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## **POSTERIOR PALATAL SEAL AREA**

a Project Submitted to  
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Dental Surgery

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## **Certification of the Supervisor**

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I certify that this project entitled "Palatal Seal in Complete Edentulous Patient " was prepared by the fifth-year student Mohamed ali thaier Mohamed under my supervision at the College of Dentistry/University of Baghdad in partial fulfilment of the graduation requirements for the Bachelor Degree in Dentistry.

**Supervisor name :** Noor Falah

**Date :**

## Dedication

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Every work needs self-efforts as well as guidance of elders Especially those who were very close to our heart

I dedicate my humble effort

To whom I'm proud of carrying his name and my headmost teacher who taught me love of science and guided me to be who I am

My father.....

To the warm glow candle of my life and the heart being by my side step by another giving me advices, affection

and be loved

My mother.....

To my brother & sisters .....

To my friends saif and moheman .....

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## List of abbreviation

Abbreviation	Word
Pps	Posterior palatal seal
Pd	Post dam
Mins	Minutes

## INTRODUCTION

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A successful complete denture treatment should meet patients' functional needs and gain their acceptance. For achieving such goals patients should receive well retained dentures when in use. The accuracy or fit of complete dentures is essential for providing retention. The posterior area of the maxillary denture is flat, so it does not restrict the release of internal stresses during processing of the acrylic base and cannot prevent the deformation occurrence. Whereas the form of the anterior alveolar bone may resist the deformation when the denture is removed from its cast. Providing sufficient posterior palatal seal (PPS) of a maxillary denture is necessary for retention (**Alaa, 2012**).

Complete dentures may suffer from a lack of proper border extension, but most important of all is the posterior palatal extension on maxillary complete dentures. The posterior border terminates on a surface that is movable in varying degrees and not at a turn of tissue as are the other denture borders Locating and designing the posterior palatal seal after a thorough understanding of the anatomic and physiological boundaries of this dynamic region greatly enhances the border seal and increases maxillary complete denture retention (Soratur, 2006).

Patients expect a good prosthesis that can work efficiently during speech and mastication and are well-retained in the mouth for a long duration. Therefore, the importance of the extension of complete dentures has been well-established for various reasons. The posterior palatal seal functions to provide retention and stability of a well-adapted denture through forces of adhesion, cohesion, and interfacial surface tension by providing a proper seal, preventing food accumulation between the posterior border of the denture and soft palate, to reduce the tendency of gag (**Bindhoo et al., 2011**).



Many dentures have failed due to improper establishment of distal limit and improper recording of the posterior palatal seal. Recording the posterior palatal seal without reference to the anatomical landmarks of the mouth may result in an error in location and preparation on the master cast (**Bindhoo et al., 2011**).

A properly constructed denture with satisfactory retention aids significantly to the patient's comfort and psychological wellbeing, whilst a lack of retention can lead to social isolation due to fear, apprehension and embarrassment caused by loose dentures. Hundreds of dentures have failed due to improper establishment of the distal palatal length and to lack of a posterior palatal seal (**Lekay, 2005**).

## **Aims of the review**

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This review aimed to clarified the approaches that may be used for recording the posterior palatal seal area and the surrounding anatomical land mark.

# **CHAPTER ONE: Review of the literatures**

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## **1.1 The posterior palatal seal area**

The posterior palatal seal (PPS) area is defined as the soft tissue at or beyond the junction of the hard and the soft palate on which pressure can be applied by the prosthesis, within physiological limits, to aid in retention (Driscoll, 2017). The seal is achieved by incorporating a post dam (PD), a raised area or ridge, along the posterior border on the fitting surface of the maxillary denture. The ridge displaces the yielding tissues in this area in a way that maintains the seal between the denture and the tissues when the soft palate or dentures move during function. **(Lekay, 2005).**

By terminating the distal border of the denture in soft displaceable tissue, the seal is unlikely to break during functional movements of the soft palate, as the tissues in this area tend to move with the denture. The PD essentially creates a partial vacuum that resists dislodgement of dentures by horizontal and lateral torquing forces, thus aiding in retention and stability of a maxillary denture. The post dam creates a posterior palatal seal and these terms are often used interchangeably **(Lekay, 2005).**

## **1.2. Functions of the Posterior Palatal Seal**

(Alqattan and Alalawi, 2016).The primary function is that of completing the peripheral seal and enhancing the retention of the complete denture. The other purposes served by the PPS are as follows:

- Maintains contact of denture with soft tissue during functional movements of the stomatognathic system, which decreases gag reflex.

