



The Validity of Retromolar Pad as an Intraoral Landmark in the Fabrication of Complete Dentures - A Short Review

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Received: June 24, 2021

Published: July 12, 2021

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Abstract

Extraoral and intraoral landmarks have been identified to ease the practice of dentistry especially the fabrication of complete denture. Determination of the occlusal plane of the complete dentures has always raised an element of doubt to the practitioner. Hence it appeared a reliable norm to follow the natural occlusal plane. To guide the practitioner, an unchanged landmark is of great help. Retromolar pad is the foremost landmark that helps the dentist as well as the technician in deciding the occlusal plane. Reliability of retromolar pad as a landmark is discussed in this article.

Keywords: Retromolar Pad; Pear Shaped Pad; Occlusal Plane; Piriformis Papilla; Mandibular Ridge; Edentulism; Anatomical Landmarks

Introduction

Retromolar pad is a triangular soft elevation of mucosa situated distal to mandibular third molar. It comprises of non-keratinized loose alveolar mucosa that covers glandular tissues, fibres of buccinator muscle, superior constrictor muscle, pterygomandibular raphe and the terminal part of the tendon of temporalis muscle [1]. The glandular element of the retromolar pad is an extension of the palatine salivary glands (Figure 1). Subsequent to the of mo-

lar loss, the bony alveolar process remodels by resorption and the surrounding soft tissues get merged with the retromolar pad. In the mandibular ridge, resorption does not cross beyond mylohyoid ridge and buccal shelf. The muscles that surround the mandible do have a restrictive effect on bone resorption. The dense cortical bone underlying the pad also provides sufficient resistance to resorption. This makes retromolar pad a stable posterior landmark even in patients with advanced residual ridge resorption. Anil

Sharma, *et al.* have surveyed 180 edentulous patients and identified different shapes of the retro molar pad as follows: Pear shaped (51.3%), Round (14.3%) and triangular (34.3%). The longitudinal diameter is approximately 8.81 mm and transverse diameter 6.82 mm [2] (Figure 2).

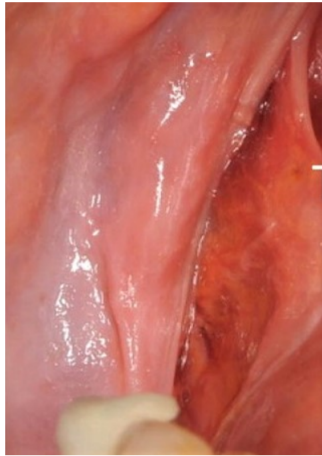


Figure 1: Retromolar pad.

(Source: <https://www.researchgate.net/publication/338863867>.)

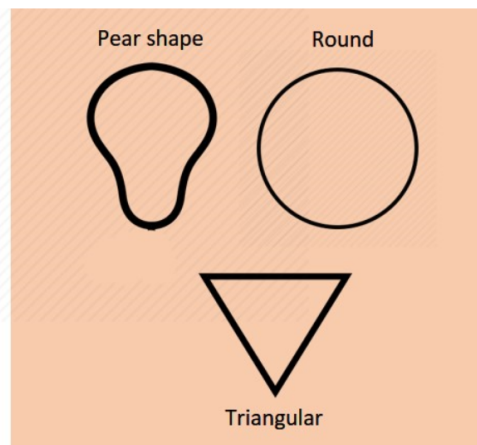


Figure 2: Different shapes of retromolar pad.

Retromolar pad and occlusal plane

Determination of the position of occlusal plane in edentulous individuals for a beginner in the practice of dentistry is not an easy

task. It has always been related to facial landmarks like inter-pupillary line and ala-tragal line. Intra oral landmarks which are verifiable on the cast mounted in the articulator can be considered as superior compared to the facial counterparts. If the maxillary incisor is positioned in an acceptable way, then the posterior landmarks of the occlusal plane can be positioned at the midpoint of the retromolar pad. Numerous studies have been conducted on the relationship of the retromolar pad and the occlusal plane. However, there is no congruence of opinion in finding the posterior landmark on the middle or the lower halves of the retromolar pad. Hence it is advisable and safer to keep the midpoint of the retromolar pad as the identifiable posterior landmark of occlusal plane [3] (Figure 3).

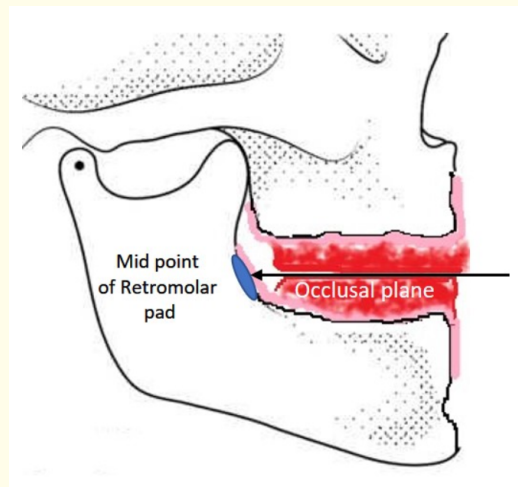


Figure 3: Occlusal plane at the level of the midpoint of retromolar pad.

