



Prosthetic Rehabilitation after Rhinectomy for Squamous cell carcinoma of nasal alae

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Abstract :

Reconstruction of head and neck defects following mutilating cancer surgeries is an aesthetic challenge and can be accomplished either surgically or prosthetically. The methods of reconstruction are individualized based on the site, size, etiology, severity, age, and most importantly the patients desire. Surgical reconstruction techniques with micro vascular surgery using free flaps⁽¹³⁻¹⁵⁾ may be considered as treatment of choice. However, radiation therapy, anatomic complexity, possibility of recurrence, appearance of the area to be rehabilitated, and complexity of the surgical procedure may exclude surgical reconstruction as an option in a patient undergoing total rhinectomy. This case report describes the prosthetic rehabilitation of a young lady with albinism who underwent total rhinectomy for recurrent carcinoma of skin involving the nasal alae. Judicious use of this method of rehabilitation would go in a long way in socially integrating the cancer patients who

have undergone mutilating surgeries as a part of the multimodality management.

Keyword : Nasal Prosthesis, Rhinectomy, Reconstruction, Albinism

Introduction:

Reconstruction of head and neck defects after surgical treatment can be accomplished either surgically or prosthetically.¹⁻⁵ The methods of reconstruction is determined by the site, size, etiology, severity, age, and patient's desire. Surgical reconstruction techniques with micro vascular surgery using free flaps¹³⁻¹⁵ may be considered as treatment of choice. However, radiation therapy, anatomic complexity, possibility of recurrence, appearance of the area to be rehabilitated, and complexity of the surgical procedure may exclude surgical reconstruction as an option in a patient undergoing total rhinectomy.^{3,5} Prosthetic rehabilitation has considerable advantages - it offers the clinician and the patient the means to observe the healing wound and for recurrence of disease, and secondly

it is esthetically superior, technically simple, easy and inexpensive to care. Most facial prostheses are retained with adhesives and mechanisms, including anatomic undercuts, eyeglasses, and magnets. In the last 2 decades, osseointegrated implants have been used for improving support and retention of the facial prostheses.⁶⁻¹² This case report describes the prosthetic rehabilitation of a young lady with albinism who underwent total rhinectomy for recurrent carcinoma of skin involving the nasal alae.

Case report:

A 26 year old lady with albinism features and known Hepatitis B Virus Antigen positive on treatment, presented with ulcerated tumor involving the right alae of nose and the nasolabial fold (Fig.1). She underwent excision of ulcer over the nose elsewhere two years back and diagnosed to be Basal cell carcinoma and all margins were negative.

Clinical examination revealed 6X5cm ulceroproliferative lesion on the right side of the nose completely destroying the skin and the right alae of nose with intranasal extension. The ulcer also extended onto the left alae of nose. She also had another papular amelanotic lesion 5X 5 mm near the right oral commissure seen and also few more elevated keratotic skin lesions in the nape of neck, right scapular region and left forearm. Biopsy from the nose lesion was suggestive of squamous cell carcinoma Grade 1. Computed tomography of paranasal sinus showed irregular soft tissue density mass involving the right nasal alae infiltrating the nasal septum and nasal turbinates (Fig.2)

Fig.1. Pre operative photograph showing ulcerative lesion over the right ala of the nose and also involving the left ala

Fig.2. Computed tomography of paranasal sinus showed irregular soft tissue density mass involving the right nasal alae infiltrating the nasal septum and nasal turbinates

