

# PROSTHESIS

## COMPLETE DENTURE



Lec. 3

Intra-oral landmark

DR. Zeena Farhan

## Intra -oral landmarks

✓ After extraction of teeth, the alveolar bone that supports the teeth begins to resorb and decrease in size. The part of the alveolar process that remains is called the **residual ridge**.

- **Retention:** resistance to **vertical** dislodging force.(V.I.)
- **Support:** resistance to **vertical** lodging force.(V.I.)
- **Stability:** resistance to lateral and antro-posterior force.(V.I.)

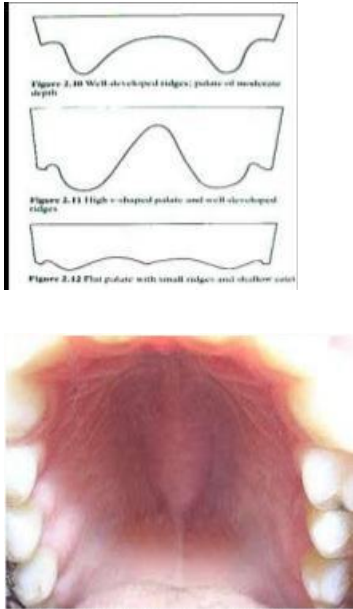
### ➤ **Criteria of tissue to be primary stress bearing area: (V.I.)**

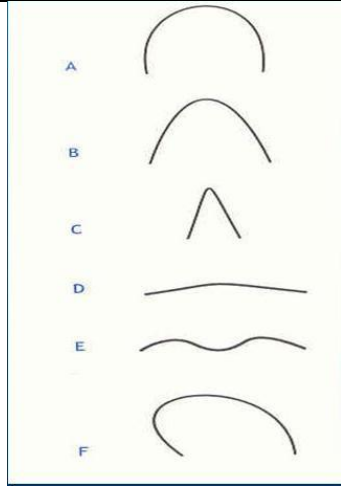
- 1- Should be compact bone
- 2- Covered by keratinized mucosa.
- 3- Uniform sub mucosa
- 4- Occlusal force should be perpendicular to tissue.
  - ✓ If the four factor found (primary stress bearing area) if three only (secondary stress bearing area).

### ➤ **Criteria of relief area: (V.I.)**

- 1- Thin or no submucosa .sensitive
- 2- Thick displaceable mucosa.
- 3- Nerve bundle.
- 4- Sharp bone.

## Maxillary landmark (supporting area)

Anatomical landmark	Description	Prosthetic value
<p><b>1) Palatal vault</b></p> 	<ul style="list-style-type: none"> <li><input type="checkbox"/> This is formed anteriorly by the hard palate and posteriorly by the soft palate.</li> <li><input type="checkbox"/> The vault of the palate has different forms according to the pattern of development of the maxillary processes.</li> <li><input type="checkbox"/> The palatal arch may be high and V shaped, or shallow and flat. The more common form is moderately high U shaped vault. The U shaped vault is more desirable for denture stability.</li> <li><input type="checkbox"/> Classification according to stability             <ol style="list-style-type: none"> <li>a) Class I : ideal U shape</li> <li>b) Class II : V shape</li> <li>c) Class III: flat ridge</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The palatal arch may be high and V shaped due to Mouth breathing so atrophy of nasal cavity and elevation of palatal vault (prosthetic problem --- during curing of acrylic resin polymerization shrinkage occur so less adaptation to tissue ---- may use metallic denture base )</li> <li><input type="checkbox"/> Shallow and flat. (in case of flat ridge)(prosthetic problem that have no stability)</li> <li><input type="checkbox"/> The U shaped vault is more desirable for denture stability.</li> <li><input type="checkbox"/> U shaped considered 1ry stress bearing are due to (force direction).</li> <li><input type="checkbox"/> Only horizontal part considered as 1ry stress bearing area and slopes secondary stress bearing area.</li> </ul>
<p><b>2) Residual ridge</b></p>	<p>The portion of the alveolar process and its soft tissue covering that remain after extraction.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The highest continuous surface of the ridge is called the crest of the ridge</li> <li><input type="checkbox"/> Shape of arch : V shape – Rounded – U shape (best stability and retention) - Square shape (good stability but more</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Well formed (U shaped) : secondary stress bearing area.</li> <li><input type="checkbox"/> V shaped (resorption from lateral sides) secondary stress bearing area.</li> <li><input type="checkbox"/> Flat ridge: total resorption till height of it may equal the floor of the mouth lower and palatal vault upper (secondary stress bearing area).</li> </ul>

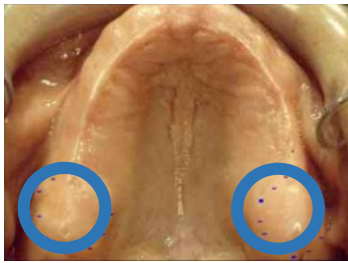


difficult to construct denture )

- Ridge according to cross section
- 1) U shape
- 2) V shape
- 3) Knife edge
- 4) Flat ridge
- 5) Inverted
- 6) Undercut

The same patient may have different shape of ridge in the same arch according to condition.

