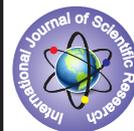


A SUCCESS TO AGGRANDIZE AESTHETICS IN SEVERELY RESORBED RIDGES- A CASE REPORT



Dental Science

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ABSTRACT

Most of the anatomical landmarks which have been lost and continuous changes have been taking place in the oral cavity after tooth extraction. Preserving remaining tissue in the mouth and their resulting function are main concern to the dentist. Hence to preserve the already resorbed ridge and to prevent further ridge resorption, a lingualized occlusal scheme could be a better option when compared to other occlusal schemes.

Introduction:

Treatment of edentulous patient is one of the most challenging tasks to the prosthodontist. Occlusion is one of the key components during denture fabrication procedure. Occlusion is defined as a static relationship between the incisive and masticatory surfaces of maxillary and mandibular teeth or analogue of teeth.¹ Whereas, lingualized occlusion is defined as a form of denture occlusion where the maxillary lingual cusp articulate with the mandibular occlusal surfaces in centric working and non-working mandibular posteriors. SH Payne introduced the clear concept of lingualized occlusion. According to Payne motor and pestle arrangement was created by recontouring the anatomic teeth.

Principles-according to Becker: Anatomic posterior teeth are used for maxillary denture and non-anatomic or semi-anatomic teeth are used for mandibular dentures. Selective grinding of mandibular posteriors are done and fossa is also widened such that only the maxillary lingual cusp contact the mandibular central fossa and buccal cusp are free of contact in both maxillary and a mandibular teeth. In centric relation position only maxillary lingual cusp occludes the mandibular central fossa and mandibular ridges. Simultaneous contact must exist during lateral movements on working and nonworking sides, on anterior and posterior teeth during protrusive movements.^{2,3}

Pound balanced lingualized occlusion by combing the use of factors like speech, aesthetics, anatomical landmarks to establish vertical dimension of occlusion, the level of occlusal plane, incisal guidance and positioning of maxillary, mandibular teeth both anteriorly and posteriorly. Pound suggested positioning of anterior by aesthetics and phonetics. F and V sounds for maxillary anterior and s sound can be used to determine the mandibular anterior teeth position.⁴ Pounds triangle can be used as a reference to arrange mandibular posteriors. This triangle extends from mesial part of canine to the buccal and lingual aspect of retro molar pad. Within this triangle the lingual surface of mandibular teeth should lie and close to lingual line. The palatal cusp of maxillary posteriors lie buccolingual to the mandibular central fossa.

Indications:

1) Severe alveolar resorption 2) High aesthetic requirement 3) Abnormal jaw relation 4) Flabby and knife edge 5) Large interalveolar space 6) When a complete denture opposes a removable partial denture 7) In patients with Para- functional habits where a more favourable stress distribution is desired. 8) Implant supported overdenture.^{5,6}

Advantages:

1) Maintenance of alveolar bone. 2) Utilization of anatomic teeth enhances aesthetics, chewing efficiency and non-anatomic teeth distributes less horizontal force.^{7,8} 3) Lingualized occlusion concept enhances comfort zone to the patient as a result of modified posteriors of lower denture. 4) Prevents tilting and provides stability to the denture with this occlusal scheme. 5) The buccally placed maxillary molars upgrade the aesthetic zone. 6) Lingualized

occlusion concept can be applied to class II, Class III and cross bite situation. 7) Good penetration of food bolus reduces the lateral chewing component and this is possible with lingualized occlusion scheme.

Disadvantage:

The chances of lateral displacement can be increased because of wear of lingual cusp or mandibular fossa; this rapidly results in buccal and lingual contact of equal intensity and also negotiation of centralization of forces on the mandibular posterior teeth.

Case report:

A female patient reported with the chief complaint of complete edentulousness since 7 years (figure 1 & 2). On examination the mandibular ridges were severely resorbed. The treatment options were complete denture and implant supported denture. The treatment planned to the patient was complete denture with lingualized occlusion scheme. The desire for denture primarily was for aesthetics and mastication.



Figure-1 Maxillary arch



Figure-2 Mandibular arch

The primary impression was made with impression compound followed by beading, boxing (Figure-3) and pouring of cast. Custom tray was fabricated on the obtained cast and border molding was done. Denture base and occlusal rims were made followed by jaw relation and face bow transfer (Figure-4). Teeth arrangement was done based on Payne concept (Figure-5). Only the palatal cusp of maxillary posteriors was brought into contact raising the buccal cusp. Selective grinding was done for mandibular posteriors by modifying the buccal cusp and widening of central fossa. Finally the buccal cusps are free of contact in both maxilla and mandible with only the palatal cusp of maxilla in contact with mandibular central fossa and marginal ridges. Try in was done (Figure-6&7) followed by processing of the prosthesis and insertion was done (Figure-8).

