jpn Prosthodont Soc: Vol.51, 116th, 2007: 131.

If you have any questions or doubts, please leave them in the comment section.

The next topic will be the third, " Mandibular impression procedures " .