**3) Maxillary tuberosity**



- Bony prominence Distal to the maxillary third molar
- It is a rounded bulge behind and slightly above the distal end of the residual maxillary ridge.
- The size of the maxillary Tuberosity is affected by the extent of the maxillary sinus, which varies in different individuals.

- It included in the denture supporting areas, as it permits coverage of a wide area
- No setting of teeth in this area (inclined plane )
- Prevent forward movement of the upper denture (stability)
- large tuberosities may need:
  - Relieved and put soft liner or flexible resin.
  - Modified path of insertion.
  - Some cases with bilateral undercut relief one and the other modify path of insertion
  - The last choice is surgical removal with excessive enlargement.

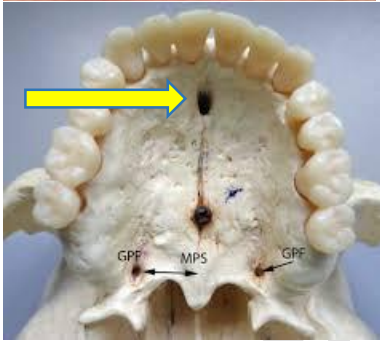
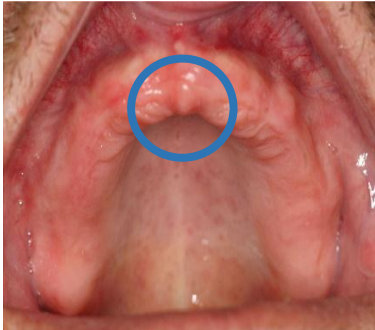
**4) Rugae area**

- These are irregularly shaped ridges radiates from the midline of anterior third of the hard palate.
- Play a part in speech, especially the letter “s”.

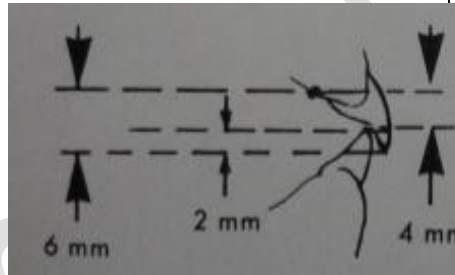
- Prevent forward movement of the denture.
- 1ry stress bearing area if flat and firm
- 2ry stress bearing area ( high thickness of mucosa covering it) with slight



**5) Incisive papilla**



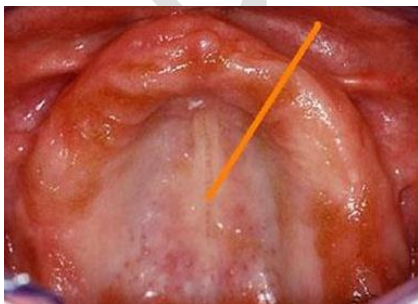
- Pear shaped elevation of soft tissue cover the opening of the incisive foramen through which nasopalatine nerve and vessels pass and it is present at the midline just posterior to 2 centrals.
- Can migrate to crest of the ridge in case of severe resorption



curvature of anterior part of palate  
 Area to be relieved if there is enlargement or flabby


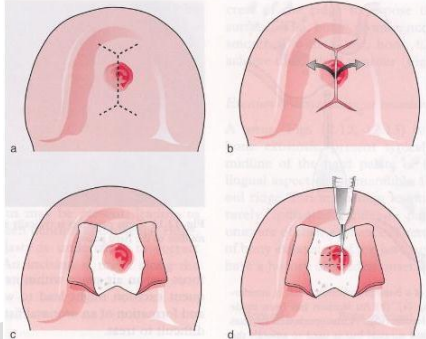

- Pressure from the denture in this area may cause burning sensation consequently the incisive papilla should be relieved.
- Reference to detect midline and previous position of teeth
- Labial surface of 2 central teeth should be Anterior to it by 8-10 mm
- If make line perpendicular to the midline will give the position of tip of canine
- From this line detect width of 6 anterior teeth
- Detect adequate contouring to the upper lip
- Distance between incisive papilla and incisal edge of upper central 6 mm and to incisal edge of lower incisor is 4 mm (to make overlap)

