INTRODUCTION
Facial defects can result from traumatic loss, surgical resections, congenital anomalies and burns. Restoration of facial defects can be accomplished either surgically, prosthetically or a combination of both. Prosthetic restoration of facial defects is attempted where surgical reconstruction is not possible. Pre-surgical records like photographs, mounted intra oral casts and facial casts if available could facilitate the fabrication of the prosthesis.

Prosthodontic results are limited by the materials used in the construction and fabrication of facial prostheses as the success depends mainly on the physical and mechanical properties of that material. Materials commonly used for fabrication of facial prostheses are acrylic resins, acrylic copolymers, vinyl polymers, polyurethane elastomers and silicone elastomers but none of them fulfill all the requirements for a satisfactory prosthesis.

Acrylic resin has advantages of color stability, remains serviceable up to 2 years and can be relined if required. However, silicones remain the more widely used materials for facial restorations because of their good surface texture and hardness. More recently the use of tulle has shown improved edge strength in facial prostheses.

Recently CAD/CAM (computer-aided design and computer-aided manufacturing) system for fabrication of oral and maxillofacial prostheses is being used. However, its use is limited due to its complexity, cost and non-availability at many centers.

This case report describes prosthetic rehabilitation of a large facial defect secondary to basal cell carcinoma of cheek.

CASE REPORT
A 45-year-old female was referred to the Department of Prosthodontics, Punjab Dental Hospital, Lahore, for possible prosthetic rehabilitation in view of the extensive facial defect. She had had multiple surgical procedures over the previous 6 years for a persistent and progressive basal cell carcinoma of the head and neck region, which had started on the right cheek. Extensive surgery was performed with extirpation of the right eyeball. The lesion extended to the upper two-thirds of the face involving upper jaw bilaterally, the nasal complex, bilateral floor of the orbit, superiorly up to the sphenoidal, ethmoidal and frontal air sinuses and anterior base of the skull. The frontal bone had also been removed. The defect had been partially reconstructed by bilateral temporal flaps in an effort to close the defect partially from side to side, a deltopectoral flap had been grafted to form a pseudo upper lip and a flap from the coronal area of scalp to close the defect on the right orbital region. The anterior part of cranial fossa was communicating externally (Figure 1).

The prosthetic restoration was carried out in a short period of about one week considering the overall general medical health of the patient.

After applying petroleum jelly on the remaining soft tissue, facial hair, and covering open and non-healed

ABSTRACT
Large facial defects require definitive surgical reconstruction. However, at times such reconstruction is not possible due to extensive loss of tissues that cannot be corrected by surgery alone. In this case, prosthetic restoration of lost facial tissues was carried out. Introduction of newer material which gives life-like appearance to such prosthetic restoration e.g. silicone and poly-ether rubbers, and use of implants to retain these prostheses have given a new dimension to rehabilitation of such patients. This report presents a case of prosthetic rehabilitation of extensive extra oral defect due to basal cell carcinoma of cheek, using acrylic resin material.

Key words: Maxillofacial defect. Prosthetic rehabilitation. Acrylic resins. Extra oral defect. Reconstruction.

Rehabilitation of a Large Maxillo-Facial Defect Using Acrylic Resin Prosthesis
Bilal Ahmed1, Ali Fateh Farshad2 and Nazia Yazdanie3

1 Department of Prosthodontics and Oral Implantology, University of Faisalabad, Faisalabad.
2 Private Practice.
3 Department of Prosthodontics, de’Montmorency College of Dentistry, Lahore.

Correspondence: Dr Bilal Ahmed, House No. 47, Block No. 30, Sargodha.
E-mail: drbilalahmed79@hotmail.com
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areas by surgical gauze and cotton, irreversible hydrocolloid impression was made. Before setting of the alginate the gauze squares and cotton were applied over the entire surface, which provided mechanical retention for the rigid plaster as support and tray for the impression material. Airway was maintained by placing a breathing tube during the impression making procedure. After setting of the impression and plaster they were removed and washed with detergent and poured in hard dental stone.

After removing the model from the impression the concavities and flat surfaces due to missing anatomical features of the face, were filled by adding plaster on the model so as to reproduce the normal anatomical features. This ensured that the wax pattern would not be too thick and bulky.

Wax pattern was made of soft sculpting wax (melting and mixing two sheets of bees wax, one sheet of hard pink base plate wax, and two strip of clear rope boxing wax) for pattern fabrication.

On the next visit the waxed prosthesis was tried and assessed on the patient's face. The pre-fabricated eye ball was selected matching the shape and colour of the other eye and was then cited into the wax pattern. The level and positioning of the artificial eye ball was adjusted, margin extensions were refined, surface contour and the skin texture established by carving in lines and wrinkles observed around the eye.

The final refined wax pattern now did not seat on the master model, therefore, direct flasking of the wax pattern was carried out, by investing the facial side on the lower half of the flask. After de-waxing procedure, heat cured acrylic resin was packed and cured. Intrinsic colour was added to acrylic polymer and monomer mix to have a base colour for extrinsic colour. Intrinsic colouration was also painted on the surface of the mould on its facial side (Figure 2).

After curing and finishing, the prosthesis was painted with acrylic colours as an extrinsic colour to match the patient's skin tone. The cosmetic self-adhesive eyelashes were placed on the prosthesis (Figure 3).

Mechanical retention was achieved by attaching the prosthesis to the eye glasses thereby masking the margins of the prosthesis (Figure 4).

This facial prosthesis was delivered to the patient for temporary use and esthetic acceptance till the complete healing of the margins. A more definitive prosthesis in silicone rubber was planned to be made.

**DISCUSSION**

Plastic and reconstructive surgery may be a treatment of choice for patients with facial defects, but for larger defects with extensive anatomical loss, a more suitable alternative is prosthetic rehabilitation.

This article described the process for fabrication and construction of facial prosthesis, by use of simple available materials like acrylic resin. This was fabricated and delivered to the patients within a week to achieve the objectives outlined.

In this large and extensive defect, which did not have much tissue support, the facial prosthesis made in acrylic resin gave satisfactory results because of its rigidity and brittleness. Retention in facial prosthesis can be achieved by bio-compatible adhesives, mechanically by engaging anatomical undercuts, attaching the prosthesis to the patient's eye glasses, use of straps and head bands, magnets or osteointegrated implant retained titanium screws. Adhesives are the most commonly used materials for retention but the weight of larger prostheses may prohibit or limitize their use.

In this case, the final results after prosthetic treatment were reasonable from a cosmetic point but did not address the functional impairment. The difficulty in maxillofacial rehabilitation of large facial defects often involves the compromise of cosmetics versus functional adequacy and therefore, the patient can be the only one to determine which aspect of the prosthesis contributes to his/her quality of life.

The objective in treating such patients is to restore the lost natural tissue immediately or later after surgery so to maintain appearance, morale and confidence of the patient and to facilitate the social acceptance among public and their families, which simple dressing or templates do not achieve.

**REFERENCES**


