A metal base complete denture: Case report

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Introduction  
The main aim of complete dentures treatment is to satisfy the functional, esthetic and phonetic requirements of patient. In anatomically challenging situations viz. deep palate, low frenal attachments compromise has to be made between esthetics and function. These factors can cause midline fracture of maxillary denture owing to high flexural stress. A metal denture base provides a viable alternative in such situations. This paper reports the use of a metal denture base for maxillary denture which provided good result.

Case report  
52-year-old male patient, reported to the Department of Prosthodontics, Bharati Vidyapeeth dental college and hospital with a chief complaint of recurrent fracture of maxillary denture. Intraoral examination revealed deep palatal vault which could have been the most probable reason for recurrent midline fracture of maxillary denture.

1. Preliminary and final impressions were made according to the conventional methods. Master cast was made using Type III dental stone.

2. Spacer wax of 0.5 mm thick was placed and sealed, to the cast on crest of ridge and posterior palatal seal region.

3. Master cast with adapted spacer was duplicated with reversible hydrocolloid (Castogel, Bego, Germany). A refractory cast was poured with Wirovest (Bego, Germany) material.

4. On refractory cast, the pattern wax was adapted and the sprues were attached and invested. 0.4mm stippled casting wax was used to cover the palate and residual ridges with retentive mesh and loops extending on ridges and the posterior palatal seal area for mechanical retention of acrylic resin and teeth to metal.

5. The denture base was casted with cobalt chromium metal (Wironium Plus, Bego, Germany).

6. After retrieval of the casting, it was finished and electro polishing was done with electro polishing unit.

7. Temporary record base was made with shellac base plate. Occlusal rims were fabricated and jaw relation was done.

8. The artificial teeth were selected and arranged. Try in verification was done.

9. Acrylization was done using heat cure denture base materials (ACRALYN-H) followed by trimming, finishing and polishing.

10. Then insertion of the maxillary and mandibular dentures was done and and instructions were given to the patients for the proper care and maintenance of the denture.

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Discussion:
Dentures with gold or cobalt-chrome-molybdenum or cobalt chrome alloy denture base have superior physical properties as compared to acrylic dentures. They are stronger, have greater resistance to fatigue and are less likely to break under normal and parafunctional occlusion. The advantages are biocompatibility, hypoallergenic effect with healthy appearing supporting tissues and added strength for easily fractured dentures. Patients perceive natural feeling from thin base which may also contribute to additional denture stability. They are considered dimensionally stable compared to all-plastic based dentures both during fabrication and for longevity purposes. But increased cost, difficulty in fabrication, difficulty in rebasing still remain as drawbacks. Nevertheless this is a viable alternative solution in the present case where deep plate proved as a fulcrum point causing eventual fracture of denture.

Conclusion
In the present case the innate rigidity of metal when used as a denture base prevented the recurrent fracture of denture. Post insertion visits are reduced and patient is also benefitted with the treatment modality.

References