ORIGINAL ARTICLE

OROFACIAL RECONSTRUCTION WITH LOCAL FLAPS AT AFID

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Background: Reconstruction of oral cavity is often a difficult challenge as it involves the restoration of both the cosmetics and preoperative function. Understanding the oral cavity anatomy as well the functional capacities of its various subunits is required to achieve good results. The stage of the disease and extent of resection are the most significant parameters that must be kept in mind before planning for reconstruction. Aim was to evaluate the success rate of various local flaps in oral reconstruction as well as to conclude whether or not the reconstruction method influences postoperative quality of life. **Methods:** This is a descriptive study carried out at Armed Forces Institute of Dentistry, (AFID) Rawalpindi. Sample size comprises of 24 subjects, 16 males and 8 females, who reported to the diagnostic department of AFID from 15 March 2007 to 15 March 2010. **Results:** A total of 24 patients with oral squamous cell carcinoma were treated in 3 years, out of them 16 (66.7%) were male and 8 (33.3%) were female. The peak incidence was in the 6th and 7th decade of life (37.5%). The most common site involved was the alveolus 37.5% in the reported cases followed by tongue (25%) and buccal mucosa (25%). In 8 (33.3%) patients local resection was performed, in 4 (16.7%) patients resection along with neck dissection was done. In 12 (50%) patient tumour resection followed by neck dissection and immediate reconstruction was also done out of these 12 patients nasolabial flap reconstruction was done in 6 patient (25%), Karapandzic in 4 (16%) patients, and fan flap in 2 (8%) patients. No complication noticed other than wound dehiscence (2 patients), microstomia and circumoral scarring (1 patient). Mean hospital stay was 7 days.

Keywords: Reconstruction, Resection, Local Flaps, Neck Dissection, Tumour, Karapandzic Flap, Nasolabial Flap, Fan Flap, Microstomia, Circumoral Scarring

INTRODUCTION

The oral cavity is by volume a relatively small space where a very complex interaction of function and structure occurs. These functions include speech, mastication, swallowing, saliva retention, taste and oral hygiene. The oral cavity also has an important function in respiration and aids in the protection of the respiratory tract. Treatment of oral cancer is primarily surgical resulting in the degradation of function thus, leaving an aesthetic defect that increases postoperative morbidity. Recent advances in reconstructive surgical techniques has significantly increased the patients quality of life.[1]

The reconstruction of composite defects of mandible and both lips following oenological resection is challenging.[2] Reconstructive surgery of the lips requires a complete understanding of anatomy of this region. Most lip cancer remain localize and grow slowly with propensity of superficial rather than vertical spread.[3] Structural restoration of skeletal support, internal lining and external skin cover must take into account the functional goal like oral competence, the ability to eat, drink and intelligible speech. Functional restoration may involve neuroraphy to restore sensory and motor function, the use of static slings to support soft tissue reconstruction or the transfer of skeletal muscle to restore oral sphincter function. Aesthetic considerations during reconstruction should be aimed at minimizing or at least camouflaging the extend of disfigurement resulting from such an extensive surgery.[4] The aim of the present study is to evaluate the success rate of various local flaps used in oral reconstruction as well as to conclude whether or not the reconstruction method influences postoperative quality of life.

MATERIAL AND METHODS

This was a descriptive study carried out at Oral and Maxillofacial Surgery Department, AFID Rawalpindi. Sample size comprises of 24 subjects, 16 males and 8 females, who reported to the Diagnostic department of AFID from 15 March 2007 to 15 March 2010.

All subjects who reported to the diagnostic department of AFID, were diagnosed having carcinoma and were willing for surgery were included in the study. Patients having co-morbid conditions, ASA IV and V, not willing for surgery, previous radiotherapy or metastatic disease were excluded.

The oral examination was carried out in Oral and Maxillofacial Surgery Department. After carrying out the necessary investigation the definitive diagnosis was made and treatment plan was formulated. Reconstructive options were selected depending on tumour size, location and patient's general health status. Post-reconstruction evaluation was recorded on specially designed questionnaire. Subjective evaluation of oral functions (postoperative speech, mastication, saliva retention) and aesthetic

appearance carried out. Length of hospitalisation and local post-operative complications was used as criteria for successful outcome.

RESULTS

The results are shown in Tables-1–5. A total of 24 patients with oral squamous cell carcinoma were treated in 3 years, out of them 16 (66.7%) were male and 8 (33.3%) female. Data was analysed using SPSS-11. The peak incidence was in the 6th and 7th decade of life (37.5%). The most common site involved was the alveolus 37.5% in the reported cases followed by tongue (25%) and buccal mucosa (25%). In 8 (33.3%) patients local resection was performed, in 4 (16.7%) patients resection along with neck dissection was done. In 12 (50%) patient tumour resection followed by neck dissection and immediate reconstruction was also done out of these 12 patients nasolabial flap reconstruction was done in 6 patient (25%), Karapandzic in 4 (16%) patient and fan flap in 2 (8%) patients. No complication noticed other than wound dehiscence (2 patients), microstomia and circumoral scarring (one patient). Mean hospital stay was 7 days.

