

Multi-Com : A New Treatment Approach To Rehab Implant Supported Fully Edentulous Arches

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Maxillary complete edentulism a very common situation in dental practice. Various treatment options are also available to rehabilitate the completely edentulous arches. Among many treatment options, Implant-supported prostheses is one predictable treatment option with high success rate including patient satisfaction. Fixed treatment options for edentulous maxillary arch include implant supported metal-porcelain prosthesis and Hybrid prosthesis. Both the treatment options are case dependent. If inter-arch space available is <15mm, then metal-porcelain prosthesis is the right choice whereas if inter-arch space is >15mm, Hybrid prosthesis is a better choice. As in greater inter-arch spaces, if we chose metal-porcelain prosthesis, amount of metal is to be increased in the prostheses or else, if amount of porcelain is increased >2mm, chances of fracture of porcelain will increase. Increasing metal in sub-structure will act as heat sink and will complicate the application of porcelain. Also, because of difference in rate of cooling of porcelain and metal, there will be increased chances of fracture of porcelain. All this requires the use of Hybrid prosthesis in cases with larger inter-arch space. In hybrid prosthesis, the amount of metal used is decreased drastically and acrylic takes all the place between thin metal framework and the pre-fabricated denture teeth. Metal replacement by acrylic decreases the weight of the prosthesis and also dampens the occlusal force that gets transmitted to the implants.

(1,2) Various methods are available for fabrication of framework for Hybrid prosthesis like:

Sr. No.	Method of fabrication	Material that can be used for the technique
A	Casting	Alloys like CO-Cr, metal like Ti
B	3-D printing (DMLS)	Metals like Ti, Co-Cr
C	Milling	Metal like Ti and metal free substitute like Zirconia and BioHPP*

**BioHPP (Biocompatible High-Performance Polymer) is a new material in the field of dentistry which is a composite of PEEK reinforced with 20% ceramic fillers (of grain size of 0.3 to 0.5um). BioHPP presents high biocompatibility, mechanical properties better than metal substitutes, specially the MOE of BioHPP (4GPa) which is similar to that of bone and hence this helps in reducing the stress transferred to the bone. Other properties include high thermal resistance, better esthetics due to white color, non-metallic taste, light weight, high polishability, low plaque affinity. All these properties make this material a better choice over the metallic substitute. (3,4)*

Despite the advantages of Hybrid dentures, they pose certain mechanical complications like fracturing of anterior denture teeth(Fig-1), wear off of posterior teeth. These mechanical complications although repairable but require frequent visits of patients to the clinic and also adds to the cost of the prostheses. Reason for such chipping can be attributed to the frequent wear off of posterior teeth of maxillary and mandibular prostheses followed by contact of mandibular anterior teeth with palatal surface of maxillary anteriors which put excessive load on anteriors leading to their chipping. (5,6,7,8,9,10)

MultiCom, a new treatment approach can be a successful alternative for this problem. MultiCom is basically a ceramic reinforced PMMA based composite material that is given the shape of final prostheses after which it is luted on implant supported framework. The implant supported framework over which MultiCom is luted can be of any material like Co-Cr alloy, Ti, Zirconia, BioHPP. (11)

Unique feature of MultiCom that is its

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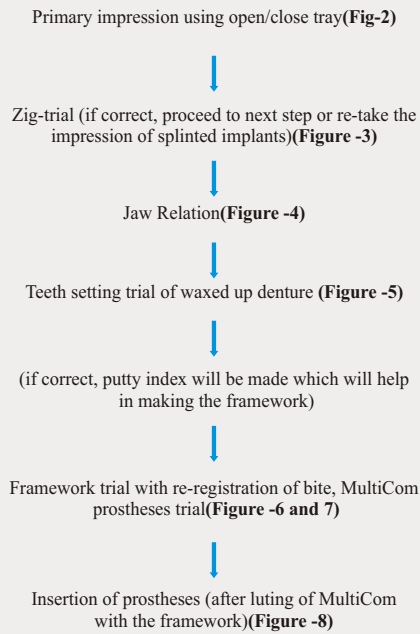
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Clinical Procedure for MultiCom Prosthesis Fabrication Include:



key to success is that it is a single unit structure in the form of teeth and supporting structure which helps in sharing of load. This does not allow any single tooth to bear the load alone and hence no chipping/fracturing of tooth is seen.

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