Balanced Occlusion - A Myth or Reality.

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Abstract
The search for the ideal denture occlusion in an effort to find out the tooth forms which provides aesthetic, stability, and masticatory efficiency without compromising the health of underlying hard and soft tissues of the edentulous arch has always been elusive. The occlusal contacts between the opposite teeth during centric and eccentric movements of the mandible will be based on the type of occlusal schemes. One such scheme is balanced occlusion. Balance or equilibrium is the condition in which forces act on a body in such a way causing no motion. This should be the principal consideration of the dentist while considering the forces that act on the teeth and the denture bases. A stable base is the ultimate goal. Hence balanced occlusion can be a key to achieve this stability in a myriad of situations. This case report exhibits how bilateral balanced occlusion can be applied in our routine practice.

Keywords: Complete denture, bilateral balanced occlusion, occlusal scheme, edentulous, single complete denture.

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Introduction

In Complete denture the three fundamental properties are support, retention, and stability. Apart from these occlusion is itself an important aspect of clinical dentistry in oral rehabilitation.[1] The appropriate masticatory function is of major importance, since it affects the digestion of food and quality of life. There is a natural depletion in the secretion of gastric juice with aging, so the correct preparation of the food bolus in mouth is paramount. Thus, this step of the digestive process deserves special attention in edentulous patients due to limitations of conventional dentures, since the masticatory efficiency of complete denture (CD) wearers is only 16% to 50% that of dentate patients.[2] According to the American Dental Association, evidence-based dentistry is an approach to oral healthcare requiring the judicious integration of systematic assessments of clinically relevant scientific evidence with the dentist's clinical expertise and the patient's treatment needs and preferences.[3] This leads us to the importance of occlusal schemes according to the treatment needs.[2] Bilateral balanced occlusion (BBO) is considered a good occlusal scheme because it provides greater retention and stability.[4] This case report includes two patients who reported to the Department of Prosthodontics and Crown & Bridge with the complaint of complete edentulism to get the missing teeth replaced.

Case report:

Case 1: A 36 years old male patient reported to the department with the complaint of inability to chew food and consequential indigestion. He had been completely edentulous in both arches for the past 2 years.

The patient reported of severe attrition due to parafunctional habits as the cause of extraction. He was using a set of complete dentures fabricated elsewhere but was dissatisfied because of difficulty in chewing and presence of pain on wearing those (Fig.1). On oral examination, the ridge relation was found to be class I with adequate ridge width and height (Fig.2). Neuromuscular coordination was proper and patient reported no systemic conditions. Primary and final impressions were made following standard procedures using impression compound and zinc oxide eugenol impression paste respectively. After tentative jaw relation, facebow record was taken (Fig.3). Subsequently this record was transferred to the semi-adjustable articulator (Fig.4). Intra-oral tracing was done to obtain the centric and protrusive bite registration records (Fig.5). Thereby, teeth setting was done in bilateral occlusal scheme followed by try-in (Fig.6). The cured dentures were then lab remounted and corrected for occlusal discrepancies. Denture insertion was executed (Fig.7 & 8). Follow-up was done at 24 hours, 7 days, 3 months and 6 months respectively.

Case 2: A 43 years old female patient with complete edentulism in the upper arch reported to the department with the demand of aesthetic rehabilitation of her smile. Her social life was being hindered and she was suffering from psychological setback for the same. Patient had flattened midface and aged appearance (Fig.9). Oral examination revealed a well-rounded maxillary arch with full complement of mandibular teeth (Fig.10). Fabrication of single complete denture was undertaken by a special method. After routine primary impression, final impression, master cast fabrication and jaw relation recording were completed, a customized Broadrick flag was made for correction of the occlusal plane (Fig.11). The anterior reference point (canine cusp tip) and the posterior reference point (mesiobuccal cusp tip of second molar) were used to obtain a central reference point on the flag on intersection. A 4-inch diameter circle was drawn from this point to obtain positive deviations on mandibular teeth. These deviations were ground using finishing bur. Teeth setting was done and bilateral balanced occlusion was achieved. Try-in was done on the patient. The denture was cured and lab remounted and corrected. Final try-in was done (Fig.12 & 13). The final denture was delivered (Fig.14). The facial architecture was improved by the prosthesis (Fig.15). Follow-up after 3 months and 6 months found the patient to be satisfied with the denture.

