

Posterior palatal seal area

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

١. It maintain contact of denture with soft tissue during functional movements of stomatognathic system , by which decreases gag reflex .
٢. Decreases food accumulation with adequate tissue compressibility.
٣. Decrease patient discomfort of tongue with posterior part of denture.
٤. Increases retention and stability by creating partial vacuum .
٥. Increased strength of maxillary denture base .
٦. Compensate for polymerization of the acrylic denture base.

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 .

Anatomic Consideration

The PPS is divided in two anatomic separate boundaries –

١. Post palatal seal
٢. Pterygomaxillary 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 .
- Hamular notch
- Maxillary tuberosity
- Torus palatinus
- Ptergomandibular raphe

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 velopalatini 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.

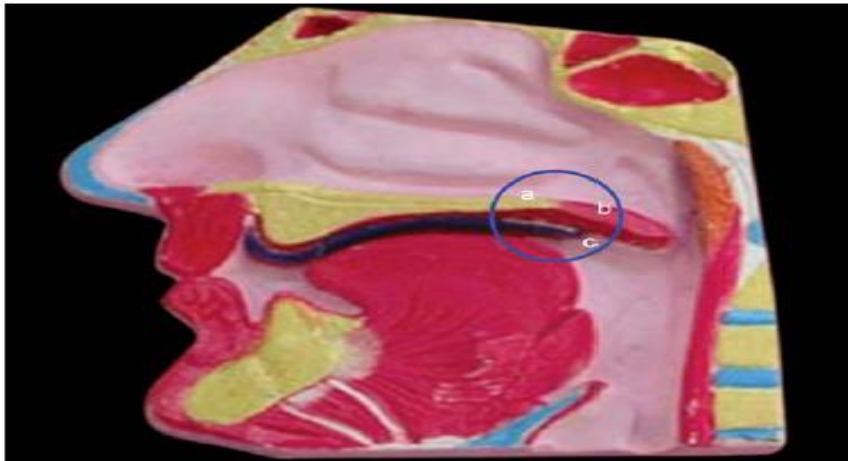
Classification of soft palate:

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

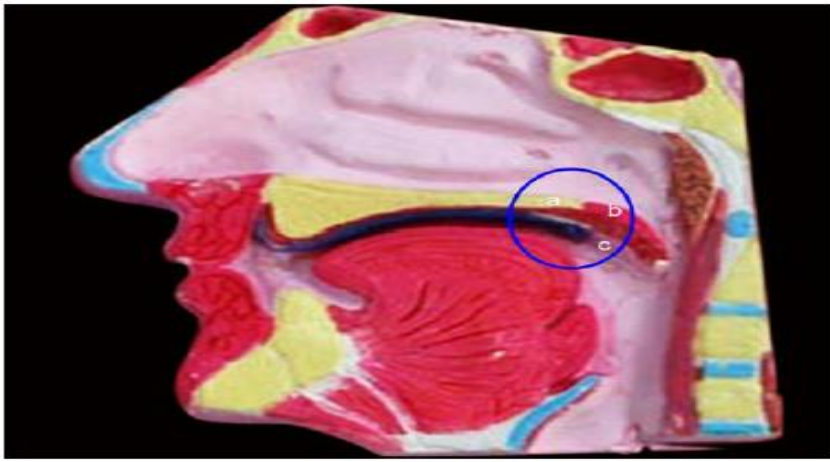
Class I: easiest to tolerate, broadest range, hardest to locate.

Class II: most common

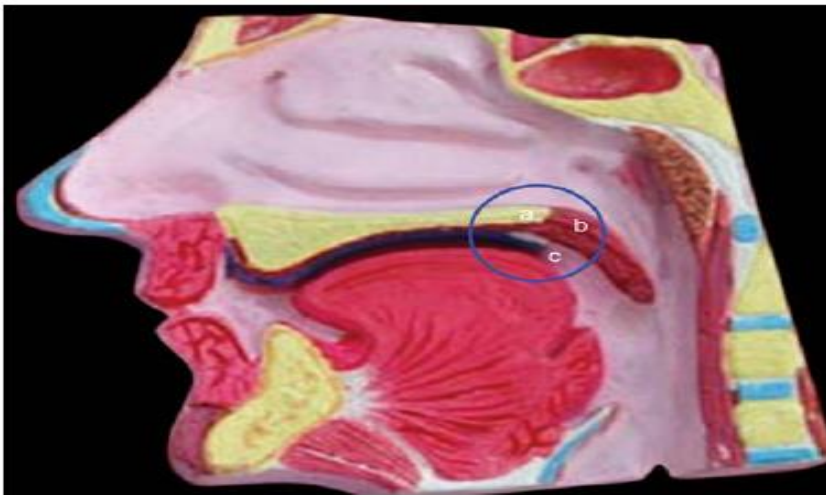
Class III: easiest to locate , hardest to tolerate.



Class I 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.

١. A bead posterior palatal seal.
٢. A double bead posterior palatal seal.
٣. A butterfly posterior palatal seal.
٤. A butterfly posterior palatal seal with a bead on the posterior limit.
٥. A butterfly posterior palatal seal with the hamular notch area cut to half a depth of a bur.
٦. A posterior palatal seal constructed in reference to House's classification of palatal form.