- Decreases food accumulation with adequate tissue compressibility.
- Decrease patient discomfort of the tongue with the posterior part of the denture.
- Compensation for volumetric shrinkage that occurs during the polymerization of PMMA
- Increases retention and stability by creating a partial vacuum. Increased strength of maxillary denture base.
- Adds confidence and comfort to the patient by enhancing retention.

The peripheral seal of the maxillary denture is an area of contact between the mucosa and the peripheral polished surface of the denture base, the seal prevents the passage of air between the denture and tissue (**Alqattan and Alalawi, 2016**).

Retention of a denture is achieved from adhesion, cohesion & interfacial surface tension that resists the dislodging forces that act perpendicular to the denture base (**Banerjee et al., 2009**).

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 resists the horizontal and lateral forces acting on the maxillary denture base as the denture border terminates on soft resilient tissue and thereby maintains a proper denture seal (**Mccracken, Carr and Brown, 2016**).

### **1.3. Anatomical Considerations for PPS**

The posterior palatal seal area can be divided into two regions based on anatomical landmarks, namely: the Pterygomaxillary seal and the Postpalatal seal (**Michaud, 2021**).

#### **1.3.1. Pterygomaxillary seal:**

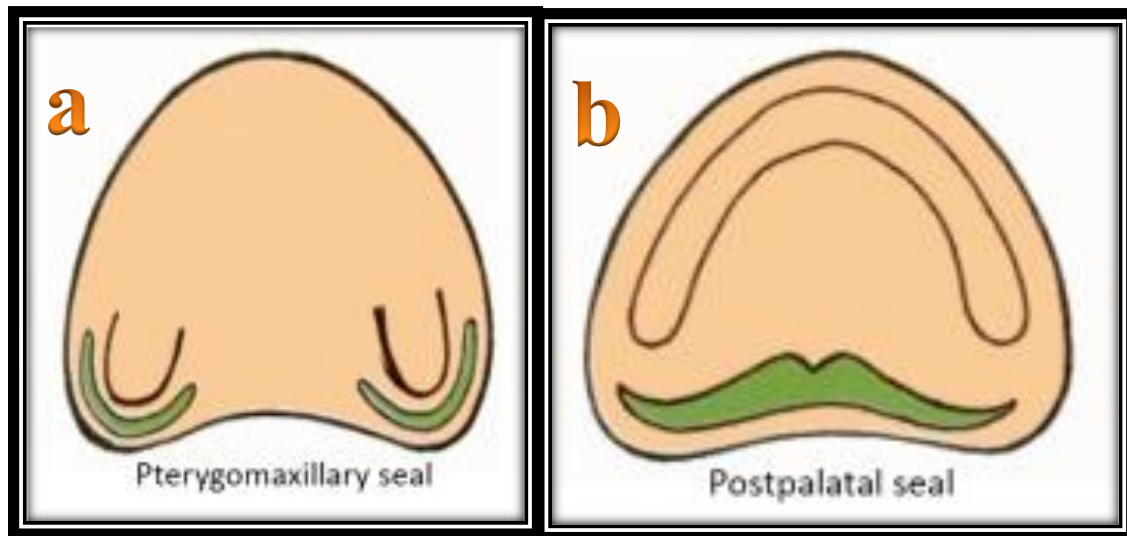
This is the part of the posterior palatal seal that extends across the hamular notch and it extends 3 to 4 mm anterolaterally to end in the mucogingival junction on the posterior part of the maxillary ridge. The hamular notch is located between the maxillary tuberosity and the hamular process of the sphenoid bone. It contains loose connective tissue and a few fibers of Tensor VeliPalatini muscle covered by a thin layer of the mucous membrane. The position of this membrane changes with mouth opening hence it should be recorded accurately during impression making. The posterior extent of the denture in this region should end in the hamular notch and not extend over the hamular process as this can lead to severe pain during denture wear figure (1.1.a) (**Michaud, 2021**).

#### **1.3.2. Post Palatal Seal Area**

This is a part of the posterior palatal seal that extends between the two maxillary tuberosities as in figure (1.1.b). (**L, Hussain and Uthkarsh, 2007**).

