

**MANAGEMENT OF ORAL SQUAMOUS CELL CARCINOMA USING PECTORALIS
MAJOR MYOFASCIAL MUSCLE FLAP RECONSTRUCTION: A CASE REPORT**

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ABSTRACT

Purpose: The objective of this study is to bring in light the diagnosis and treatment plan for carcinoma of the gingivobuccal complex and the alveolus of mandible. **Materials and Methods:** The patient was treated in the Department of Oral and Maxillofacial Surgery, CDCRI. The surgical procedure comprised of primary tumourectomy with hemimandibulectomy and modified radical neck dissection. The defect was reconstructed with a region Pectoralis major myocutaneous flap (PMMC). **Results:** The resected tumour mass along with the ipsilateral lymph nodes were separately sent for biopsy which confirmed a safe surgical margin. The regular monitoring and medicinal coverage relieved the patient from her complaints of discomfort. **Conclusion:** The diagnosis and timely surgical intervention for a gingivobuccal complex and mandibular alveolar carcinoma proves paramount in the genre of carcinoma management.

KEYWORDS: Oral Squamous Cell Carcinoma, Gingivobuccal complex ca, neck dissection, Pectoralis Major Myocutaneous flap, Regional flap reconstruction.

INTRODUCTION

Oral Squamous cell carcinoma (OSCC) ranks 12th most common cancer worldwide and 8th most frequent in males.^[1,2] Some habits, dietary and genetic influences are seen to contribute to this disease.^[3]

The lower gingivobuccal complex, as the name suggests comprises of buccal mucosa, lower gingiva, gingivobuccal sulcus (GBS) and the retromolar trigone. Owing to the habit of chewing tobacco and keeping the betel quid in the lower vestibule, the gingivobuccal complex is the most common site for oral cancer in the Indian subcontinent (Fig. 1).

In this article, a case of OSCC of lower gingivobuccal complex is discussed along its diagnosis and surgical management.



Figure 1: OSCC In Lower Left Gingivobuccal Complex.

CLINICAL REPORT

A 43 years old female patient reported with a complaint of swelling in left lower back region of jaw since 1 month that was not associated with pain and had gradually increased in size. The patient gave a history of tobacco chewing since last 15 years.

On general examination, the patient had an Eastern Cooperative Oncology Group (ECOG) 0 score.^[4] Extra orally, a gross left paramandibular swelling, measuring 5X4cm was seen which was non-tender on palpation. The skin overlying the swelling seemed pathologically involved yet the lip sensations were preserved. An ipsilateral level IB and IIA lymph node were palpable measuring 1X1cm each that was firm in consistency, non-tender and mobile.

Intraorally, an ucleroproliferative growth was seen of size 4X3cm, 1cm from left lip commissure, adjacent to 34-37 teeth involving the buccal gingiva, involving the lower left GBS, RMT and lingual and buccal alveolus of 36 region. The lesion had rolled out/ everted margins and bled on touch. A grossly carious sharp tooth (36) was present.

A provisional diagnosis of Stage IVA (cT4aN2Mx) was confirmed by an incisional biopsy and CT scan face and neck.

SURGICAL PROCEDURE

Patient was taken up for primary tumour excision, modified radical neck dissection (MRND) and reconstruction with PMMC flap under general anaesthesia after pre-medical and pre-anaesthetic checkup. After marking, the incision placed on left neck region up to 2 cm above the clavicle. Sub platysmal plane visualized followed by exposure of sternocleidomastoid muscle. Careful dissection was carried out along the muscle in anterior and posterior direction to visualise and preserve the spinal accessory nerve. Further dissection exposed external jugular vein which was ligated and the omohyoid muscle was identified and cut. The lower end of SCM was also sacrificed followed by removal of lymph nodes level II to V.

The upper end of the existing incision was then extended upwards up to the left commissure of lip, enclosing the involved skin region which was later excised. The submental triangle was dissected, identification of anterior belly of digastric, posterior belly of digastric, mylohyoid muscle was done along with excision of level Ia, Ib lymph nodes. Next, hemimandibulectomy was performed using Gigli saw. Muscles of mandible detached up to the coronoid and condyle (Fig. 2).

The incision was placed over to reach supramuscular plane. Blunt dissection was performed below pectoralis major muscle and later mobilised. Debulking of flap was done in pedicle region. Tunnelling of skin over the clavicle was done to pivot the flap onto the recipient site. A drain was placed on the recipient site and another one on donor site. Primary closure was done in layers in recipient as well as donor site after thorough irrigation (Fig. 3).



Figure 2: Hemimandibulectomy and MRND-II done.



Figure 3: Dissection, tunnelling of the PMMC Flap.

