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## Cancers of Upper Gingivo-Buccal Sulcus, Hard Palate and Maxilla: 3 Years Institutional Study.

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### ABSTRACT

Cancers of the upper gingivo-buccal complex are uncommon and reported infrequently. In this article, we have assessed the clinicopathological features of such cancers and their optimal management. We studied 20 patients with cancer of the upper gingivobuccal sulcus (GBS), hard palate, and maxilla seen between 2014-2016 at sree balaji dental college and hospital, Chennai. Results: Of the 20 patients studied, 15 patients were male. The age at presentation was 25-65 years. Of the 20 of the 15 patients (75%) had a history of substance abuse in the form of tobacco chewing, smoking or alcohol. On presentation 10 of the 20 patients had T4 disease, 6 had T3, 3 had T2 lesion, one had T1 lesion. Out of the 20 patients, 11 had clinically palpable neck disease. Of the 20 patients, 18 had squamous cell carcinoma, two had adenoid cystic carcinoma of the hard palate. Following imaging, 12 patients underwent upfront surgery and 4 following neoadjuvant chemotherapy. 9 of the 11 patients operated had simultaneous neck dissection. Out of the 20 patients, the four patients who were inoperable were referred to radiotherapy. Upper GBS, hard palate and maxilla cancers are uncommon and are diagnosed at an advanced stage due to delay in presentation and ignorance of our population. Surgery offers the best form of treatment. NACT may be tried to downstage the disease in selected patients with borderline operable disease. However, generous margins should be taken post chemotherapy with concomitant neck dissection. Adjuvant radiotherapy is recommended in selected patients after surgery.

**Keywords:** Hard palate cancer, maxillary cancer, upper gingivobuccal sulcus cancer.

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## INTRODUCTION

Oral cancer is the sixth most common malignancy in the world and the third most common in Southeast Asia. The disproportionately higher prevalence of head and neck neoplasm in India may be due to the use of tobacco in various forms, alcohol abuse, poor oral hygiene, deficient diet or viral infections like human papilloma virus (HPV).[2,3] The incidence is two to three times more frequent in men than women owing to increased tobacco and alcohol abuse.

Cancers of the upper gingivo–buccal complex include cancers of upper gingiva, comprising upper alveolar ridge mucosa (International Classification of Diseases (ICD-10; C03.0)); the upper gingivo-buccal sulcus (GBS - ICD-10; C06.1) and the upper part of the buccal mucosa (ICD-10; C06.0).[4] Much research has been published about various sub sites of oral cancer, with a little mention of tumors of upper alveolar ridge and hard palate because of lower incidence rate of these tumors. In one study, upper gingival cancers accounted for just 3.5% of all oral cancers.[5] Upper GBS cancers are more aggressive than lower GBS cancers, which have a better prognosis even in advanced stages.[6]

Oral cavity cancers require multimodality therapy. Several prognostic factors may influence the survival of patients with oral cancers including race, time of diagnosis, gender, age at diagnosis, anatomic site, morphologic type, stage, and type of therapy.[7,8,9,10,11]

Cancers of the upper alveolus, hard palate and maxilla have been infrequently studied with few publications. We have analyzed the records of 20 patients with oral cavity cancers over a period of 3 years and reported the epidemiology, presentation and management of cancers of upper alveolar ridge, hard palate, and maxilla.

## MATERIALS AND METHODS

We conducted a retrospective study of patients with cancer of the upper GBS and hard palate over a period of 3 years from 2013 TO 2016 at sree balaji dental college and hospital. We studied 20 patients of which 9 patients had cancer of upper GBS, 6 had cancer of maxilla, and 5 had cancer of hard palate. All patients with biopsy proven malignancy of upper GBS, hard palate, and maxilla were included. Detailed history and examination was carried out on all patients. Selected patients had a contrast enhanced computerized tomography (CECT) scan. Based on the clinical and radiological findings, patients were staged and underwent surgery (primary or following neoadjuvant chemotherapy (NACT)), chemotherapy (neoadjuvant or palliative) and radiotherapy (adjuvant or definitive) as per institution protocol.

## RESULTS

20 patients were included in the study. 15 patients were male. The age at presentation was between 35-65years. Out of 20 patients, 18 presented with an ulcer in the oral cavity as a chief complaint. The remaining had a swelling in the region of maxilla. Out of ( 20 )15 had a history of substance abuse in the form of tobacco chewing, smoking or alcohol [Table 1].