Discussion:

Quality of life is considered a key point after prosthodontic rehabilitation.[5] Chewing is a neuromuscular function involving speed, effective movements, and continuous forces. Food collides with dental surfaces and is ground up to form the food bolus, which is swallowed.[6] The following factors are necessary for patient satisfaction and the re-establishment of masticatory function when using complete dentures: (1) the way the teeth are placed on the arch, (2) the orovestibular position, and (3) contact between the antagonist teeth. In addition, the denture base and retention influence better occlusion.[7] Many authors have asserted that BBO confers better occlusion, since it promotes better masticatory efficiency and allows a greater distribution of contacts between the dental during each masticatory movement.[4] This case report strongly elicits the above fact.

Conclusion:

The patients are quite satisfied with their current prostheses leading to psychological and physiological upliftment. This study

corroborates the fact that BBO is a viable modality and goes further to prove that BBO can be routinely used in patients with complete edentulism to provide them with a better lifestyle.

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FIGURES:

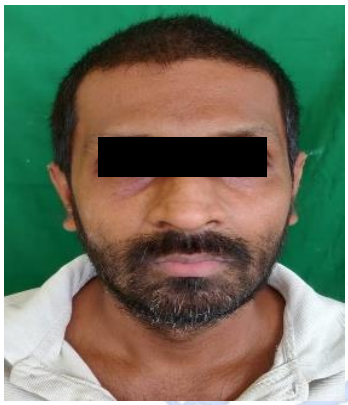
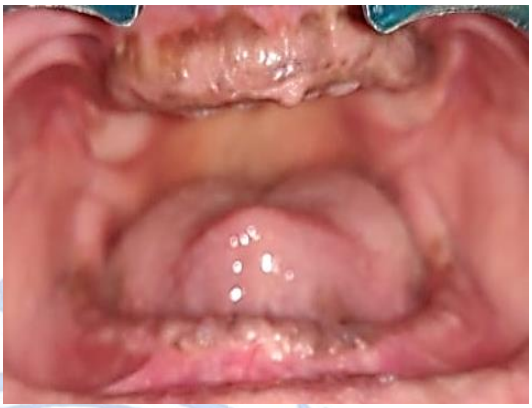


Figure 1



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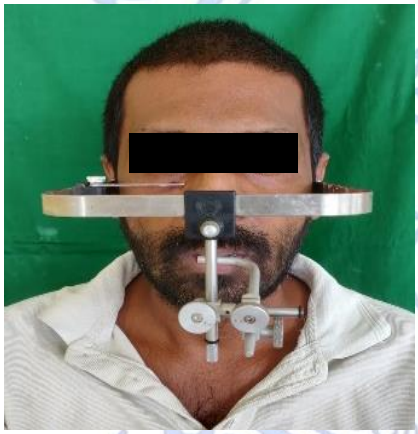

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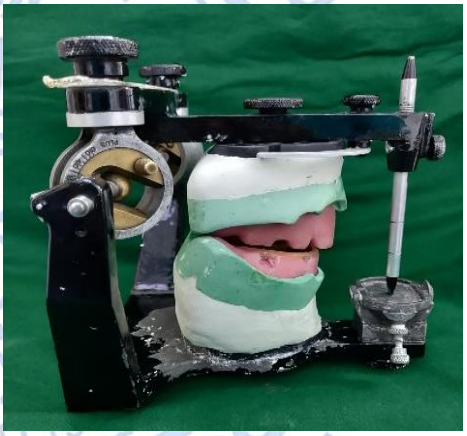
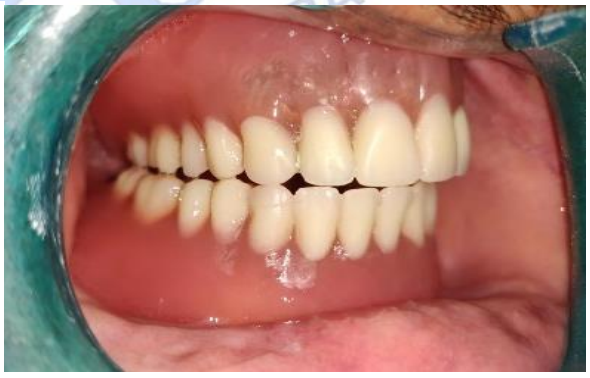


