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Various Reconstructive Techniques In Head And Neck Oncosurgical Cases – An Institutional Experience

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ABSTRACT

Functional and aesthetic outcome have become the priority in cases of head and neck reconstruction in recent times. Number of flaps with varying composition are available in the armamentarium of plastic surgeon. The choice of individual flap employment is based on the type of tissue defect and surgical expertise of the treating surgeon. In our study, the authors present their experience of 58 cases of head and neck reconstruction, their outcome and associated complications henceforth. We observed that the optimal cosmetic and functional outcome can be obtained with the use of locoregional and pedicled flap when compared to free flaps, which are the standard. We conclude that the well planned, optimal first stage flap is the key to achieve a good outcome in most of the head and neck reconstructions.

Key words: Head and neck reconstruction, pedicled flaps, free flaps.

INTRODUCTION

One must consider the functional aspects, including respiration, mastication, swallowing, and vocalization, as well as the cosmetic appearance for reconstruction of the tissues of head and neck region that are altered by any cause. Free-flap reconstruction has become the first-line treatment for head and neck reconstruction, with recent advances in microsurgery, because it can improve both functional and cosmetic aspects using tissues from different sites with features

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similar to those of the defect site. With the use of free flaps the flap survival rate of head and neck reconstruction is reported to be approximately 95%–98% [1,2]. Tumor resection is the cause of deficits which require free tissue transfer in > 97% of the cases [2].

The most common cause of treatment failure is the recurrence at the primary site , which occurs in approximately 20%–30% of patients with head and neck cancer [3-6]. After surgical resection, management of recurrence is challenging. Chemotherapy, salvage surgery, radiation, a combination of these therapies, and palliative care are the treatment options available . With resectable recurrent cancers, salvage surgery would provide the best chance of long-term disease control and possible cure as agreed by most of the head and neck oncologists[4-8]. Because of previous treatment, which may include chemotherapy, radiation, neck dissection, and free-flap reconstruction, the salvage reconstruction for recurrent head and neck cancer may be more challenging . Scarring and neck tissue fibrosis could be the result of radiotherapy [9]. Periadventitial scarring, lack of potential recipient vessels and perioperative thrombosis of major vessels are some of the consequences of neck dissection [10].

Authors present their experience of using local flaps, pedicled flaps and free flaps in mid facial, jaw and tongue reconstructions with respect to optimal functional and cosmetic outcome.

AIMS and OBJECTIVES

Comprehensive study which provides an overview of

-Different types of flaps employed in head and neck reconstruction.

-their management.

-achieving desired standard outcome.

- complications after surgery.

in a tertiary care hospital.

MATERIALS and METHODS:

Retrospective study of 58 cases of various head and neck cancers over a period of 2 years. After diagnosing the particular type of head and neck cancers with suitable radiological and histopathological examination, and metastatic workup, those tumors which require surgery as the primary modality of treatment are selected for the study. Patients are counselled about the

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impending tissue defects after the oncosurgery and the planned procedure to cover such defects with either free flap, local flap or pedicled flap, possible requirement of adjuvant chemotherapy. After explaining the expected outcome, need for second surgery and possible complications, written informed consent has been taken.

Inclusion criteria: All patients aged 25-75 years , with carcinomas of tongue,GB sulcus, cheek, lip and basal cell carcinoma.

Exclusion criteria : Those patients whose post oncosurgery defects which could be closed by primary closure.

- Those who required neoadjuvant therapies prior to surgery.

Table1: Gender distribution

Male patients	Female patients
48	10

Out of 58 patients, majority of them (83%) were males in our study.

Table 2: Age distribution

Age group (in years)	Number of patients
25-35	1
36-45	5
46-55	12
56-65	16
66-75	24
Total	58

Majority of the patients in our study were found be elderly population.

Table3: Various reconstructive procedures employed:

Various flaps	Number of patients
Pectoralis major myocutaneous flap (PMMC	26

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flap)	
Submental flap	6
Nasolabial flap	10
Cheek advancement flap	3
Delto pectoral flap	1
Forehead flap	5
Radial forearm flap	1
Free fibula flap	6

PMMC flap was the most common flap used in our study owing to more number of oral cancer patients.

Clinical photographs:

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All the post operative cases were managed in ICU setting , with prompt assessment of flap viability. Post operative symptomatic care with ERAS protocol was followed till discharge. Delto pectoral flap patient required second stage procedure.