The post palatal seal is extending from one tuberosity to the other. Pterygomaxillary seal extends through pterygoid maxillary notch continuing for 3-4 mm anterolaterally approximation the mucogingival junction. It also occupies the entire width of the pterygomaxillary notch. The notch is covered by the pterygomaxillary fold (extend from the posterior aspect of tuberosity to the

retromolar pad). This fold influences the posterior border seal if the mouth is wide open during the final impression procedure (L, Hussain and Uthkarsh, 2007).



**figure (1.1): a. Pterygomaxillary seal, b. Post Palatal Seal Area (michaud, 2021).**

### **1.3.3. Fovea palatine.**

Are two glandular openings within the tissue posterior of the hard palate lying on either side of the midline should be used only as a guideline for the placement of the posterior palatal seal (Johnson, 2011).

### **1.3.4. Medial palatal raphe**

Which overlies medial palatal suture contains little or no submucosa and will tolerate little or no compression. The seal area narrows down in the mid palatine area due to the scarcity of connective tissue and the prominence of the posterior nasal spine. Frequently formed at the junction of the aponeurosis and the posterior nasal spine is a narrow bundle similar to a ligament. The posterior palatal seal is not placed over this narrow area. If the tours palatini extends to the bony limit of

the palate leaving little or no room to place the PPS then its removable is indicated (Johnson, 2011).

The following points should be remembered while recording the posterior palatal seal (**Veeraiyan et al, 2004**):

- I. The posterior border of the denture should not be placed over the mid-palatine raphe or the posterior nasal spine. If there is a palatine torus, which extends posteriorly so that it interferes with the posterior palatal seal, then the tori should be removed.
- II. The position of the fovea palatina also influences the position of the posterior border of the denture. The denture can extend 1-2 mm across the fovea palatina
- III. If a mid-palatine fissure is present, then the posterior palatal seal should
- IV. extend in to it to obtain a good peripheral seal.
- V. In patients with thick ropy saliva, the fovea palatina should be left uncovered or else the thick saliva flowing between the tissue and the denture can increase the hydrostatic pressure and displace the denture

One of the easiest and most commonly practiced methods for determining the extent of the posterior border of the maxillary complete denture is using the anatomical landmarks such as fovea palatinae and hamular notches. Fovea can be used as a reliable guide for determining the posterior border of the maxillary denture. The posterior border can be located with great accuracy if it is possible to see two small pits (fovea palatinae) one on the either side of the midline on the anterior part of the soft palate (**Limbu and Basnet, 2019**).

## **1.4. Physiological Considerations**

The posterior palatal seal area lies between the anterior and posterior vibrating lines. In order to correctly locate these lines, careful observation and palpation of the tissue is necessary, as their locations vary with the contour of the soft palate. (Mariyam et al., 2014).

### **1.4.1. Saliva**

The presence of thick ropy saliva can create hydrostatic pressure in the area anterior to the posterior palatal seal, resulting in a downward dislodging force exerted upon the denture base. To alleviate this potential problem, a fine line or Cupid's bow can be scribed on the master cast, anterior to the cluster of palatal mucous glands and distal to any torus that is present. Watt and MacGregor in 1976 feel that this extension of the posterior palatal seal line will contain the thick mucus in the posterior part of the denture to provide a seal even if the posterior portion of the denture base is slightly out of contact with the palatal tissues (Wiens et al., 2018).

### **1.4.2 Anterior vibrating line (AVL)**

Is an imaginary line located at the junction of the attached tissues overlying the hard palate and the tissues of the immediately adjacent soft palate (In other words. it's an imaginary line which demarcates movable and immovable tissues Figure(1.2.a) (Mariyam et al., 2014).



Locating AVL:

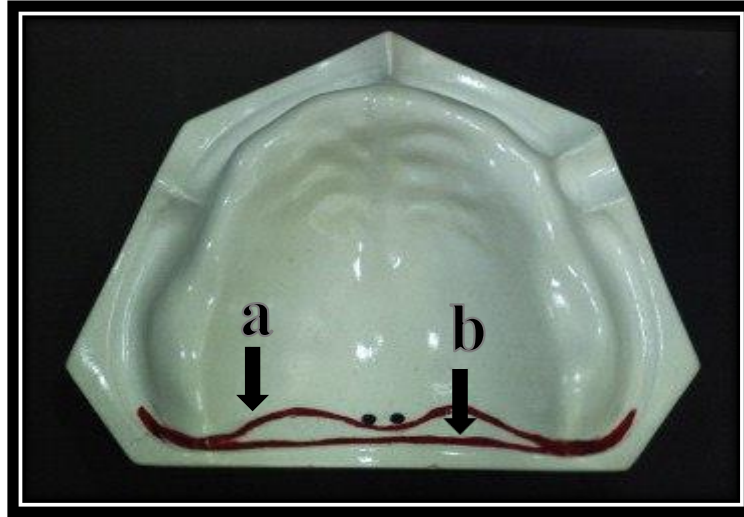
**Method 1:** Valsalva Maneuver: Both nostrils to be held firmly while the patient blows gently through the nose. This will position the soft palate inferiorly at its junction with the hard palate (**Mariyam et al., 2014**).

**Method 2:** Ah line: It is the area at, or distal to the junction of the hard and soft palates where movement occurs when the patient says ah" with short vigorous burst. Due to the projection of the posterior nasal spine, the anterior vibrating line is not a straight line between both hamular processes. The anterior vibrating line is always on soft palatal tissues (**Mariyam et al., 2014**).

### **1.4.3 Posterior vibrating line (PVL)**

It is an imaginary line at the junction of the aponeurosis of the tensor veli palatine muscle and the muscular portion of the soft palate. It represents the demarcation between that part of the soft palate that has limited or shallow movement during function (quivers) and the remainder of the soft palate that is markedly displaced during functional movements. Figure (1.2.b) (**Mariyam et al., 2014**).

Locating PVL: Method: 'Ah' line: Asking the patient to say ah" in short burst in a normal, unexaggerated fashion. PVL marks the most distal extension of the denture base (**Mariyam et al., 2014**).



**Figure (1.2):** point ( a ) Anterior vibrating line, point (b) posterior vibrating line  
(veeraiyan et.,2017).

## 1.5 Soft palate

There are three classes of soft palate configurations. They are based upon the angle the soft palate makes with the hard palate. The more acute the angle of the soft palate in relation to the hard palate, more muscular activity will be necessary to effect velopharyngeal closure. So the more the soft palate is markedly displaced in function, the less that can be covered by the denture base.

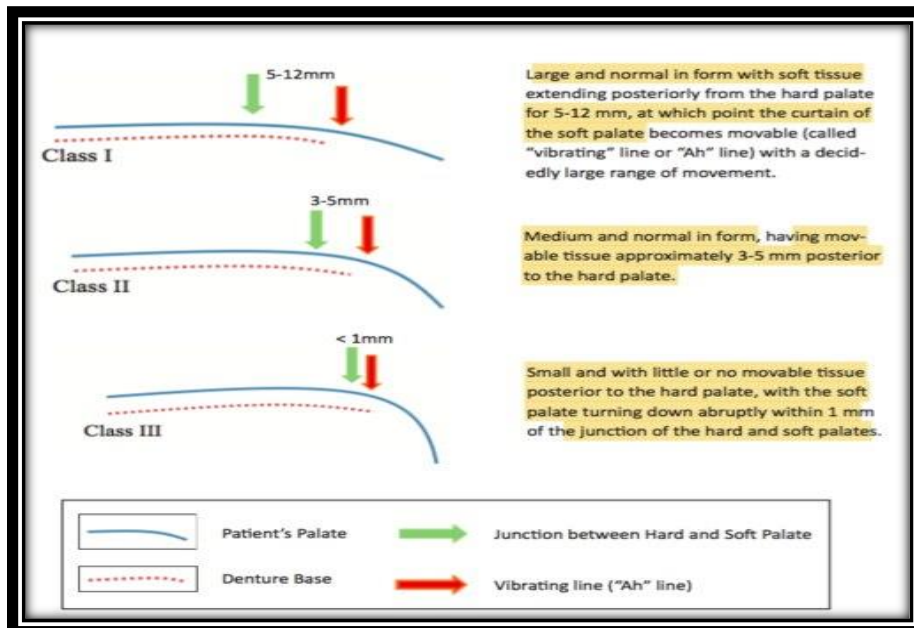
**Class I:** Almost horizontal with little movement making angle of less than  $10^\circ$  with hard palate most favourable, as it allows best tissue coverage (more than 5 mm).The posterior palatal seal will be wide but not very deep, easiest to tolerate, broadest range, hardest to locate.