**Table 1 clinical characteristics**

PARAMETERS	SUBGROUPS	NO OF PATIENTS
Age	Mean(range)	50.58
	<50 years	12
	>50 years	8
Sex	Male	15
	Female	5
Substance abuse	Total	15
	Smokeless tobacco	12
	Smoking	8
	Alcohol	7
Delay in presentation	Pan masala	14
	Range	15 days-48 months
	Mean	6.7 months

Primary site	Upper GBS Maxilla Hard palate	9 6 5
T stage	T4 T3 T2 T1	10 6 3 1
N stage	N0 N+	9 11

GBS: gingivo-buccal sulcus

At presentation, 10 of the 20 patients had T4 disease, 6 had T3, 3 had T2 and one had T1 lesions. 11 of the 20 patients had clinically palpable neck disease. Preoperative biopsy revealed squamous cell carcinoma (SCC) in 18 patients, adenoid cystic carcinoma in two. CECT scan was carried out in 18 of the 20 patients. Following imaging, 12 patients underwent upfront surgery. 4 patients were borderline operable on CT scan and received NACT had good response and were advised surgery later. 4 patients were referred to radiotherapy. Of 16 patients who underwent surgery, 9 underwent simultaneous neck dissection. Partial maxillectomy was carried out in 10 patients, total maxillectomy in 3 patients, upper alveolectomy in 3 patients and wide local excision of the lesion in one patient with T1 lesion. Four patients underwent reconstruction. In the final histopathological examination, one of the 4 patients who were operated post NACT had complete pathological response. 9 out of the 11 who underwent neck dissection had positive neck disease. All patients except the one with T1 lesion received adjuvant radiotherapy [Table 2].

**Table 2 Pathology and treatment characteristics**

PARAMETER	SUBGROUPS	NUMBER
SURGERY	Upfront	12
	Post NACT	4
SURGICAL PROCEDURE	Total maxillectomy	4
	Partial maxillectomy	10
	Upper alveolectomy	3
	Wide local excision	1
	Neck dissection	11
FINAL HISTOPATHOLOGY	Squamous cell carcinoma	18
	Adenoid cystic carcinoma	2
MARGINS	Negative	8
	Involved	6
	Close	2
N STAGE	N0	3
	N1	6

NACT: neoadjuvant chemotherapy

### DISCUSSION

Tumor of upper alveolar ridge and hard palate is not very common with upper gingival cancers constituting nearly 3.5% of all oral malignancies.[5] Sheno *et al.*[12] demonstrated that oral cancers are more common in males with a male female ratio of 4.1:1. However, in our study, 15 of the 20 patients were male and high incidence of oral cancers in females also owing to the practice of tobacco and pan masala use.

Age of presentation varied from 35-65 years with a mean age of 50.5 years. In the West, the mean age of diagnosis of oral cancer is in the seventh decade. Many epidemiological studies from India have observed that the peak-age frequency of oral cancer in India is a decade earlier than that described in the western literature. This may be attributed to the high prevalence of tobacco abuse in young male and female in our country and the ease of availability of such products. Tobacco abuse was seen to be associated in 16 of the 20 patients of our study which is in accordance with a study by Johnson.[3,13]

Most common presenting symptom in our study was non-healing oral ulcer (18 out of 20). This was in contrast to a similar article from the west where most of the patients presented with pain.[14] Four patients had pain and a small ulcer for more than 8 months, but presentation was delayed till the patients developed

non healing ulceration. This may reflect the ignorance to health related issues in our population. The average delay in the presentation was around 6.7 months (ranging from 15 days to 48 months). This finding is similar to other studies which stressed on the fact that patients with oral cancer have delayed presentation which makes the treatment difficult and sometimes unsuccessful.[15,16] In our study, 75% of the patients had T4 disease, reflecting late presentation with advanced diseases. The tumors of the upper GBS, hard palate and maxilla may have varied histology. In our study, 18 patients had SCC, two had adenoid cystic carcinoma. [17]

Majority of patients underwent CECT scan which formed the basis of treatment planning. 12 patients underwent upfront surgery as they were resectable on imaging and 4 of the 20 patients had inoperable disease and referred to radiotherapy. NACT is not an established modality of treatment in oral cancers, but may be tried in selected subset of patients with borderline operable disease. In our study, 4 patients received NACT with good response later surgery carried out ..

Of the 4 patients operated post-NACT, 3 had close margins and one patient had a positive margin. Of the 9 who underwent neck dissection, six had positive neck disease stressing the importance of concomitant neck dissection.[18]. All SCC patients after surgery, received adjuvant radiotherapy, the role of which has been demonstrated in several studies.[19] Two patients who underwent only primary tumor excision without neck dissection developed a neck recurrence in the following 6 months and underwent neck dissection. This further emphasizes the importance of simultaneous neck dissection.

Of the 16 operated patients, 14 are on regular follow-up. 2 patients developed local recurrence and died of the disease. This patient had received NACT followed by surgery including neck dissection. The final pathology revealed T4N2 disease with involved margin. The patient further received adjuvant radiotherapy.