Inclusion of retromolar pad in the outline of mandibular complete denture

Retromolar pad is usually encompassed by the outline of the mandibular denture. Many dentists believe that the elasticity of the retromolar pad might provide a seal, thereby enhancing the retention. It is also believed that, coverage of the retromolar pad area by the denture base might provide more stability. Both the arguments are not based on sound evidence and logic. While fabricating complete dentures, tooth is not placed over the retromolar pad for two reasons: 1. It is an inclined plane and placement of a tooth over it possibly can generate an anterior component of force during mastication, dislodging the mandibular denture in a forward direction.

2. The portion of residual ridge anterior to the retromolar pad is firm whereas the pad consists of displaceable tissue. If masticatory load is directed towards the pad, naturally the stability will be challenged.

Encompassing the retro molar pad within the perimeter of the final impression is always recommended so that the cast obtained will provide the operator an idea of the extend of the foundation area of the mandibular denture. However, such an outline may not become acceptable when the denture is fabricated. Maxillary denture base that covers the tuberosity may interfere with the portion of the mandibular denture base that covers the retromolar pad (Figure 4 and 5). For practical reasons of avoiding the interference to the translatory movements - protrusion and lateral excursions and for avoiding possible development of tissue trap between the dentures, height of the denture base that covers the pad is shortened. Most of the dentures will cover the anterior half of the retromolar pad and ensure at least 3 mm clearance both in centric and eccentric positions (Figure 6). Complete avoidance of coverage will later cause a step like defect on the residual ridge just anterior to the pad.

Discussion

Lammie as early as in 1956 stated that the occlusal plane of the denture should be placed similar to that of the natural teeth. This



Figure 4: Denture base covering the retromolar pad will be interfered by the tuberosity portion of maxillary denture.



Figure 5: Interference caused to mandibular denture movement. (Source: <https://mydentaltechnologynotes.wordpress.com/>.)

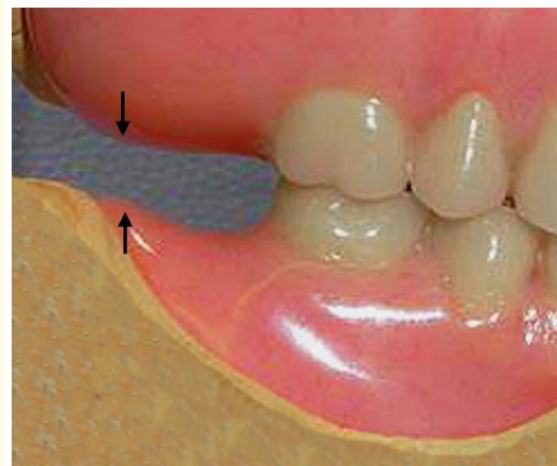


Figure 6: Minimum 3 mm clearance between the maxillary and mandibular dentures. (Source: <https://mydentaltechnologynotes.wordpress.com/>.)

statement is based on the logic that tongue and cheek were conditioned to function normally at this level. May be the numerous

studies conducted to validate the relationship between extraoral and intraoral landmarks with the occlusal plane were based on the logic that denture occlusal plane should be similar to that of natural tooth occlusal plane for functional efficiency. Landa has also endorsed this view. Both of them have given importance to the vertical position of the occlusal plane and at the same time the influence of balanced articulation in determining the vertical positioning of the occlusal plane is not given due importance. If a dentist is concerned with the advantages of balanced articulation, copying of natural occlusal plane cannot be favoured. If the muscular conditioning is a matter to reckon with, the horizontal positioning of posterior teeth too has to be given importance and the elements of neutral zone have to be integrated. Determination of occlusal plane based on intraoral landmarks is only a starting point and later the dentist has to adopt a well-suited orientation. Retromolar pad still sustains importance because of its ability to control resorption of residual ridge if the retromolar pad is covered at least partially [4,5].

Conclusion

Retromolar pad is a well identified intraoral landmark and it gains importance in edentulous mouths because of its potential to indicate the level of occlusal plane. The position of the retromolar pad remains almost unchanged in both dentulous and edentulous phases of an individual. Though different proportions of the pad are related to the occlusal plane, there is no congruence in the findings proposed by different authors. However, the midpoint is relatively a safer option in validating the importance of retromolar pad as a landmark.

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Volume 5 Issue 8 August 2021

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