**Class II:** Makes a  $45^\circ$  angle with the hard palate. Tissue coverage is less than class I (3-5 mm) most common.

**Class III:** Makes a 70° angle with the hard palate; least favourable, as it allows least tissue coverage (less than 3 mm); usually associated with V-shaped palate, easiest to locate, hardest to tolerate (Goyal et al., 2014).

The posterior palatal seal will be wide indicates the most acute contour in relation to the hard palate, necessitating a marked elevation of the musculature to effect velopharyngeal closure. It is seen along with a high V-shaped vault usually. The posterior palatal seal area will be smaller in width but deeper. (Rangarajan and Padmanabhan, 2019).

The above classifications of soft palates are determined when the patient is in an upright position with the head held erect. It is felt that positional changes of the head and physiologic functioning of the tongue can influence soft palatal placement.



**Figure (1.3):** classification of soft palate (lee, 2018)

## **1.6 Designs of the posterior palatal seal**

Winland and Young have described the six most common posterior palatal seal configurations:

- I. 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 on the posterior limit
5. A butterfly posterior palatal seal with the hamular notch area cut to half the depth of a #9 bur.
6. A posterior palatal seal construction in reference to House's classification of palatal forms:

**Class I**, flat -Modified butterfly 3-4 mm wide.

**Class II**, high -Modified butterfly 2-3 mm wide.

**Class III**, intermediate-A bead (**Ettinger and Scandrett, 1980**).

## **1.7 Techniques of Recording Posterior Palatal Seal**

The technique of recording posterior palatal seal can be classified into three types:

1. Functional Technique
2. Semi Functional Technique
3. Empirical Technique ( **Natarajan et al., 2017**).

### 1.7.1 Functional or Physiologic Technique

Functional technique is a technique in which tissues are displaced within its physiologic limits. A low melting wax/soft stick modeling wax is border moulded in posterior palatal seal area of final impression by functional movements made by the patient (**Natarajan et al., 2017**).

#### 1.7.1.1 Fluid Wax Technique

In this technique low melting wax such as Iowa wax (white), Korecta wax no. 4 (orange). H-L physiologic paste (yellow-white), Adaptol (green) are used. After taking wash impression this technique is applied. Fluid wax has good adhesion with zinc oxide eugenol and impression plaster so they are used. With the help of an indelible pencil anterior vibrating line and posterior vibrating line are marked in patient's mouth. These markings are transferred to wash impression. In the margins of palatal seal fluid wax is painted in excess. They are cooled below the mouth temperature so they have resistance against flow.

. These markings are transferred to wash impression. In the margins of palatal seal fluid wax is painted in excess. They are cooled below the mouth temperature so they have resistance against flow. and head is flexed to prevent aspiration of impression material and saliva. Patients tongue is positioned against mandibular anterior tooth to pull the palatoglossus anteriorly Custom tray is inserted into mouth and patient is asked to periodically rotate the head (**Winkler, 2009**)

#### **Advantages:**

1. It is a physiologic technique displacing tissues within their physiologically acceptable limits.
2. Over compression of tissues is avoided

3. Posterior palatal seal is obtained increasing retention.
4. Mechanical scraping of the cast is avoided. **(Binu, 2019).**

**Disadvantages:**

1. More time is needed
2. Difficulty in handling the materials **(Binu, 2019).**



Figure (1.4): Fluid wax is coated on the boundaries of the posterior palatal seal **(Winkler, 2009).**

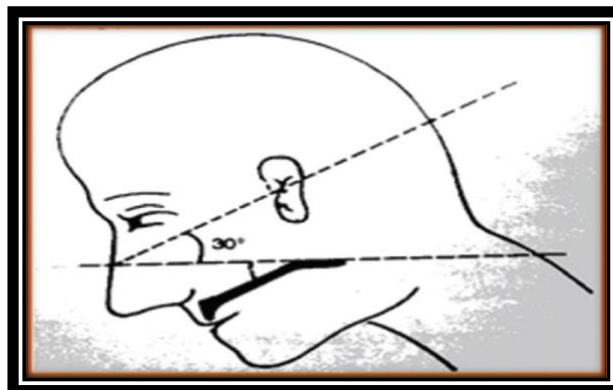


Figure (1.5): Patient's head is positioned 30° inferior to Frankfort's horizontal plane **(Winkler, 2009).**

### **1.7.2 Semi Functional Technique**

Border moulding is done by the dentist. Border moulding is defined as "determining the extension of a prosthesis by using tissue function or manual manipulation of the tissues to shape the border areas of an impression material"(Natarajan et al., 2017).