Figure 4

Figure 5



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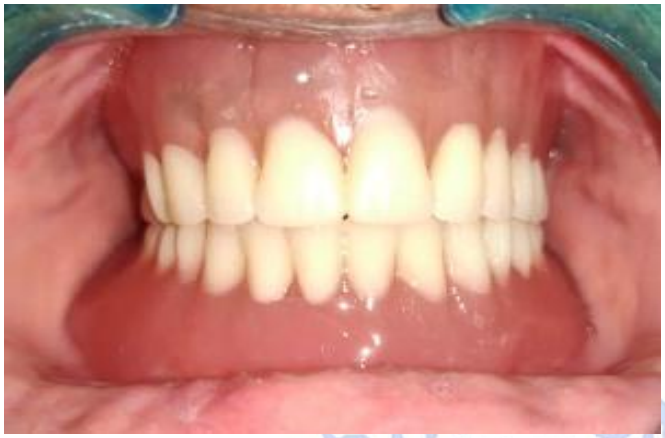

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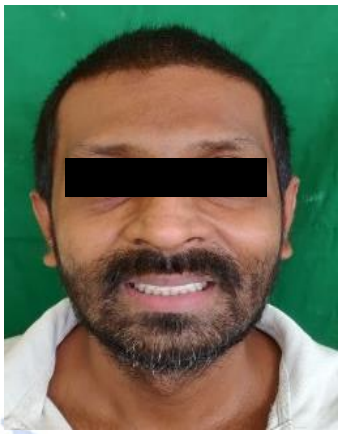

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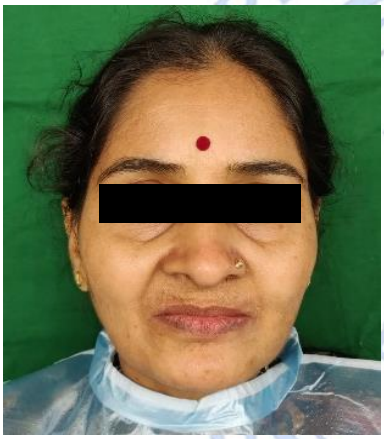

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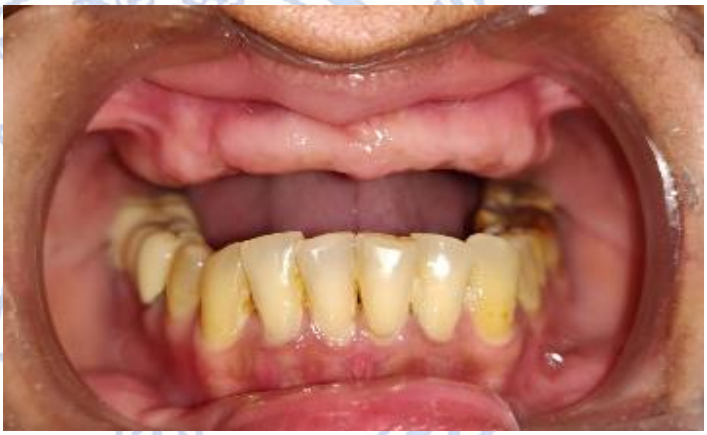

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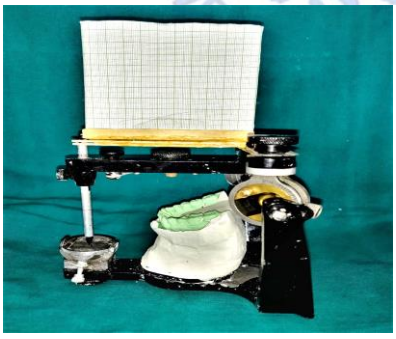