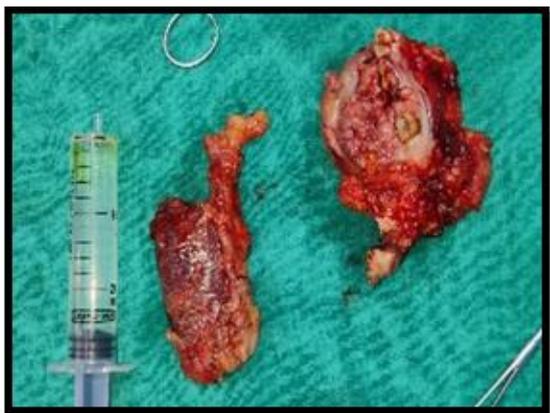


Figure 4: Resected Specimen.

DISCUSSION

To treat a patient of not only OSCC but any type of cancer, an ECOG (Eastern Cooperative Oncology Group) scoring helps to analyze the quality of life of the patient: rate of activeness, self-care ability, work capacity and daily requirement of help.^[5] In this case the ECOG score was 0: Fully active, able to carry on all pre-disease performance without restriction (Table 1).

Table 1: ECOG Scoring.

Grade	ECOG status
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature
2	Ambulatory and capable of all self-care but unable to carry out any work activities, up and about more than 50% of waking hours
3	Capable of only limited self-care, confined to bed or chair more than 50% of waking hours
4	Completely disabled, cannot carry on any self-care, totally confined to bed or chair
5	Dead

Staging of the cancer is of paramount importance as it guides the treatment planning. A clinical staging can be done according to American Joint Committee on Cancer (AJCC) 8th edition.^[5] noting the skin and adjacent structures' involvement. The skin involvement can be checked by the puckering test and checking for any orange peel appearances. In our patient, the overlying skin showed both. Here, the lesion itself was more than 4cm in its largest dimension and 2 ipsilateral lymph nodes were palpable and mobile, showing no extra nodal extension (ENE). Thus, a clinical staging of T4aN2bMx was obtained which was a Stage IVA disease.

Squamous cell carcinoma spreads by entering the medullary cavity of the alveolus through the upper border of the mandible, either through the occlusal ridge alone or in combination with penetration of either the buccal or lingual plates. The spread through the foramina is another important route of entry. When it has not reached the alveolar canal, there is hardly any spread along it. Medullary spread of SCC in mandible is also rare, thus 1cm margin is to be taken while resecting the primary tumor.^[6]

To properly place an incision needs close clinical analysis of the extent of the disease. Rapidis AD et al (2001).^[7] had enlisted incisions involving the lower lip: Straight- Roux-Trotter, lateral lip split- Robson (if the opposite lip commissure is involved), esthetic midline incisions like McGregor incision (Straight) and Hayter incision (chevron shaped along chin contour). In our case, due to the aggressive extent of the lesion involving the skin, an ipsilateral lip split incision was taken.

Incisions for neck dissections involve: Schobinger, horizontal T (Hetter), McFee, utility and Lateral utility, Visor, extended thyroid and H-incision.^[8] In our case, as an ipsilateral neck dissection was desired along with primary tumorectomy, the Schobinger incision was modified merging it with the lateral lip incision.

Brown et al (2016)^[9] described the types of mandibulectomies according to extent of the pathology involving condyle, angle and canines. In our case, as the RMT was involved, a Class IIC mandibulectomy was performed. The condyle was removed because there was no plan for hard tissue reconstruction owing to the post operative radiotherapy treatment (PORT) of this aggressive disease.^[10]

The neck dissection for a gingivobuccal complex cancer depends on clinical involvement of the neck lymph nodes. In patients with clinically positive lymph nodes (N1, N2, N3), radical neck dissection (RND) was considered gold standard.^[11] Evidence of RND not being the only therapeutic option are numerous. Clinical N1 and N2 diseases may be treated by a modified radical neck dissection (MRND) for improved functional and cosmetic outcomes.^[11] Preservation of spinal accessory nerve, internal jugular vein (IJV) and sternocleidomastoid muscle (SCM) are considered in MRND (Table 2). In our case, due to adherence of the disease to the SCM muscle, as was judged on the operating table, an MRND-II was performed.

Table 2: Types of MRND.

Type 1	Preservation of spinal accessory nerve
Type 2	Preservation of spinal accessory nerve and internal jugular vein
Type 3	Preservation of spinal accessory nerve, internal jugular vein, and sternocleidomastoid muscle

Radical ablative surgery is followed by reconstructive surgery. Surgical defects may be reconstructed by primary closure, skin graft, locoregional flaps or free tissue transfer from different sites.^[1] In our case, the patient's family consented for a regional PMMC flap due to finances.

The PMMC flap is based on the thoracoacromial artery, from the internal mammary artery. It has an advantage of less operative time, ease of harvesting and providing great amount of vascularised tissue.^[11] The disadvantages of PMMC flap are large bulk which contraindicates its use for reconstruction in superficial defects and less than satisfactory functional and esthetic results as compared to free flaps with an over-all failure rate of 4.7-60%.^[12]

CONCLUSION

Gingivobuccal complex carcinoma though is highly preventable and easily detectable, advanced oral cancers constitute a major proportion of patients presenting for treatment.

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