**6) Median palatine raphe**



- The hard palate is formed by the premaxilla and two palatine processes of the maxillary bone.
- The suture that joints the two palatine processes at the midline is called the midpalatal suture.
- This suture is covered by a thin, dense

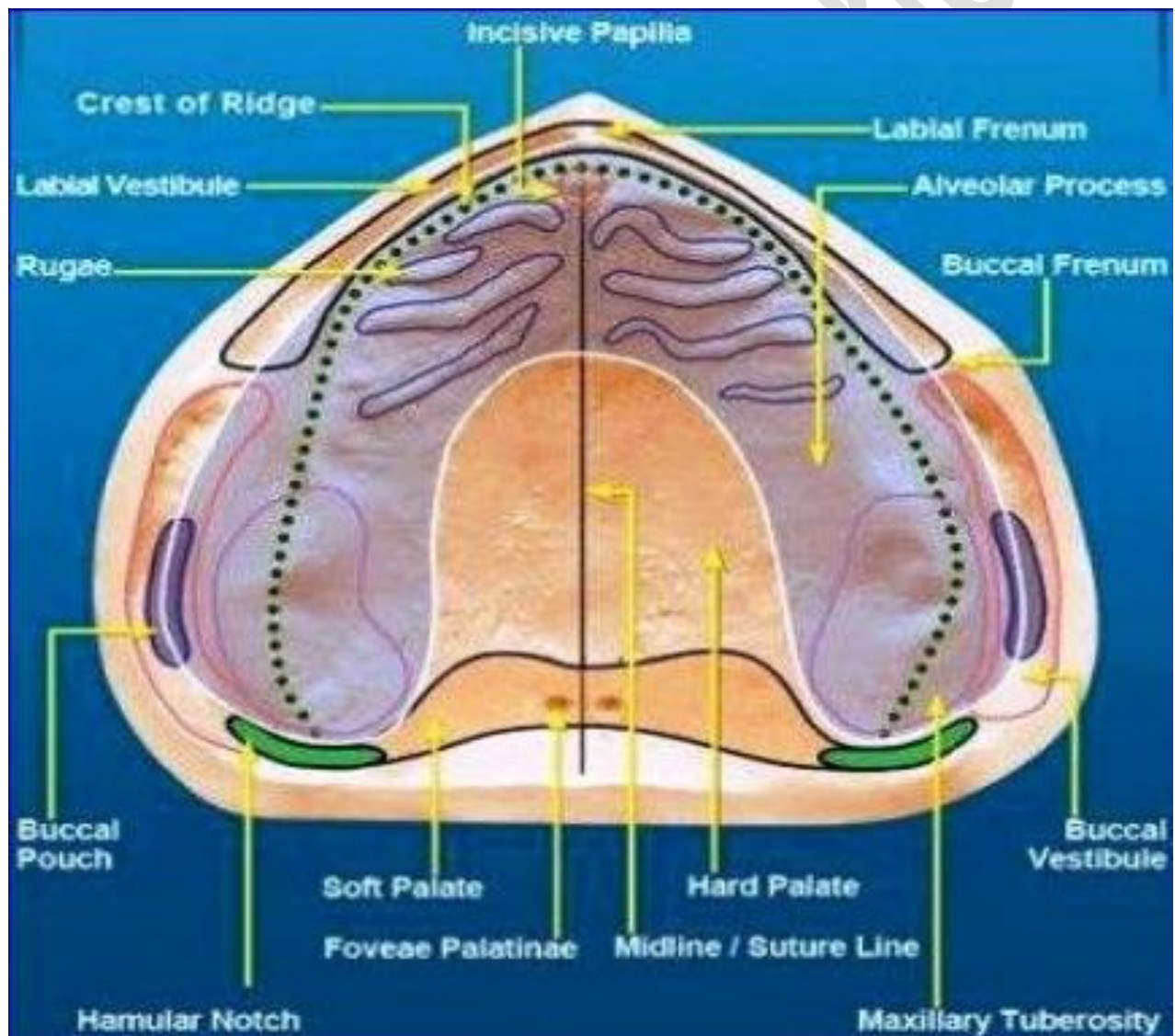
- May be hard or sensitive.
- It is generally relieved to prevent
- Upper denture from rocking.
- Splitting of the denture at the midline.
- Ulceration