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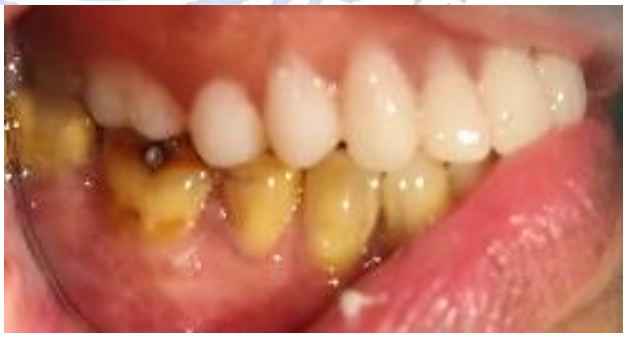

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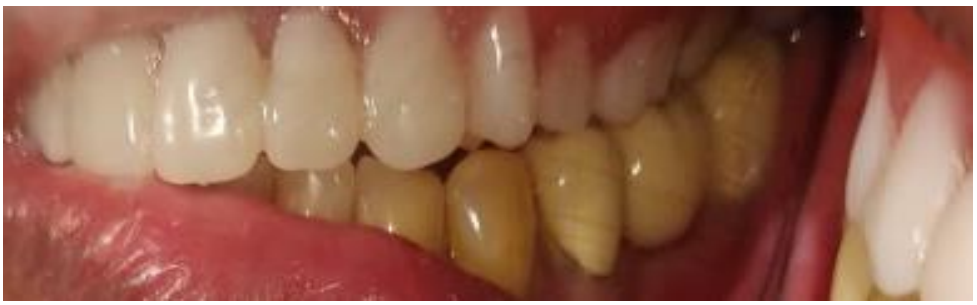

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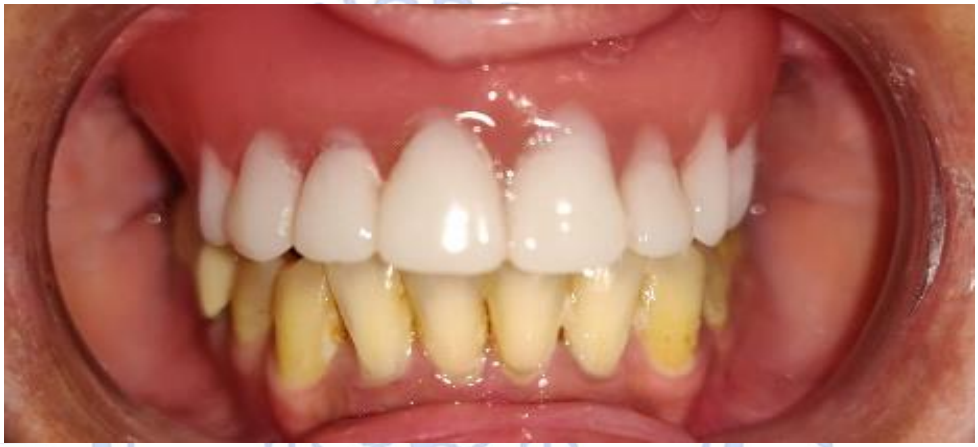

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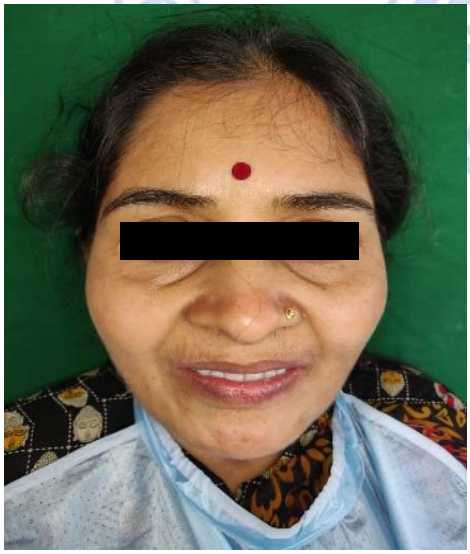

Figure 15