Table-1: Age of patients

Age	Frequency	%
<50	4	16.7
50–60	6	25.0
61–70	9	37.5
71–80	5	20.8
Total	**24**	**100.0**

Table-2: Gender of patient

	Frequency	Percent
Male	16	66.7
Female	8	33.3
Total	24	100.0

Table-3: Location of tumour

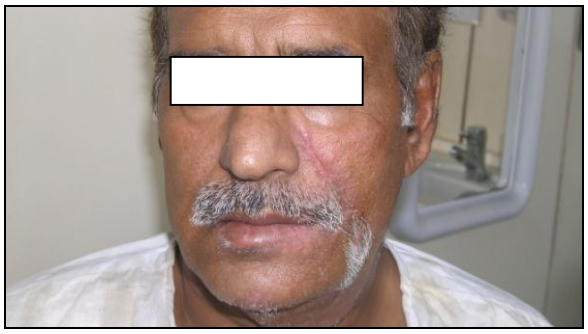
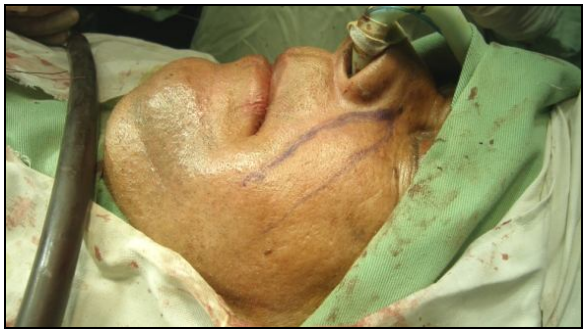
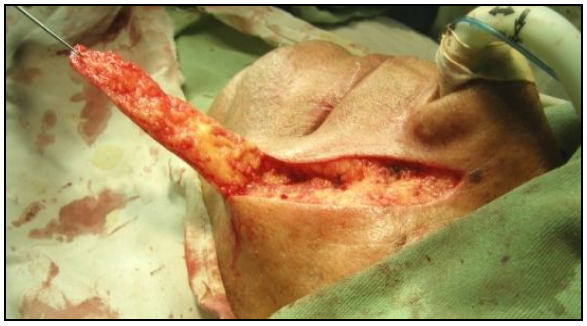
	Frequency	Percent
Alveolus	9	37.5
Tongue	6	25.0
Buccal mucosa	6	25.0
Maxillary sinus	3	12.5
Total	24	100.0

Table-4: Resection of tumour

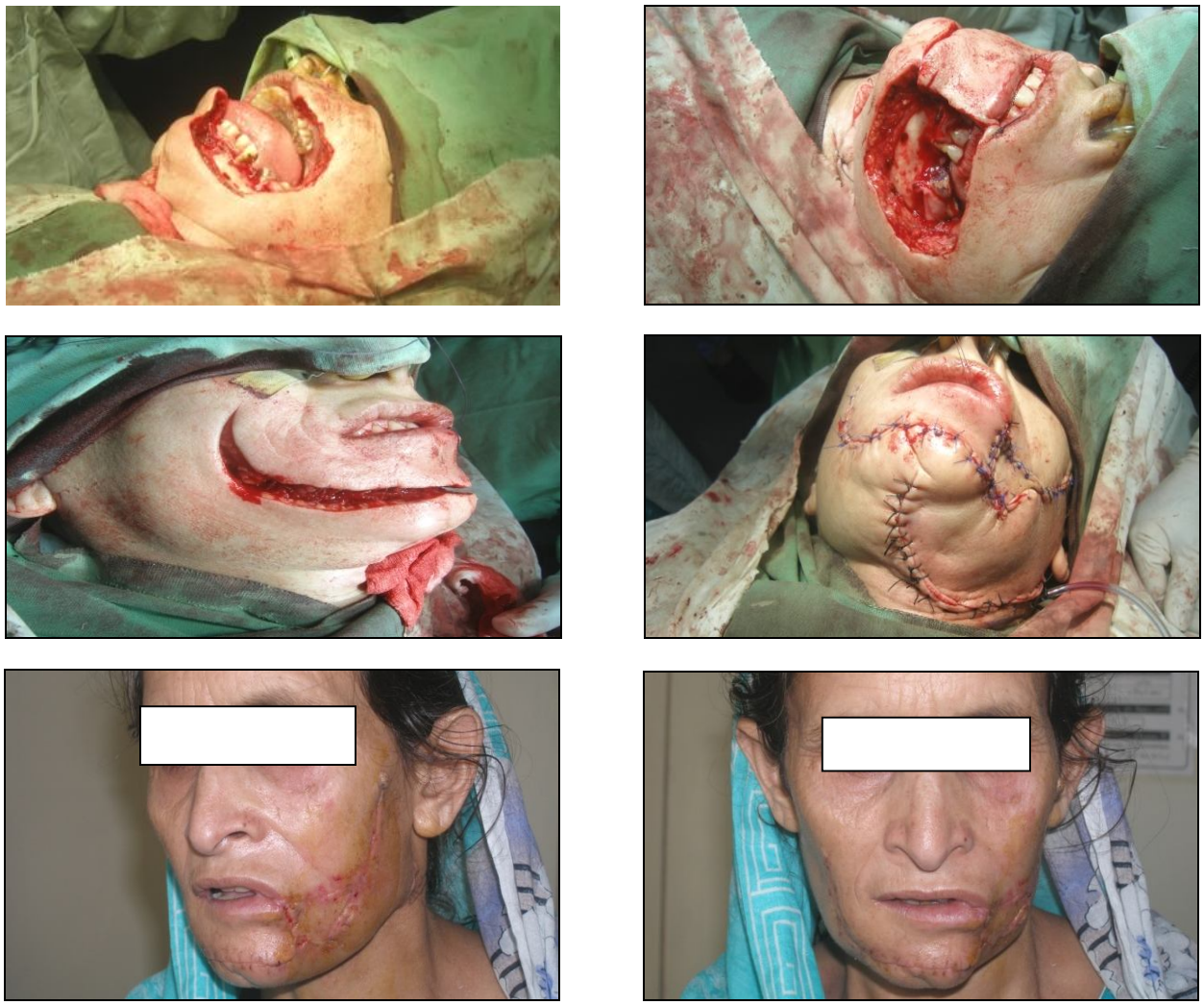
	Frequency	Percent
Local resection	8	33.3
Local resection + neck dissection	4	16.7
Local resection + neck Dissection + reconstruction	12	50.0
Total	**24**	**100.0**

