

Maxillofacial Prosthesis

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ABSTRACT

Maxillofacial disfigurement can be congenial, developmental, traumatic, or because of ablative surgery. Such defects compromise appearance, function, and render an individual, incapable of leading a relatively normal life and affect his/her psyche. As the patients quality of life is altered; social integration becomes difficult and the expectation to return to “normalcy” collapses. The prognosis for a successful treatment outcome is dependent upon making a correct diagnosis and anticipating issues beyond the realm of dentistry alone. Prosthetic rehabilitation over the years has proven its mettle when it comes to such situations. It has considerable advantages; for example, observation for recurrence of disease, aesthetic superiority, technical simplicity, and inexpensive care. Over decades several prostheses have been developed for this purpose, through this review our aim is to explain the salient features and the purpose of these prostheses.

INTRODUCTION

According to GPT 9, prosthesis can be defined as-

“An artificial replacement of part of the human anatomy restoring form, function and aesthetics”.

Patients who have suffered maxillofacial disfigurement exhibit a compromised appearance making them incapable of leading a normal life. Such patients experience a change in societal acceptance that greatly affects their psyche, and often their expectation to return to normal life.

With advancements in plastic surgery, aesthetic corrections of such defects is possible, but, if surgery is contraindicated or the defect is so extensive that full closure is not possible or if the patient is unwilling to expose him/herself to surgery, maxillofacial prosthetics appear to be a viable option.

With recent advancements in prosthetic materials, colouring techniques and retentive mechanisms, a life like prosthesis can be given. The biggest impact of such prostheses is not only on the appearance but majorly on the psyche of the patient. The main objective is not only rehabilitation of the defect but also restoring confidence and improving quality of life of the patient.

The advantage of prosthetics is that it can be fabricated for any region of the face, the jaws or the cranium regardless of the extent of the defect, also the prosthesis allows for regular inspection and monitoring of the defect site thus, aiding in early identification of any recurrences.

OBJECTIVES

The objectives of maxillofacial prosthetics includes the following important objectives-

- a) Restoration of aesthetics or cosmetic appearance of patient.
- b) Restoration of function.
- c) Protection of tissue.
- d) Therapeutics or healing effect.
- e) Psychological therapy.

When these objectives are met in a patient during the rehabilitation, then it can be concluded that the treatment is totally successful.

HISTORICAL PERSPECTIVE

Early records indicate that artificial eyes, ears, noses were found on Egyptian mummies. They were made from silver, gold, bronze and were often overlaid with organically-pigmented porcelain representing sclera and iris. Ivory, rock and quartz crystal eyes have been found among the ruins of Egyptian, Chinese, Aztec, Inca and even ancient Syrian civilizations.

It was not until the French surgeon; **Ambrose Paré** (1517-1590) described the use of prostheses, as an alternative to surgical reconstruction and its shortcomings. Paré also wrote a detailed description of a silver nose which was tinted with oil paints, fitted with a moustache and secured with ligatures.

TychoBrache, a Danish astronomer of 16th century (1566) lost his nose and replaced it with an artificial nose made of silver and gold. He apparently made a wax pattern to fill the defect followed by casting it. The first artificial eyes made for the use of living humans were created from blown glass in Venice around 1579.

In 1728, **Pierre Fauchard** designed a prosthesis supported with wings that were positioned by patient from the oral side of obturator and made use of floor of nose for retention.

In 1757, **Bourdet** suggested that silk ligatures attached to natural teeth could be used to support sheet metal to obturate the defect.

In 1820, **Delabarre** gave concept of wire connecting the obturator with laterally placed metal bonds that clamped on the teeth.

In 1823, **Snell** first utilized rubber flaps attached to a gold hinge for retaining an obturator.

In 1832 a French soldier, **Alphonse Louis** came to be known as “**Gunner with the silver mask**” as left half of his mandible and much of his maxilla was destroyed, which was rehabilitated by **Saunders**, who described a prosthesis of silver which had mandibular teeth, a hinged front replacing the facial structures, and an internal collecting reservoir for the secreted saliva.

In 1880, **Kingsley** described artificial appliances for restoration of congenital as well as acquired defects of palate, nose and orbit.

Tetamore in 1894 described 9 cases of nasal deformities that received prosthetic restorations that were made of a “very light plastic material” which approximated natural colour and retained by bow spectacles.

In 1889, **Claude Martin** illustrated a variety of prosthetic replacements including porcelain nose prosthesis with an intraoral retention mechanism.

Several maxillofacial prosthetics have been described in the literature so far, following is a classification of maxillofacial prosthesis:-

INTRAORAL PROSTHESIS

1. **Maxillary defect-**
 - a) **Hard palate-** Surgical obturator, Interim obturator, Definitive obturator.
 - b) **Soft palate-** Speech Appliance, Meatus obturator, Palatal Lift prosthesis.
2. **Mandibular defect-**
Mandibular Resection Prosthesis, Guide Flange Prosthesis.
3. **Glossectomy-**
Tongue Prosthesis, Palatal Augmentation.
4. **Splints/Stents-**
Surgical Splints, Bite Splints, TMJ Appliance.

EXTRAORAL PROSTHESIS

- a) Orbital.
- b) Nasal.
- c) Auricular.
- d) Mid-Facial.

COMBINATION

- a) Orbito-Maxillary.
- b) Naso-Maxillary.

CONCLUSION

The rehabilitation of intraoral and extraoral defects is a challenging aspect of maxillofacial prosthodontics. It requires constant practice of the art to gain confidence and expertise. The goals of the surgeon and prosthetic specialist regarding rehabilitation of the patient are closely allied. The maxillofacial prosthodontist should always try to provide the treatment to the fullest of his ability. Sophistication in the prosthetic reconstruction of structural and functional defects improves the final results, if carefully planned, unbiased rehabilitation regimens are established. It is imperative that the prosthodontists involved either directly or indirectly in prosthetic rehabilitation to be aware of the situations discussed here, so that a more complete and successful service may be rendered to their patients.

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