	<p>mucoperiosteum with little or no submucosa.</p> <ul style="list-style-type: none"> <li>□ Its position in the palate is marked with a raised area of mucous membrane called the median palatine raphe</li> </ul>	
<p><b>7) Torus palatinus</b></p> 	<p>Bony prominence present at the center of the hard palate or unilaterally or bilaterally from the midline of hard palate.</p> 	<ul style="list-style-type: none"> <li>□ If the size is too big or extended posteriorly to where the posterior palatal seal is placed or have undercut (mashrom shape), it should be surgically removed.</li> <li>□ If small, the denture base over this area must be relieved.</li> </ul>
<p><b>8) Fovea palatinae</b></p> 	<ul style="list-style-type: none"> <li>□ Two small openings of minor salivary glands, one on each side of the midline, at or near the attachment of the soft to the hard palate.</li> </ul>	<ul style="list-style-type: none"> <li>□ Determine the extension of the upper denture to be 2mm behind them</li> </ul>

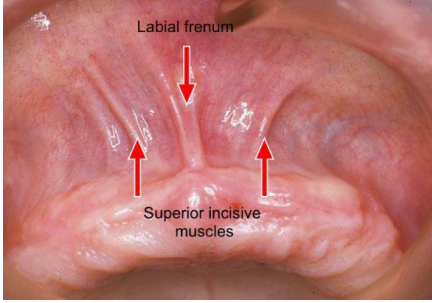
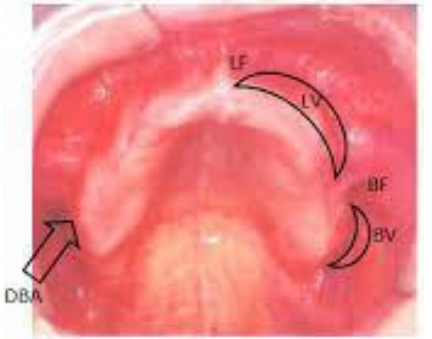
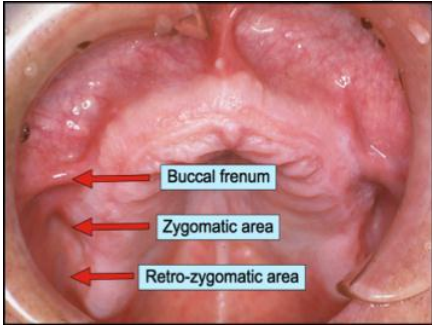
**9) Malar process of zygomatic bone**

□ Lower portion of zygomatic process of the maxilla opposite the first molar.

□ Provide excellent resistance to vertical forces as its bearing surface is almost at right angle to direction of occluding forces so (its coverage add greatly in denture support and stability).  
□ In some cases primary stress bearing area



## Maxillary landmark (limiting structure)

<p style="color: red;"><b>1- Labial frenum</b></p> 	<ul style="list-style-type: none"> <li>□ It may be single or multiple, appearing as a fold of mucous membrane extending from the mucous lining of the lips toward the crest of the residual ridge on the labial surface.</li> </ul>	<ul style="list-style-type: none"> <li>□ A V shaped labial notch must be provided in the mid line of the denture border opposite to its position.</li> <li>□ This will facilitate the functional movements of the frenum. Otherwise, ulcer on of the frenum or displacement of the denture may occur.</li> </ul>
<p style="color: red;"><b>2) Labial vestibule (sulcus)</b></p> 	<ul style="list-style-type: none"> <li>□ It extends on both sides from the labial frenum to the buccal frenum.</li> <li>□ Reflection of tissue and affected by residual ridge internally and orbicularis oris and superior incisor muscle externally</li> </ul>	<ul style="list-style-type: none"> <li>□ Determines the height of the denture flange. (not over or under extended)</li> <li>□ And affect the amount of the vermlian border</li> </ul>
<p style="color: red;"><b>3) Buccal frenum</b></p> 	<ul style="list-style-type: none"> <li>□ It is a fold or folds of m.m. that vary in size and position, and extends from the buccal mm. reflection area to the crest of the residual ridge.</li> <li>□ Orbicularis oris pull the frenum forward, buccinator muscle pull it backward so require more clearance.</li> </ul>	<ul style="list-style-type: none"> <li>□ Like the labial frenum it contains no muscle fibers.</li> <li>□ The border of the denture should be functionally trimmed to fit exactly the depth and width of the frenum when it is in function.</li> <li>□ Saucere shape notch</li> <li>□ Inadequate clearance of the buccal frenum can cause dislodgment of the denture during function.</li> </ul>
<p><b>4) Buccal vestibule</b></p>	<ul style="list-style-type: none"> <li>□ It is the space distal to the buccal frenum. It is bound externally by the cheek and</li> </ul>	<ul style="list-style-type: none"> <li>□ In this area the denture flange is in relation to the buccinator muscle which</li> </ul>