Techniques:

There are several established techniques for the placement of PPS, the important once:

١. Conventional approach

٢. Fluid wax technique

CONVENTIONAL APPROACH

After the special tray is fabricated there are certain instructions given to the patients:

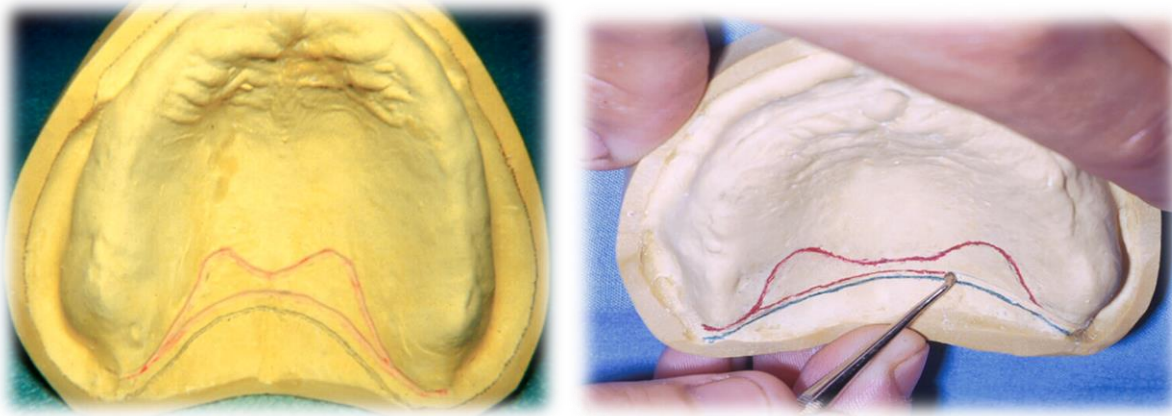
١. To rinse with a mouth wash that is remove to stringy saliva that might prevent clear transfer marking.
٢. Location of pterygo maxillary notch is done by moving the T burnisher posterior angle to the maxillary tuberosity until it drops into the ptergo maxillary notch. This is necessary as there are times when small depression in the residual ridge may resemble ptergo maxillary notch.
٣. Identification of posterior vibrating line the patient asked to say "AH" in short burst in an exaggerated fashion.
٤. Identification of anterior vibrating line, the patient asked to say "AH" in short vigorous bursts.

Advantages:

١. The trail base will be more retentive.
٢. This can produce more accurate maxilla-mandibular record.
٣. Patient will be able to experience the retentive qualities of the trail base, giving them the psychologic security of knowing that retention will not be a problem in the completed prosthesis.
٤. The practioner will be able to determine the retentive qualities of the finished denture.
٥. The new denture wearer will be able to realize the posterior extent of the denture which may ease the adjustment periods.

Disadvantages:

١. It is not a physiologic technique & therefore depends upon accurate transfer of the VL & careful scraping of the cast.
٢. The potential for over compression of the tissue is great.



Fluid wax technique:

All of the procedure remain the same as conventional technique that is transfer location & transfer marking of the AVL&PVL. The marking are recorded in final impression one of the four type of wax can be used for this technique:

١. Iowa wax white.
٢. Adaptol green wax.

Advantages:

١. It is physiologic technique displacing tissue within their physiologically acceptable limit.
٢. Over compression of tissue is avoided.
٣. PPS is incorporated into the trail denture base for added retention.
٤. Mechanical scraping of the cast is avoided.

Disadvantages:

١. More time is necessary during the impression appointment.
٢. Difficulty in handling a materials & add care during the boxing procedure.

Errors in recording of PPS:

- ❖ Under extension
- ❖ Over extension
- ❖ Over post damming
- ❖ Under post damming

Under extension:

This is the most common cause for poor PPS. It may be produce due to one of the following reasons:

١. The denture does not cover fovea palatine.
٢. The tissue coverage is reduced and the [posterior border of the denture is not in contact with the soft resilient tissue which will move along with the denture border during functional movement.
٣. Reduce the patient anxiety to gagging.
٤. Improper delineation of the AVL &PVL.

Over extension:

١. The denture base can lead to ulceration of the soft palate and painful deglutition.
٢. The most frequent complaint from the patient will be that swallowing is painful &difficult.
٣. The hamuli are covered by the denture base, the patient will experience sharp pain, especially during function.
٤. Prevention: these region are trimmed &polished.

The over extension can be removed with a bur& then carefully repolished.

Under post damming

١. This can occur due to improper head positioning & mouth positioning. E.g. the mouth is wide open while recording the PPS the mucosa over the hamular notch become stretch. This will produce a space between the denture base &tissue.
٢. Inserting a wet denture into a patient mouth &inspecting the posterior border with the help of mouth mirror. If air bubble are seen to escape under the posterior border it indicate under damming.

- ۲. Prevention: the master cast can be scraped in the posterior palatal area or the fluid wax impression can be repeated with proper patient position.

Over postdamming:

- ۱. This commonly occurs due to excess scraping of the master cast. It occurs more commonly in the hamular notch region.
- ۲. Pterygomaxillary seal area, then upon insertion of the denture the posterior border will be displaced inferiorly.
- ۳. Prevention: reduction of the denture border with a carbide bur. Followed by lightly polishing the area while maintaining its convexity.

Addition of PPS to existing denture:

Existing denture may have poor length & depth of PPS. Properly examine existing dentures. If there are other problems in the dentures (vertical dimension, centric, esthetics..etc.) then new dentures are to be made. If only PPS is short then correction should be undertaken. Different authors using different materials have advised various techniques:

- ۱. Heat cure material.
- ۲. Self-cure acrylic resin.
- ۳. Light cure resin.