Posterior palatal seal area

Complete dentures may suffer from a lack of proper border extension , but none are more important than the posterior limit and the posterior palatal seal on maxillary complete dentures . the posterior border is terminated on a surface that continues and is movable in varying degrees and not at a turn of tissue as are the other dentures borders .

Deficiencies of the distal border may be in the length of the dentures base , or the depth of the posterior palatal seal or both . These errors may lead to inadequate retention due to the lack of peripheral seal .

The purpose of this lectures is to discuss , the importance of the posterior palatal seal , its location , design , placement of and influence on processing .

POSTERIOR PALATAL SEAL(PPS)

According to GPT " It is defined as a soft tissue along the junction of the hard and soft palates on which pressure within the physiologic limits of the tissues can be applied by a denture to aid in the retention of the dentures .

Importance And Function Of PPS

1. It maintain contact of denture with soft tissue during functional movements of stomatognathic system , by which decreases gag reflex .
2. Decreases food accumulation with adequate tissue compressibility.
3. Decrease patient discomfort of tongue with posterior part of denture.
4. Increases retention and stability by creating partial vacuum .
5. Increased strength of maxillary denture base .

6. Compensate for polymerization of the acrylic denture base.
7. Adds confidence and comfort to the patient by enhancing retention.

The peripheral seal of maxillary denture is an area of contact between the mucosa & peripheral polished surface of the denture base , the seal prevent passage of air between denture and tissue .

Retention and stability of denture is achieved from adhesion , cohesion and interfacial surface tension that resist the dislodging forces that act perpendicular to the denture base .

Denture retention(definition) the resistance in the movement of a denture away from its tissue foundation especially in a vertical direction . A quality of a denture that holds it to the tissue foundation and / or abutment teeth .

What are five factors of retention ?

- Adhesion
- Cohesion
- Interfacial surface tension
- Atmospheric pressure
- Mechanical looking into undercuts

The posterior palatal seal is placed in the maxillary complete denture because the acrylic will distort slightly and pull away from the posterior palatal area of the maxillary cast . The acrylic will shrink toward the areas of greatest bulk , which are the areas over the ridge where the teeth are placed . The posterior palatal seal provides a vacuum seal between the denture and the soft palate that holds the maxillary complete denture securely in place . The adequate PPS resist the horizontal and lateral forces acting on maxillary denture base as the denture border terminate on soft resilient tissue and there by maintain a proper denture seal .

Anatomic Consideration

The PPS is divided in two anatomic separate boundaries –

1. Post palatal seal
2. Pteriygomaxillary seal

The post palatal seal is extend one tuberosity to other. Pterygomaxillary seal extend through pterygo maxillary notch continuing for 3-4 mm anterolaterally approximation the mucogingival junction. It also occupies the entire width of ptergomaxillary notch.

Fovea patatina are two glandular opening with in the tissue posterior of hard palate lying on the either side of midline.

- Fovea patatina should be used only as a guide line for the placement of the posterior palatal seal .
- Medial palatal raphe which overlies medial palatal suture contain little or submucosa and will tolerate little or no compression.
- Hamular notch
- Maxillary tuberosity
- Torus palatinus
- Ptergomandibular raphe

Thus the placement of PPS across mid palatal suture demined careful attention. PPS should also extend into mid palatal fissure to ensure proper peripheral seal. Cord like band of tissue extending between the posterior nasal spine and aponeuorosis of tensor vilipalatini muscles should receive slight amount of relief.

If the torus palatine extend to bony limit of the palate leaving little or no room to place the PPS then its removal is indicated.

Physiological consideration:

Saliva :

Presence of thick ropy saliva create hydrostatic pressure in the area anterior to the PPS , resulting in a down word dislodging forces,.

Vibrating line:

The imaginary line across the posterior part of the palate marking the division between the movable &immovable tissue of the soft palate which can be identified when the movable tissues are moving.(GPT)

- Anterior Vibrating line(AVL).
- Posterior Vibrating line(PVL).

Anterior Vibrating line: it is an imaginary line lying at the junction between the immovable tissue over the hard palate and the slightly movable tissue of the soft palate(GPT).

METHOD OF LOCATING AVL:

Instructing the patient to say "Ah" with short vigorous bursts due to projection of the posterior nasal spine. The AVL is not a straight line between both hamular process.

Posterior Vibrating line: it is an imaginary line as junction of the aponeurosis of tensor vilipalatini muscles in the muscular portion of the soft palate.