### **1.7.3 Empirical Technique**

Developed on the cast by grooving it to the desired depth.( Natarajan et al., 2017)

### **1.7.3 Conventional approach (Winkler technique)**

Ask patient to have astringent mouthwash (to remove stringy saliva) and keep his head upright. Dry the posterior palatal area with gauze and palpate for hamular process using T-burnisher/mouth mirror. Mark them with indelible pencil and make sure denture does not cover them. T-burnisher is passed along posterior angle of maxillary tuberosity until it drops into pterygomaxillary notch. Extend the mark from pterygomaxillary notch 3-4 mm anterolateral to maxillary tuberosity approximating mucogingival junction (**Lye, 1975**).

This completes marking of pterygomaxillary seal. Ask patient to say "ah" in short bursts, in unexaggerated fashion. Observe movement of soft palate and mark posterior vibrating line, and then connect it to pterygomaxillary seal. Advise patient, not to close mouth (to prevent smudging of markings). The resin/shellac tray is then inserted into the mouth and seated firmly into tray and transfer markings on master cast by placing it into cast. Later trim excess found on tray. Mark anterior vibrating line using either by T-burnisher (by checking the compressibility in width and depth)-usually termination of glandular tissue usually coincides with anterior vibrating line or Valsalva maneuver. Place special tray in

the mouth and get the markings on tray which is later transferred to master cast. Master cast is scored using a Kinsley scraper. Deepest area of seal is located on either side of midline (1/3rd distance from posterior vibrating line).

It is scrapped approximately 0.5-1.0 mm (due to limited compressibility) within out line of cupid's bow. Scrape cast to a depth of about ½ the amount to which the palatal tissue in that area can be compressed. (Goyal et al., 2014).

**Advantages** of this technique include

- (1) Highly retentive trial bases give good jaw relation
- (2) Gives psychological confidence to patient that retention will not be a problem in final denture
- (3) Dentist is able to determine the retention of final denture.
- (4) patient will be able to realize the posterior extent of denture, which may ease the adjustment period (Binu, 2019)

**Disadvantages** of this technique include:

1. It is not being physiological technique and therefore depends upon accurate transfer of viability line and careful scrapping
2. It has potential for over compression (Binu, 2019).

#### **1.7.4. Determination PPS on master cast**

The second commonly reported technique is locating and transferring the PPS area on the master cast followed by subsequent scrapping. The scrapping of the PPS on the cast allows the seal area to have a convex surface on the denture that slightly displaces the soft palate thereby achieving a peripheral seal. Some of the



techniques of scraping and designs of PPS are explained here. All these techniques are done after correctly transferring the PPS area on the master cast (**Gull, Mushtaq and Maqbool, 2018**).

#### **1.7.4.1. Boucher's Technique**

The width of the posterior palatal seal is limited to a bead on the denture that is 1.5 mm deep and 1.5 mm broad at its base with a sharp apex. The resulting design is a beaded posterior palatal seal. The narrow and sharp bead will sink easily into the soft tissue to provide a seal against air being forced under the denture (**Modi et al., 2016**).

#### **1.7.4.2. Bernard Levin's Technique**

For class III soft palate forms: He describes a 'double bead' technique for class III soft palate. Here, the posterior vibrating line is scrapped 1 mm deep and 1.5 mm wide. An anterior bead line is created about 3 to 4 mm from the posterior border. This is considered the 'rescue bead'. Bernard stated that even though the anterior bead is located on the hard palate, the keratinization of the mucosa can tolerate a small amount of tissue displacement and pressure (**Veeraiyan et al., 2017**).

#### **1.7.4.3. Swenson's Technique**

A groove is cut along the posterior line to a depth of 1 to 15 mm which will cause the posterior border to stand straight out from the hard palate, turning neither up nor down. From the depth of this posterior cut, the cast is scraped in a tapering manner, so that it tapers up to the anterior line (**Krysinski and Prylinski, 2007**).