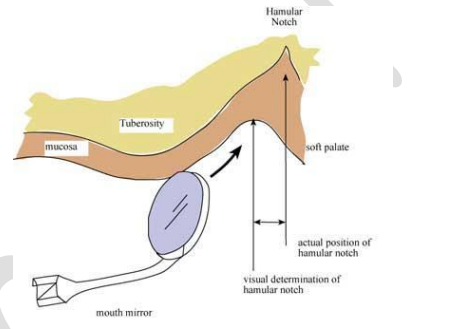
internally by the residual ridge

will not displace the denture due to the horizontal direction of the muscle fibers.  
 Thickness of distal end of buccal flange in these areas must be adjusted to accommodate the coronoid process of the mandible; otherwise it will push the denture out of place

**5) Hamular notch**



Depression distal to the maxillary tuberosity and anterior to hamulus of pterygoid bone .  
 distal limit of buccal vestibule



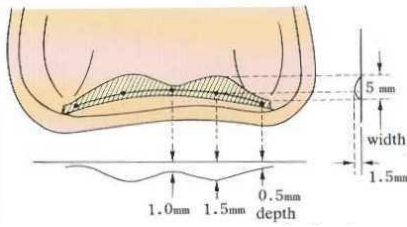
Used as a landmark for the correct extension of the upper denture.  
 The posterior palatal seal should extend through the hamular notches slight displacement of the hamular notches (thick compressable mucosa) provides a seal area for the posterior border of the maxillary denture.

**6) Vibrating line**



The extension of the posterior palatal border of the upper denture depends on the functional activity of the soft palate.  
 The soft palate has two parts:  
 The anterior 1/3 that is adjacent to the hard palate is immovable  
 Posterior 2/3 is movable  
 Two vibrating line :  
 a) Anterior vibrating line : line between hard & soft palate

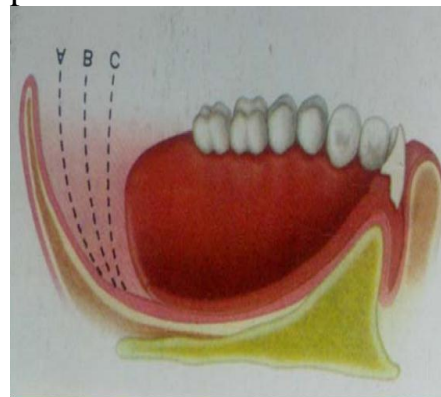
c) The posterior limit of the palatal edge of the maxillary denture (the area of the posterior palatal seal) should be located at the junction of these two parts.  
 d) The junction is the beginning of movement of the soft palate and is called the vibrating line (ah line).  
 e) To determine vibrating lines:  
 a) Draw it arbitrary on the cast and scratch



b) Posterior vibrating line :  
line between movable &  
immovable part of soft palate

□ Classification of the soft  
palate :

- 1) Class I : large immovable  
part (3-5mm) good PPS
- 2) Class II medium  
immovable part 2-3mm  
medium PPS
- 3) Class III small immovable  
part 1mm small PPS



b) Draw the line intraorally  
then copied on impression  
and then copied in to the  
cast and scratch

### Note

- Labial notch : narrow and deep as movement of labial frenum less than buccal frenum
- Buccal notch : wide and shallow as movement of buccal frenum is more than labial frenum
- Vestibule: cavity between lip and labial slope of the ridge which occupied by flange
- Sulcus : deepest part of vestibule facing border of the denture
- Posterior palatal seal area: Area located at immovable part of soft palate on which pressure with physiologic limits of the tissue can be applied by denture to aid in denture retention.

#### ❖ Function:

- a) Retention of max denture by seal along its posterior border
- b) Reduce food accumulation beneath posterior border.

c) Reduce pt discomfort by heavy sucken posterior border which is less conspicuous to tongue.

d) Provide distinct land mark for finishing posterior border of max denture.

e) Lies between ant. and post. Vibrating lines

✓ **Ala-tragus called Camper line**

✓ **Naso labial angle (NLA) :** Angle formed by facial surface of the upper lip at the midline (philtrum) and inferior border of the nose

a) In normal pt equal 90 degree: Must be restored by adequate labial flange of the maxillary denture

b) Acute NLA  $\implies$  over contour of the labial flange or too labial position of anterior teeth

c) Obtuse angle: under contour of the labial flange or too lingual position of anterior teeth