

CAD-CAM System: A Road for Pragmatic Maxillofacial Prosthesis

Kaushal Kishor Agrawal and Saumyendra V. Singh

Department of Prosthodontics, Faculty of Dental Sciences, King George Medical University, Lucknow, India

Corresponding Author: Dr. Kaushal Kishor Agrawal, Assistant Professor, Department of Prosthodontics, King George Medical University, Lucknow, India, Tel: +919721392150; E-mail: drkaushalp@yahoo.co.in

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Commentary

Neoplasms and trauma of the maxillofacial region are quite common. On their own (which one trauma or neoplasm?), or as a result of their surgical management, they can result in large acquired defects of the maxillofacial region. There are also certain syndromes and congenital conditions which lead to disturbed formation of facial structures. Patients suffering from such deformities face serious loss of esthetics, function and psychological compromise.

Rehabilitation modalities of such patients include reconstructive surgery and maxillofacial prosthesis. Surgery is more successful in rehabilitating smaller defects with mobile tissue beds whereas prosthetics mask (only mask or replace lost tissue?) bigger and immobile defects better. A well made prosthesis (orbital, ocular, auricular, nasal, mid facial, lip or a combination of these) helps to restore the patient's esthetics, function and confidence to face society.

A maxillofacial prosthodontist faces major challenges in making a successful prosthesis such as accurate recording of the defect bed, creating life like appearance and merging prosthesis margins with

normal tissues. Computer aided design (CAD) and Computer aided milling (CAM) system simplify and drastically shorten the fabrication procedure without unnecessary reliance on the artistic skills of the maxillofacial prosthodontist [1]. This system will provide a more consistent and accurate reproduction of cranio-facial morphology. Measurements are taken using a non-contact three-dimensional laser morphological measurement system and sent to a computer numerical controlled (CNC) milling machine to generate a cast for the fabrication of prosthesis. Facial contours are measured using a laser. This method minimizes patient discomfort and avoids soft tissue distortion often seen when using impression material. Moreover, the digital data obtained is easy to store and transmit, and mirror-images can be readily generated by computer processing.

References

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