The anatomic structure that help in recording of these vibrating lines are palatine aponeurosis, hamular process, median palatal raphe and fovea palatine. It represent demarcation between the part of soft palate that has limited or shallow movement during function and the reminder of the soft palate that is markedly displaced during functional movement. The PVL marks the most distal extension of the denture base.

Classification of soft palate:

House's classification : **House classified** the soft palate according to how it drops

Class I: easiest to tolerate, broadest range, hardest to locate.

Class II: most common

Class III: easiest to locate , hardest to tolerate.

Class I:

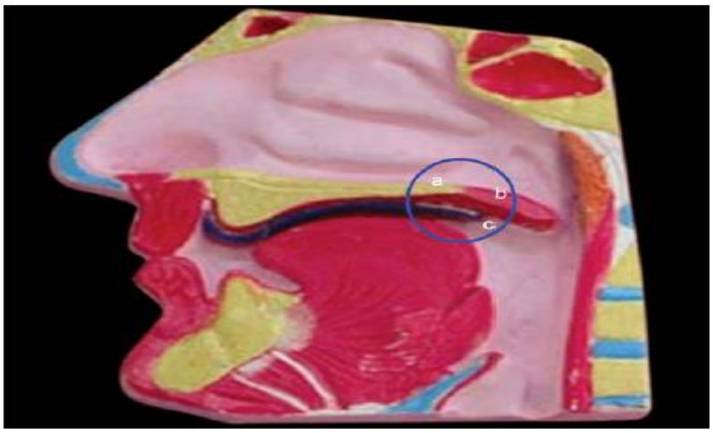
It indicate soft palate that is rather horizontal as a extend posteriorly with minimum muscular activity. There is considerable separation between anterior and posterior VL dose having wide PPS area yielding more retentive denture base.

Class III:

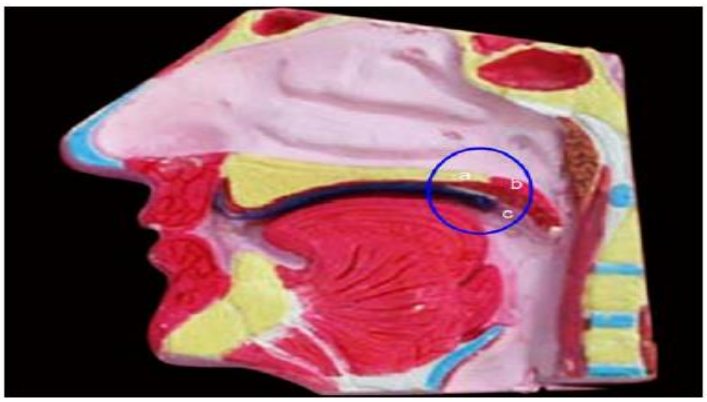
It is seen in conjugation with high V shape palatal vault. There is a few mm separation of anterior &posterior VL thus there is small PPS area & less retention.

Class II:

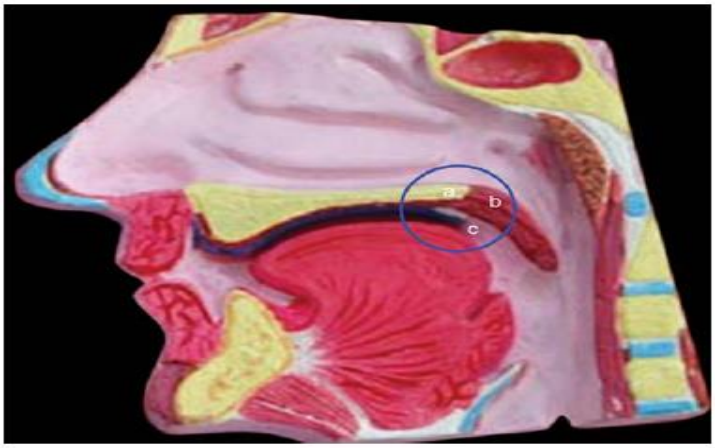
Palatal contour lie between class I &class III.