RESULTS :

1. Duration of post operative care varied between 1-3 weeks on an average.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 06, 2023

2. 13 patients found have following post operative complications

Table4: Post operative complications

Post operative complications	Number of patients
Wound infection	3
Partial flap necrosis	3
Complete flap necrosis	2
Reactionary hemorrhage	1
Oro-cutaneous fistula	2
Death	2

3. Wound infection was treated with stepping up the antibiotic based on culture and sensitivity report, partial flap necrosis patients underwent local debridement and in the due course those wounds healed by secondary intention, 2 PMMC flap patients had Oreo cutaneous fistula after adjuvant radiotherapy, 2 PMMC flap patients had complete flap necrosis for which Anterolateral thigh free flap was done, 1 patient had reactionary hemorrhage for which re-exploration was done . 2 patients had septicaemia shock who didn't respond to treatment and eventually died.
4. Phonation, Gustatory function and cosmetic appearance was found to be optimal in our study patients.

DISCUSSION

Size of the defect, requirement of type of tissue, associated physical conditions, function and appearance forms the basis of selection of type of flap in head and neck cases after oncosurgical procedures. In primary reconstruction, the tissue being soft and pliable allows better function and appearance. In specific conditions, secondary reconstruction can be used with limited advantage.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 06, 2023

Although smaller defects can satisfactorily be reconstructed with local random pattern flaps or pedicled flaps, limited reach, downward pull and difficulty in achieving three dimensional reconstructions are some of the drawbacks.

All these drawbacks can be overcome by microsurgical free tissue transfer. However it requires surgical expertise, prolonged operative time and vigorous monitoring.

Complex flaps like osteomyocutaneous flaps can be used in mandible reconstruction eg.Free fibula flap.

Recent advances include the use of sensate flap, which is can be employed in oral cavity reconstruction like radial forearm free flap which can be made sensate by coaptation of sensory nerve in neck with lateral/ medial antebrachial cutaneous nerve[11].

Osseointegrated implants can be used in maxilla or mandible reconstruction which allow fixture of dentures.

CONCLUSION

1.Key to achieve the best long term outcome is an optimal first stage flap, although in some patients second surgery is required for rehabilitation.

2.Although free flaps are considered standard, locoregional flaps are still the workhorses in head and neck reconstruction.

BIBLIOGRAPHY

1. Wu CC, Lin PY, Chew KY, Kuo YR. Free tissue transfers in head and neck reconstruction: complications, outcomes and strategies for management of flap failure. Analysis of 2019 flaps in single institute. Microsurgery. 2014;34:339–44. [PubMed] [Google Scholar]

2. Zhang C, Sun J, Zhu H, Xu L, Ji T, He Y, et al. Microsurgical free flap reconstructions of the head and neck region: Shanghai experience of 34 years and 4640 flaps. Int J Oral Maxillofac Surg. 2015;44:675–84. [PubMed] [Google Scholar]

3. Goodwin WJ., Jr Salvage surgery for patients with recurrent squamous cell carcinoma of the upper aerodigestive tract: when do the ends justify the means? Laryngoscope. 2000;110(3 Pt 2 Suppl 93):1–18. [PubMed] [Google Scholar]

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 06, 2023

4. Kim AJ, Suh JD, Sercarz JA, Abemayor E, Head C, Funk G, et al. Salvage surgery with free flap reconstruction: factors affecting outcome after treatment of recurrent head and neck squamous carcinoma. Laryngoscope. 2007;117:1019–23. [PubMed] [Google Scholar]

5. Wong LY, Wei WI, Lam LK, Yuen AP. Salvage of recurrent head and neck squamous cell carcinoma after primary curative surgery. Head Neck. 2003;25:953–9. [PubMed] [Google Scholar]

6. Taussky D, Dulguerov P, Allal AS. Salvage surgery after radical accelerated radiotherapy with concomitant boost technique for head and neck carcinomas. Head Neck. 2005;27:182–6. [PubMed] [Google Scholar]

7. Kowalski LP. Results of salvage treatment of the neck in patients with oral cancer. Arch Otolaryngol Head Neck Surg. 2002;128:58–62. [PubMed] [Google Scholar]

8. Tan HK, Giger R, Auperin A, Bourhis J, Janot F, Temam S. Salvage surgery after concomitant chemoradiation in head and neck squamous cell carcinomas: stratification for postsalvage survival. Head Neck. 2010;32:139–47. [PubMed] [Google Scholar]

9. Bengtson BP, Schusterman MA, Baldwin BJ, Miller MJ, Reece GP, Kroll SS, et al. Influence of prior radiotherapy on the development of postoperative complications and success of free tissue transfers in head and neck cancer reconstruction. Am J Surg. 1993;166:326–30. [PubMed] [Google Scholar]

10. Head C, Sercarz JA, Abemayor E, Calcaterra TC, Rawnsley JD, Blackwell KE. Microvascular reconstruction after previous neck dissection. Arch Otolaryngol Head Neck Surg. 2002;128:328–31. [PubMed] [Google Scholar]

11. Kurlakose MA, Loree TR. Sensate free radial forearm flap for tongue reconstruction; Arch Otolaryngol Head and Neck Surg 2001;127;1463-1466.