#### **1.7.4.4. Calomeni, Feldman, Kuebker's Technique**

A posterior bead line is scraped on the cast to a depth of 1 to 1.5 mm extending bilaterally through the hamular notches. The anterior line is placed 5 or 6 mm anterior to the posterior line. The area between the anterior and posterior lines is scraped with Kingsley Scraper No 1. The depth of the cast scraped should vary from zero at the anterior line to the depth of 1 to 1.5 mm along the posterior border. In the midline, the distance between the anterior and posterior lines should be about 2 to 3 mm (**Krysinski and Prylinski, 2007**).

#### **1.7.4.5. Pound's Technique**

Pound advocates a single bead posterior palatal seal with anterior extensions for additional air seal. A V-shaped groove is carved across the palate from the hamular notch to the hamular notch 1 to 1.5 mm wide and 1 to 1.5 mm deep. This is placed 2 mm anterior to the vibrating line. A loop is carved on either side of the midline to provide an air seal. The depth and width of the anterior loop are determined by palpating the area with a blunt end of the instrument (**Krysinski and Prylinski, 2007**).

#### **1.7.4.6. Apple Baum-Winkler's Technique**

A Kingsley scraper is used to score the cast. The deepest parts of the seal are located on either side of the midline, one-third distance anteriorly from the posterior vibrating line. It is scraped to a depth of 1 to 1.5 mm. Close to the mid-palatine region, the area is scraped to a depth of 0.5 to 1.0 mm as it has little submucosa and cannot withstand the same compressive forces as tissues lateral to it. The scraping is gradually feathered out as it approaches the anterior

vibrating line and is tapered toward the posterior vibrating line. The posterior palatal seal resembles, Cupid's bow (**Chang and Wright, 2006**).

#### **1.7.4.7. Silverman's Technique**

A pencil line is inscribed from hamulus to hamulus midway between the anterior and posterior flexion lines. A shallow scratch mark is placed on the anterior flexion line and the posterior flexion line is scored to a depth of one-half of that of the mid scoreline. The cast is scraped over the entire seal area, The depth of the cast scraping diminishes from the midline to the anterior and posterior vibrating lines. He also suggested that complete maxillary dentures can be extended on an average distance of 8.2 mm dorsally to the vibrating line (**Wicks, Ahuja and Jain, 2014**).

#### **1.7.2.8. Hardy and Kapur Technique**

The depth of the posterior palatal seal area is identified by pressing the ball portion of the T burnisher. The posterior palatal seal is extended 4 mm from the distal border of the denture and narrowed down to 2 mm in width through the hamular notch region. The scraping of the cast is done in such a fashion that the depth of the posterior palatal seal is maximum at the center and tapers to zero toward its anterior and posterior border (**Jamayet et al., 2017**).

### **1.8. Troubleshooting in Posterior Palatal Seal**

#### **1.8.1. Under extension**

It is the most common cause of seal failure. It mainly occurs due to the use of fovea palatine as a guideline for marking anterior and posterior vibrating lines. By doing so, 4-12 mm of tissue coverage loss occurs leading to decreased retention. Tissues covering the hard palate are firmly attached and the main retention is by

adhesion and cohesion, which is least during function. In the case of gaggers who cannot tolerate denture base far behind in palate, they insist on reduction of denture base and dentists unsure of his technique complies patients' request leading with decreased retention. Other related causes are improper recognition of anterior and posterior vibrating lines, and injudicious trimming of denture borders by technicians **(Ye and Sun, 2016)**.

### **1.8.2. Over extension**

It mainly occurs due to overzealous extension of denture base for increased retention by dentists causes a physiological violation of soft palate musculature. It mainly shows symptoms of mucosal ulceration, painful swallowing physiological violation of soft palate muscle, and sharp pain if pterygoidhamular is covered. It can be managed by selectively relieving the pressure areas and decreasing the distal length **(Ye and Sun, 2016)**.

### **1.8.3. Under post-damming**

It mainly occurs due to improper depth of post damming, use of improper technique, and recording posterior palatal seal in a wide-open position which causes toughening of the pterygomandibular ligament and shortens the pterygomaxillary seal. It can be diagnosed using two tests, (1) Seat dentures in the mouth ask the patient to say "ah" and with mouth mirror view of any gap during the speech, (2) Place wet denture base and press slowly in mid palatal region and bubbles escaping at any point on distal denture border indicates an area of under post damming, The correction can easily be made by further scraping the cast and adopting the trial base if the conventional approach is used or by adding more wax

and reminding the patient to refrain from opening the mouth so wide if the fluid wax technique is employed (**Gaikwad, Mohite and Nadgere, 2020**).

