



Reconstruction Options in Oral Cavity Cancer Surgery: A Tertiary Care Centre Experience

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Abstract

Aims & Objectives: To study various reconstructive options in oral cavity cancer surgeries at our centre. **Material and Methods:** The present prospective study was conducted in the Department of ENT, GMC Jammu from January 2018 to December 2019 on 20 diagnosed cases of head and neck malignancy, who underwent reconstruction options such as local flap, pedicled flap or free flap. **Results:** Out of 11 lip cancer patients, 1 had local flap repair, rest all underwent primary closure. Out of 7 tongue carcinoma patients, 2 underwent free flap repair while 5 had primary closure. Out of 2 buccal carcinoma patients, one underwent excision with split thickness skin graft repair and 1 had pedicled flap repair. All reconstructions were having successful functional outcome at 6 months after surgery. **Conclusion:** From our study we can conclude that if performed with utmost care, the functional outcomes of various modes of reconstruction in oral cavity cancer surgeries from simple primary closure to complex ones like pedicled or free flaps, can be satisfactory.

Keywords: reconstructive, flap, pedicled

Introduction

Head and neck cancer is one of the most frequent malignancy occurring globally as well as in India. More than 500,000 cases are diagnosed worldwide. Predominantly affecting male population, head and neck cancers lead to cosmetic and functional deficits [1].

Surgery is one of the main treatments for cancers of head and neck. The aim of surgery is to excise the cancer completely. With the possibility of reconstruction, what cancer was termed earlier as inoperable, has become operable [2].

Tracing back the history of head and neck reconstruction options, the first flap used was a forehead flap described by Sushruta, which was later popularized by McGregor in 1963 [3]. A decade later, pectoralis major myocutaneous flap was introduced by Ariyan in 1979, with eventual emergence of free flaps and other regional pedicled flaps like submental island flap [4].

Excision of oral cavity cancer may result not only in exposure of vital structures such as neurovascular structure (which if inadequately reconstructed may result in significant complications), but also aesthetic disfigurement. Thus, reconstruction of defect is important not only to restore function and cosmesis but also completion of any adjuvant therapy on time.

Oral cavity cancer surgery involves a wide range of options from primary closure, if the defect is small to some complex options like pedicled flaps, free flaps etc. if the defect is large.

This research paper aims to study various reconstructive options in oral cavity cancer surgeries performed at our centre.

Material and Methods

The present prospective study was conducted in the Department of ENT, GMC Jammu from January 2018 to December 2019 on 20 diagnosed cases of oral cavity malignancy, who underwent reconstruction options such as primary closure, local flap, pedicled flap or free flap.

All patients were subjected to relevant clinical history, general physical examination including examination of neck nodes and flexible laryngoscopic examination. All routine blood tests were done. All patients were subjected to Ultrasound abdomen, Xray chest and CECT neck to exclude distant metastasis. All patients were staged as per TNM staging system.

Details regarding extent of lesion, type of reconstruction, post-operative complications (if any) and postoperative functional outcomes (speech, chewing, mouth opening) at 1 and 6 months following surgery were noted.

Results

The mean age of presentation was 35.4 years, with majority of patients in the age group of 31-40 years (65%).

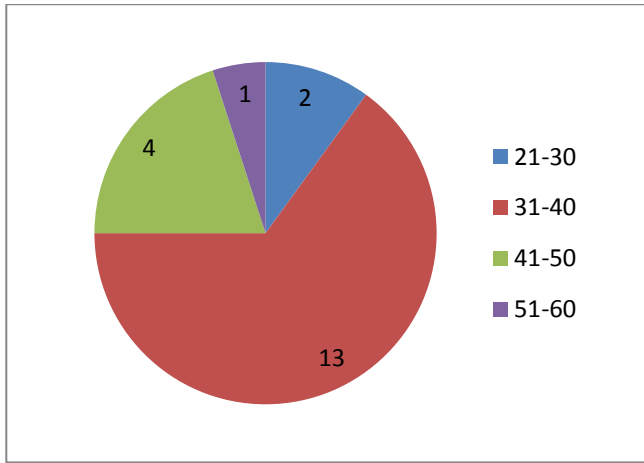


Fig 1: Age Distribution

Out of 20 patients, 19 were males (95%) and 1 was female (5%).