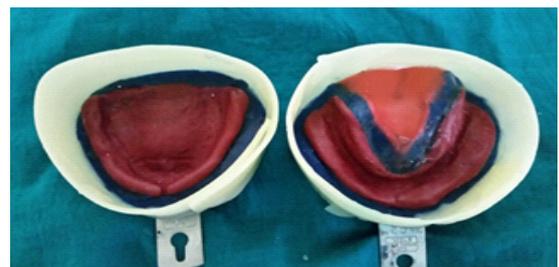


Figure-3 primary impression



Figure-4 Face Bow Transfer



Figure-5 Payne concept



Figure-6



Figure-7 Try-In



Figure-8 Final Prosthesis



Figure-9 Pre operative View



Figure-10 Post Operative View

Discussion:

In the present case mandibular ridges were severely resorbed and patient had prior concern towards aesthetics. The technique chosen for making impression was selective pressure impression technique and secondary impression was made using conventional method (zinc-oxide eugenol). This technique confines the forces on the denture only on the stress bearing area and withstands the mechanical forces better during denture wearing. Other impression techniques are:1) Mc cord and Tyson's admixed impression technique-admixed impression is made by using 3 parts of impression compound and 7 parts of low fusing compound.⁹ 2) All green technique-green stick compound was mixed to a homogenous mass and loaded in a custom tray followed by border movements and final impression was made using zinc oxide eugenol. 3)Neutral zone impression technique-neutral zone is the area where the displacing forces of lips, cheek and tongue are in balance. It is the zone where natural dentition had existed and similarly artificial teeth must be positioned.¹⁰ The impression material used for making neutral zone impression are impression compound, tissue conditioner soft wax.4)Winkler technique-it is a closed mouth impression technique where a tissue conditioner is used and a final impression is made using light body elastomeric material.¹¹

The preferable occlusal scheme for patients with severe residual ridge resorption is lingualized occlusion. This type of scheme enhances aesthetics, comfort zone, provide stability to the denture and better masticatory efficiency. The aesthetic zone is enhanced because of buccally placed maxillary molars.¹²

The maxillary cusp looks natural and make superior when compared to flat plane or zero degree teeth. The anatomic teeth helps to chew food with less force which inturn enhance the comfort zone. The palatal cusp contact the mandibular central fossa and marginal ridges, directs the vertical forces more centrally on the mandibular ridge and provide stability to the denture. Even stresses are transferred from working side to non -working side to stabilize the mandibular denture. With this occlusal scheme the modified posteriors exhibit less force to masticate through a food bolus and the presence of cusp allows for better penetration.^{13,14} Facial muscles and cheek muscles are well supported with this type of teeth arrangement. Payne concepts has been chosen for teeth arrangement in this study because of all the above advantages and satisfy the patients desire of aesthetics and function.

Other occlusal schemes are:

Neurocentric occlusion: This occlusion scheme has 2 key objectives neutralization and centralization of forces. The 5 elements of this concept are position, pitch, proportion, number and form. This occlusion scheme can be preferred for patients with poor ridges, cross bite cases, classII and ClassIII jaw relation ,for patients in whom it is difficult to make precise records and when excessive inter ridge distance exists.⁶

Linear occlusion: Zero degree teeth are opposed by bladed teeth in which blade are in a precisely straight line over the crest of ridge. The Porcelain linear occlusion is recommended for young patients ,healthy patients with good residual ridges and when adequate interarch space exists.

Monoplane occlusion: The teeth which are flat buccolingual and mesiodistal are used in this occlusal scheme and oriented parallel to the maxillary and mandibular mean foundation plane. Indicated if the ridges are flat or knife edge, abnormal pathosis, trauma, neuromuscular disturbances, when minimum of horizontal stress and maximum of vertical force is desired, when milling type of chewing pattern exists with broad excursions and mutilated, tortuous ridges with an excessive interarch space.

Conclusion:

There are various occlusal schemes but, whatever occlusion we choose to fabricate a denture it should be in harmony with the

stomatognathic system. Most important is to preserve the remaining tissue existing in the oral cavity, so in patients with severely resorbed ridged and aesthetics is a prior concern lingualized occlusion could be a better choice as no occlusion is universally accepted.

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