#### **1.8.4. Over postdamming**

At the other end of the spectrum, it is not uncommon that the master cast was scraped too aggressively and the posterior palatal seal displaces too much tissue. If significant overpost damming has taken place, especially in the pterygomaxillary seal area, then upon insertion of the denture the posterior

border will be displaced inferiorly. If it is moderately over postdammed, then at the first or second post insertion appointment, tissue irritation will be discernible across the posterior palatal region. Selective reduction of the denture border with a carbide bur, followed by lightly pumicing the area while maintaining its convexity will remedy the problem (**Resende, Nogueira and leles, 2019**)

#### **1.9. Addition of posterior palatal seal to existing denture**

There are times when a completed denture is deficient in the posterior palatal seal area. The deficiency may be either in depth or in the length of the denture base, or in both. There are many techniques to improve the posterior palatal seal in an existing denture.

**(Moghadam and Scandrett, 1981)** Suggested a procedure that utilizes the fluid wax technique. All of the steps outlined for locating, marking, and placing the wax in the seal area are followed, except that this time the wax is placed on the processed denture base. An indelible pencil is used to outline the anterior extent of the seal on the denture. Fluid wax is painted in PPS area. After the PPS is recorded (4-6 mins.), the denture is removed from the mouth. Stone is vibrated into the

denture wax surface. After the stone has set, the wax is eliminated. The auto polymerizing acrylic powder is sprinkled between the denture base and the cast while holding on a vibrator. The monomer is then added drop wise. The denture is then replaced on the stone cast and held firmly with rubber bands. They are then placed in a pressure pot with water (140 (1) for 20 minutes under 30-psi pressure. After the cast and denture are separated, the excess acrylic is trimmed and the border polished lightly. The denture should be stored in water for 24 to 36 hours to reduce harmful residual monomer (**Mariyam et al., 2014**).

(**Alaa, 2012**) Selected eight complete edentulous patients. They received conventional complete dentures by using a scraping method for establishing the PPS. The posterior retention of the maxillary dentures was measured and smears were made from the postpalatal areas at insertion appointment, 7, 30, and 90 days after denture placement. The study revealed that the posterior retention of the maxillary dentures did not change during the stages of the study, and the epithelium of the post palatal area converted gradually to a keratinized one.

(**Avant W.E., 1973**) Did a study to determine if a posterior palatal seal is necessary for complete denture. He reached PPS important for retention of the maxillary denture during functional movements of the stomatognathic system like mastication, deglutition, and phonetics, Correctly incorporated Posterior Palatal Seal into the prosthesis also helps in reduction of gag reflex, reduce food accumulation of discomfort the posterior aspect of the denture. patient's when contact occurs between the dorsum of the tongue and the posterior end of the denture & the thickened area provides added strength across the denture.

(**Kumar et al., 2019**) Made a questionnaire on online survey development software (Survey Monkey) that consisted of 7 multiple-choice based questions.

Carving the maxillary posterior palatal seal on the master cast was taught by 92.18 % of faculty members. 64% were teaching the post palatal seal carving depth of 0.5-1.5 mm on the maxillary cast, along with consideration of Compressibility of the palatal tissues. The butterfly pattern was the mostly (79.6%) described pattern for carving post palatal seal on the maxillary cast..

## Chapter tow: conclusion

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### 2.1 Conclusions

enrollment of the posterior palatal seal in maxillary denture is considered a vital factor in establishing the peripheral seal which enhances retention by utilizing the atmospheric pressure. Posterior palatal seal recording can be correctly done by Careful examination during the diagnostic phase of the treatment and following established techniques for the placement of the border seal with Accurate understood to the anatomy and physiology of the area.

Posterior palatal seal is an integral part of maxillary complete denture fabrication, requiring an assessment of physiological and technical parameters. Thus, the discernment of posterior palatal seal efficaciously is an indispensable responsibility to dentist.

Despite the many techniques However The fluid wax technique is prefer method for record PPS because it increasing retention and avoid over compression on the tissues.

Denture without a posterior palatal seal will become less retentive ‘food impaction under the denture base, promote gag reflex, less strength cross the denture, and distal surface more noticeable to the tongue.



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