### CONCLUSION

Upper GBS, hard palate and maxilla cancers are uncommon and are diagnosed at an advanced stage due to delay in presentation and ignorance of our population. They also present at an earlier age in our population due to consumption of smokeless tobacco and pan masala. Owing to rarity of the site of the disease, there are only a few case reports and case series discussing the management of these tumors. Most cancers are locally advanced, but surgery offers the best form of treatment. The role of NACT is not clear, but may be tried to downstage the disease in selected patients with borderline operable disease. However, generous margins should be taken post chemotherapy with concomitant neck dissection. Adjuvant radiotherapy is recommended in selected patients after surgery. Furthermore, patient counseling should be an integral part of treatment to ensure patient compliance and reduce loss to follow-up.

### REFERENCES

- [1] Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. *Oral Oncol.* 2009;45:309–16
- [2] Mehrotra R, Singh M, Kumar D, Pandey AN, Gupta RK, Sinha US. Age specific incidence rate and pathological spectrum of oral cancer in Allahabad. *Indian J Med Sci.* 2003;57:400–4
- [3] Johnson N. Tobacco use and oral cancer: A global perspective. *J Dent Educ.* 2001;65:328–33
- [4] Pathak KA, Mathur N, Talole S, Deshpande MS, Chaturvedi P, Pai PS, et al. Squamous cell carcinoma of the superior gingival-buccal complex. *Oral Oncol.* 2007;43:774–9.
- [5] Rao DN, Shroff PD, Chattopadhyay G, Dinshaw KA. Survival analysis of 5595 head and neck cancer—results of conventional treatment in a high-risk population. *Br J Cancer.* 1998;77:1514–8
- [6] Pathak KA, Gupta S, Talole S, Khanna V, Chaturvedi P, Deshpande MS, et al. Advanced squamous cell carcinoma of lower gingivobuccal complex: Patterns of spread and failure. *Head Neck.* 2005;27:597–602
- [7] Kimura Y, Sumi M, Sumi T, Arijji Y, Arijji E, Nakamura T. Deep extension from carcinoma arising from the gingiva: CT and MR imaging features. *AJNR.* 2002;23:468–72
- [8] Moore RJ, Doherty DA, Do KA, Chamberlain RM, Khuri FR. Racial disparity in survival of patients with squamous cell carcinoma of the oral cavity and pharynx. *Ethn Health.* 2001;6:165–77
- [9] Franco EL, Dib LL, Pinto DS, Lombardo V, Contesini H. Race and gender influences on the survival of patients with mouth cancer. *J Clin Epidemiol.* 1993;46:37–46.



- [10] Chen PH, Ko YC, Yang YH, Lin YC, Shieh TY, Chen CH, et al. Important prognostic factors of long-term oropharyngeal carcinoma survivors in Taiwan. *Oral Oncol.* 2004;40:847–55.
- [11] Chen YK, Huang HC, Lin LM, Lin CC. Primary oral squamous cell carcinoma: An analysis of 703 cases in southern Taiwan. *Oral Oncol.* 1999;35:173–9
- [12] Shenoi R, Devrukhkar V, Chaudhari, Sharma BK, Sapre SB, Chikhale A. Demographic and clinical profile of oral squamous cell carcinoma patients: A retrospective study. *Indian J Cancer.* 2012;49:21–6
- [13] Gupta PC, Ray CS. Tobacco related cancer-its impact on the health economy. *Health Adm.* 2005;17:85–92.
- [14] Love R, Stewart IF, Coy P. Upper alveolar carcinoma-a 30 year survey. *J Otolaryngol.* 1977;6:393–8
- [15] Kumar S, Heller RF, Pandey U, Tewari V, Bala N, Oanh KT. Delay in presentation of oral cancer: A multifactor analytical study. *Natl Med J India.* 2001;14:13–7.
- [16] Henderson JG. Denial and repression as factors in the delay of patients with cancer presenting themselves to the physician. *Ann N Y Acad Sci.* 1966;125:856–64
- [17] Ulusal BG, Karatas O, Yildiz AC, Oztan Y. Primary malignant melanoma of the maxillary gingiva. *Dermatol Surg.* 2003;29:304–7.
- [18] Simental AA, Jr, Johnson JT, Myers EN. Cervical metastasis from squamous cell carcinoma of the maxillary alveolus and hard palate. *Laryngoscope.* 2006;116:1682–4.
- [19] Chung CK, Johns ME, Cantrell RW, Constable WC. Radiotherapy in the management of primary malignancies of the hardpalate. *Laryngoscope.* 1980;90:576–84.