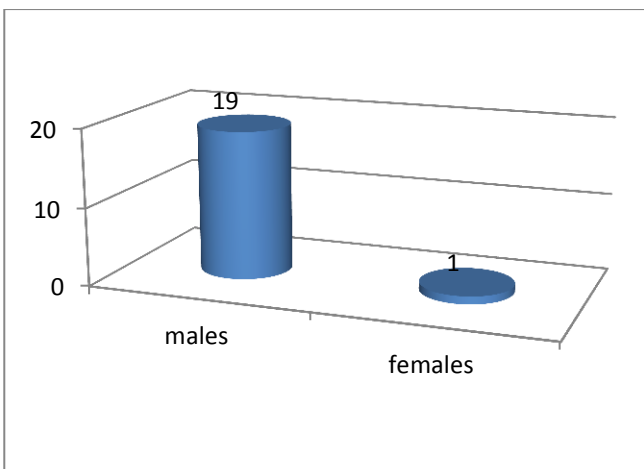


Fig 2: Gender Distribution

Out of 20 patients, 11 had lip cancer (55%), 7 had tongue cancer (35%) and 2 had buccal carcinoma (10%).

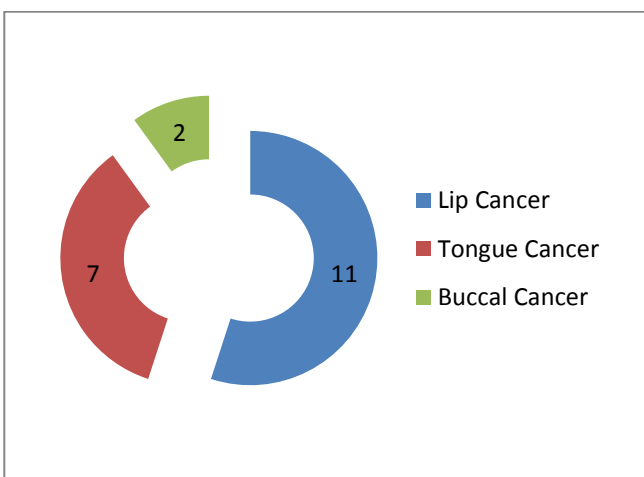


Fig 3: Cancer Distribution

Out of 11 lip cancer patients, all had cancer in the lower lip - 10 patients lesion underwent wedge excision with primary closure. 1 patient underwent local flap repair (Gille's fan flap)

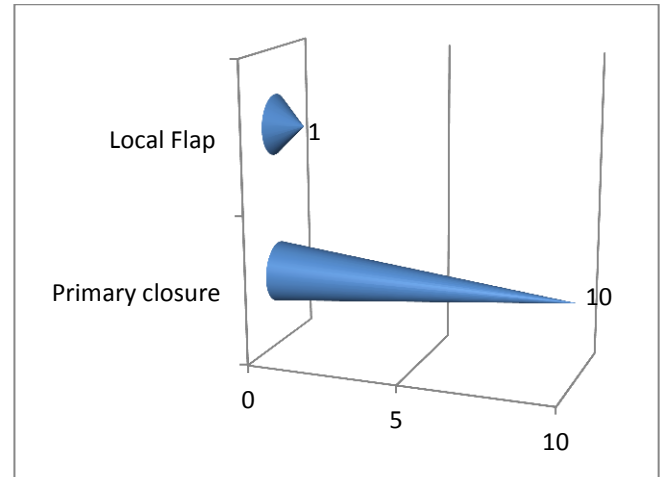


Fig 4: Surgical options in Lip Cancer

Out of 7 tongue cancer patients, 5 patients underwent primary excision and closure. 2 patients underwent free flap repair (Radial forearm free flap)

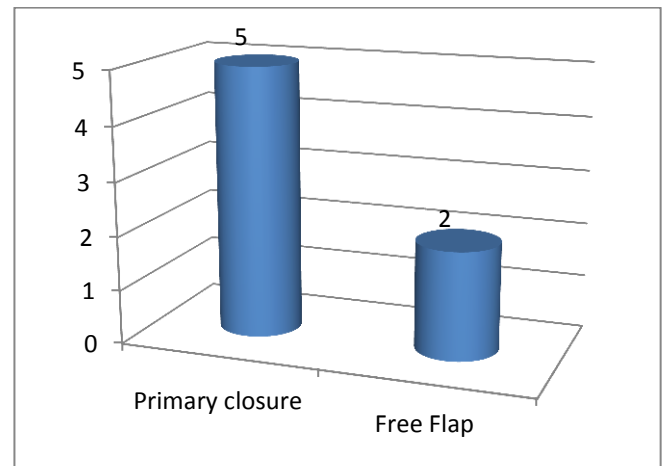


Fig 5: Surgical options in Tongue Cancer

Out of 2 buccal carcinoma patients, 1 patient underwent pedicled flap repair (Delto-pectoral flap) and other patient underwent primary excision with split thickness skin graft repair (SSG).