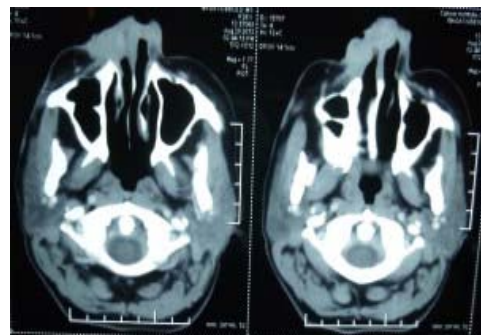


Fig.3 – Intraoperative Picture after Resection



She was treated with Total rhinectomy with nasolabial flap reconstruction harvested from the left side along with wide local excisions and primary closures of the other skin lesions as shown in the intra operative picture (Fig.3). Post operative period was uneventful and the wound healed well (Fig.4). Final Histopathology report - 4.5 x 3 x 1cm tumor suggested of invasive squamous cell carcinoma grade 2 margins free. The other lesions were reported as basal cell carcinoma, all resected margins were free. The patient was considered for prosthetic rehabilitation. Patient education is the first step in the rehabilitation. Prior to surgery, it is important to familiarize the patient with the functional and cosmetic expectations and limitations of the maxillofacial prosthesis. Providing adequate retention and airway in nasal prosthesis should be considered as it can improve the patients function and comfort. The prosthesis should be lightweight.

The Prosthetic protocol involves, a simple transfer system, which requires trying it on the patient's face for correct positioning of the eye glasses and prosthesis with the use of a manual silicone based approach. Eye-glasses are placed on the patient's face and silicone is used to check the relationship with the nasal prosthesis wax-up to design the substructure framework used to connect the prosthesis to the eyeglasses.



Fig.4. Post operative picture after wound healing

The patient was instructed on home care and prosthesis maintenance. To sanitize the wound, the patient was instructed to gently remove any exudate with a wet cotton tip with 1% hydrogen peroxide, and to clean the tissue side of the prosthesis with water once a day. She was adequately explained the significance of usage of sun protective agents and proper clothing to avoid exposure of skin to sunlight and is on regular follow up. The post prosthetic reconstruction images of the patient show adequate retention of the prosthesis with acceptable cosmesis. (Fig.5)



Pic 5 Post Prosthetic Reconstruction



Discussion:

Oculocutaneous albinism (OCA) is the most common inherited disorder of general hypo pigmentation. Two broad categories of albinism exist; OCA affects the eyes, hair, and skin, whereas only the eyes are affected in ocular albinism. As a consequence to the defect in the synthesis of tyrosinase, OCA patients lack the protective effect of melanin against ultraviolet radiation (UVR) damage. High levels of exposure to UVR increase the risk of all 3 major forms of skin cancer, squamous cell carcinoma (most common), basal cell carcinoma and malignant melanoma. The challenges in the management were :

Margin free resection with reconstruction

High chance of new lesion within the field

Limited options for post op Radiation due to risk of carcinogenesis in albinism

Frequent clinical exam of the area for recurrence and new lesions

Acceptable cosmesis in young lady A nasal prosthesis can re-establish esthetic form and anatomic contours for mid-facial defects, often more effectively than by surgical reconstruction as the nose is relatively immobile structure. For successful results, factors such as harmony, texture, color matching and blending of tissue interface with the prosthesis are important. For the purpose of prosthetic rehabilitation for facial defects, biomaterials such as polymethyl methacrylate, polyvinyl chloride, polyurethane, and silicone have been used. Silicone materials are the most widely used for facial prostheses because of their various superior features.¹⁵ Silicone preparations with different chemical

and physical properties have provided the required versatility for industrial applications; however, these silicone materials fall short of an ideal maxillo-facial prosthetic material because of their poor adheophilic property, polishing problems,

low tear resistance, and microbial growth-promoting characteristics.^{15,16}

Methods of overcoming these weak properties and taking advantage of the superior features of the silicone materials have been introduced. For example, the process of using a prefabricated urethane sheet as a lining for the tissue surface of the silicone materials has been evaluated.¹⁶ The urethane sheet has a high tear resistance and is clear, smooth, easily cleanable, and compatible with many available adhesives. In addition, the urethane material can be satisfactorily bonded to metals and silicone materials, producing a superior prosthesis. Such prosthesis could be called a "composite prosthesis."

In conclusion,

our report highlights the potential of prosthetic rehabilitation in the field of oncology. Judicious use of this method of rehabilitation would go in a long way in socially integrating the cancer patients who have undergone mutilating surgeries as a part of the multimodality management.

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