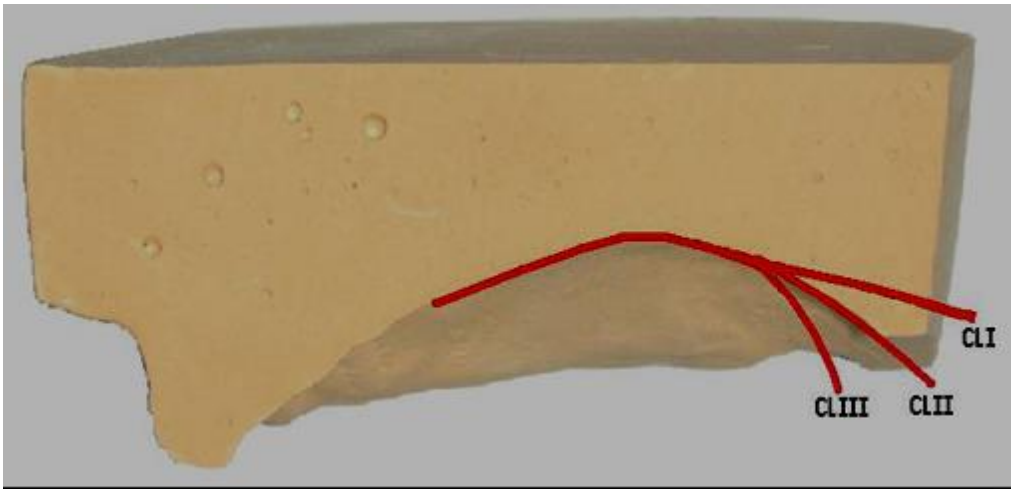
Class I soft palate: (a) Hard palate, (b) soft palate, (c) palatal extension of denture



Class II soft palate: (a) Hard palate, (b) soft palate, (c) palatal extension of denture



Class III soft palate: (a) Hard palate, (b) soft palate, (c) palatal extension of denture



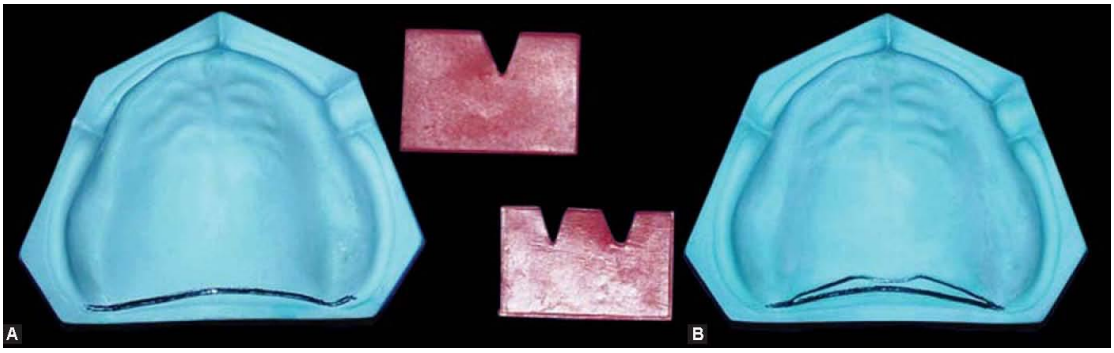
Design of the PPS:

The most common PPS configuration described by Winland&Young.

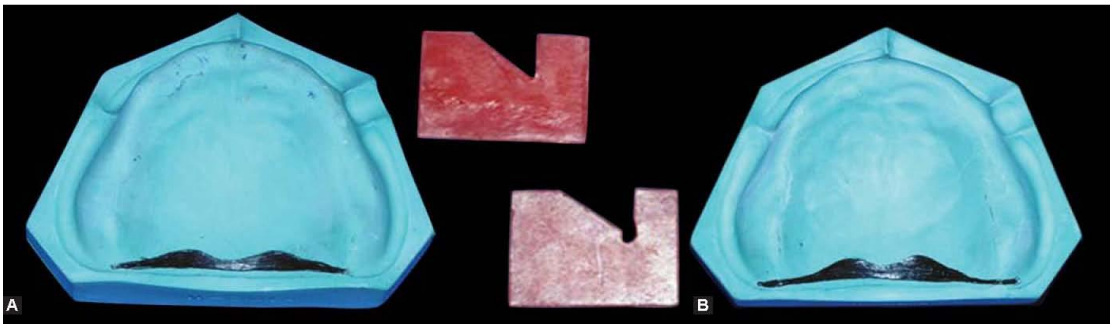
1. A bead posterior palatal seal.
2. A double bead posterior palatal seal.
3. A butterfly posterior palatal seal.
4. A butterfly posterior palatal seal with a bead on the posterior limit.
5. A butterfly posterior palatal seal with the hamular notch area cut to half a depth of a bur.
6. A posterior palatal seal constructed in reference to House's classification of palatal form.

Class I: A butterfly shaped posterior palatal seal with3-4 mm wide.

Class II: Posterior palatal seal is narrow with 2-3 mm of width.
Class III: A single beading made on the posterior vibrating line.



PPS designs (A) Single bead and (B) double bead



PPS designs (A) Butterfly and (B) butterfly with bead