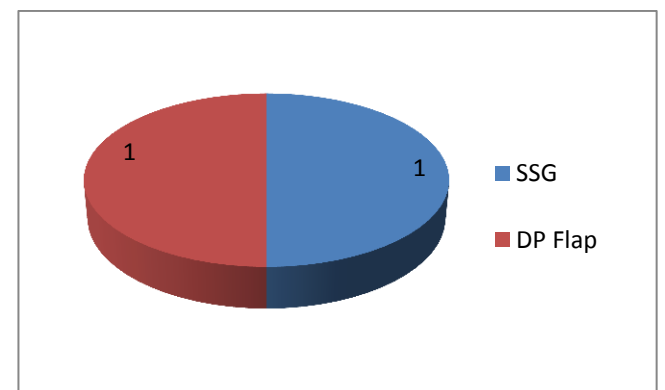


Fig 6: Surgical Options in Buccal mucosa cancer

There were no post-operative complication in any lip cancer patient and buccal carcinoma patient. The functional outcome at 6 months following surgery was also satisfactory.

There was 1 case of tongue cancer surgery (free flap) who developed flap discoloration after 24 hours of surgery. All patients, including this 1 patient, had favourable functional outcome at 6 months.

Discussion

Adequate reconstruction after tumor excision is an important step for rehabilitation of oral cavity cancer patient, aiming to preserve and restore pre-operative activity and quality of life [5].

In our study, the mean age of presentation was 35.4 years, with majority of patients in the age group of 31-40 years. Out of 20 patients, 19 were males and 1 was female. Out of 20 patients, 11 had lip cancer, 7 had tongue cancer, 2 had buccal mucosa carcinoma.

In lower lip defect, if lesion involved $<1/2$ of lip- wedge excision is done; if lesion involves $1/2-2/3$ of lip- Karapandzic and Abbe Estlander flap can be used; if lesion involves $>2/3$ of lip- Bernard burrow, Gilles fan flap, Webster flap and free flap can be used [6]. Out of 11 lip cancer patients in our study, all had cancer in the lower lip- in 10 patients lesion occupied less than half of lip and underwent wedge excision with primary closure. In 1 patient, lesion involved more than $2/3$ rd of lip and we used Gilles fan flap for reconstruction. In Gilles fan flap, a full thickness incision is made around the commissure extending on to the upper lip at nasolabial fold. The incision is cut and advanced almost to the vermilion border of upper lip. The flap is now pedicled on labial vessels and can be advanced unilaterally or bilaterally and closed in layers [6]. None of the 11 patients showed any post-operative complication and functional outcome at 6 months was also satisfactory.



Fig 7: Showing Gilles fan flap

Small defects involving upto 30% of anterior $2/3$ rd of tongue can be closed primarily while defects upto 80% need reconstruction. The preferred option is a thin, pliable, and sensate flap with a large vascular pedicle. Out of 7 tongue cancer patients, 5 patients had small lesion involving lateral aspect of anterior $2/3$ rd of tongue with induration not crossing midline or reaching base of tongue. They underwent primary excision and closure. 2 patients had lesion involving lateral aspect of anterior $2/3$ rd of tongue extending to midline but not involving base of tongue and underwent radial forearm free flap. The forearm flap is based on radial artery with venous drainage provided by the venae comitantes or branches extending from the skin to cephalic vein of forearm. The flap is harvested under tourniquet control and it is important not to damage cutaneous branch of radial nerve [7]. However, one of the two patients who underwent free flap repair developed postoperative flap discoloration. Functional outcome for all patients was satisfactory.



Fig 8: Showing Radial free fore-arm flap

Small tumors (T1) of buccal mucosa may be resected and reconstructed with primary closure. Split thickness skin grafts, buccal pad fat or temporo-parietal fascial flap may also be used. For larger lesions- microvascular free flap reconstruction may be optimum. Out of 2 buccal carcinoma patients in our study, 1 patient with cheek skin involvement underwent pedicled flap repair (Delto-pectoral flap) and other patient with small lesion (< 2 cm) underwent primary excision with split skin grafting. Deltopectoral flap is an axial pattern flap based on upper 3 or 4 perforating branches of internal mammary artery. Its boundaries are clavicle superiorly, acromion laterally and a line through anterior axillary fold above the level of nipple [8]. Both the patients did not develop any post operative complication and functional outcome was satisfactory at 6 months.



Fig 9: Showing Delto-pectoral flap

Conclusion

Reconstruction following head and neck cancer surgery is necessary not only for functional normalcy but for cosmetic restoration also. From our study we can conclude that if performed with utmost care, the functional outcomes of various modes of reconstruction from simple primary closure to complex ones like pedicled or free flaps, can be satisfactory and very rewarding to the patient. However, ours was a limited study on 20 patients only, hence, further improvement in our analysis can be achieved by using various kinds of reconstructive options on more number of patients.

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