Table-5: Type of local flaps

	Frequency	Percent
Nasolabial flap	6	25.0
Karapendzic flap	4	16.7
Fan flap	2	8.3
Missing	12	50.0
Total	**24**	**100.0**


Nasolabial Flap Reconstruction



Karapendzic Flap Reconstruction

DISCUSSION

Reconstruction of oral defects following ablative tumour resection has undergone tremendous changes over the last 20 years. The majority of oral cancer is squamous cell carcinoma which not only spread locally but also to distant sites such as the cervical lymph nodes, lung and liver. Untreated disease caused significant pain, suffering and disfigurement which inevitably lead to the patient's demise in past. Today primary reconstruction of surgical defects is carried out at the time of resection. The aim of this is not only the preservation of oral functions but also to improve quality of life. The introduction of techniques such as free vascularised tissue transfer and the use of osseointegrated implants have revolutionized the reconstruction of oral defects. Rehabilitation of chewing, speech and swallowing may also be aided by reconstructive techniques that aim to replace anatomical continuity.[5]

Goals of reconstruction are to provide ablative care, restoration of oral form and functions. Parameters of successful technique are restoration of lip function, acceptable cosmetic appearance and minimal donor morbidity. Lip functions to give static competence, dynamic competence during eating and drinking, phonation, occlusion of oral sphincter at rest without drooling. Cosmetic parameters are defined as integrity of vermilion border, evenness of red margin, acceptable size and contour. Lower Lip reconstruction has advantages over upper lip in that it has increase soft tissue laxity and has no dominant structure like philtrum or nose. Disadvantages are the effect of gravity and greater need of tone to prevent drooling/oral incompetence. Options of lower lip reconstruction are primary closure or W resection, shield or double or single barrel excision and grafting.[6]

Preferred flap for lower lip reconstruction is Karapandzic flap. It satisfies twin goals of restoring structural integrity and functional competence. It is single stage procedure with less risk of flap loss but it leads to microstiomia with circumoral scarring and inferior aesthetics results. It provides excellent results

for full thickness defects larger than one-third of the lower lip. The flap slides and rotates into position while an intact neurovascular pedicle is maintained. Accordingly, sensation and circulation of the lip is preserved and function of the orbicularis oris muscle is maintained.[7]

Restoration of skeletal support requires a length of donor bone that with osteotomies could span the defect. In this regard the free fibula osteocutaneous flap was the option of choice. The flaps provide good quality cortical bone of up to 25 Cm in length which is also amenable to osseointegrated dental implants if appropriate.[8] Restoration of muscle by transposition of masseter muscles or by incorporating the brachioradialis muscle in to free radial forearm flap has been reported in the literature.[9]

Current literature has recently published many reports on comparisons of different types of oral cavity reconstruction, however the total sum of data is relatively small and in some cases contradictory. McConnel *et al*. published a study comparing functional postoperative results (speech and swallowing) following primary closure, myocutaneous and microvascular flap reconstruction. Tumour localisation and size of resection was the same in all three studied groups. They concluded that primary closure gave equal or superior functional results than the use of flaps in patients with comparable tumour localisation and extent of resection. The head and neck region requires specific assessment, from the specifics of the region itself to the patient's general health status. Evaluation of both postoperative results and patient's quality of life can show the advantage of certain reconstructive techniques.[1,4,5]

CONCLUSION

There is a wide variety of reconstructive techniques available for use in the oral and maxillofacial region post-ablative surgery. The main aim of reconstruction is to restore the anatomy and function of the oral cavity and to achieve acceptable aesthetic results.

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