Profile of Oral Squamous Cell Cancer in a Tertiary Level Medical College Hospital: A 10 Yr Study

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Abstract To know the clinical and epidemiological characteristics & management strategies for the patients who underwent surgery for oral Squamous Cell Cancer (SCC) in a medical college hospital. Data pertaining to clinico-epidemiological factors & surgical management for oral cancer were analyzed in patients admitted to a tertiary level medical college hospital. Records of 139 patients admitted over a period of 10 years (January 1998 to December 2007) were used for data analysis. Only patients with complete records were included in the analysis. M: F ratio was 2.2:1 with average age of patients being 50.4 years. Tobacco chewing & smoking were major predisposing factors identified. Oral ulcer was the most common symptom while buccal mucosa, tongue & lower alveolus were three most common primary tumor sites. Majority of tumors were stage IV at presentation (52 %). Wide excision of tumor was done in 46 % of cases while in 54 % cases commando procedure was done. Reconstruction after either commando or wide excision was done in half of the patients. Pectoralis major myocutaneous (PMMC) flap was used in majority of cases for reconstruction. Neck dissection was done in 67 % patients. Majority (85 %) of these were radical neck dissection (RND). Per operative blood transfusions were required in 64 % patients while 19 % patients needed post operative transfusion. Post operative complications were noted in 34 % of the patients. Of these majority were related to

wound infection & orocutaneous fistula formation. Hospital stay varied from 7 to 105 days with the mean duration of 30 days. Two year follow up revealed a recurrence rate of 36 %. Majority of the patients presented at an advanced stage due to self as well as professional delay in diagnosis. This leads to difficulty in resection of the primary tumor as well as reconstruction of the defect. A higher rate of recurrence after surgery is also seen. Post operative complications increase the morbidity which is reflected by an increase in the hospital stay (19 days Vs 46 days).

Keywords Oral cancer · Epidemiology · Tobacco

Introduction

According to GLOBOCAN 2008 released by IARC, oral cancers form the 3rd most common group of malignancies in India. It is the 2nd most common group of malignancies in males while in females it ranks 4th [1]. The use of smokeless forms of tobacco such as betel nut, tobacco, ‘gutkha’ and ‘pan’ (a mixture of tobacco, betel nut, lime, and other substances wrapped in a vegetable leaf) is especially high in India.

In Jaipur region head & neck cancers form the second most common group of malignancies (16 % of all Cancers) with oral cavity being the most commonly affected subset in head & neck region forming 7 % of all the cancers [2].

There is often a substantial delay in the diagnosis of oral cancers in India. In spite of the relative ease of oral examination, the systematic examination of the oral cavity by health care professionals and oral auto-examination by patients themselves has not been routinely practiced. This is one of the main reasons behind most of the oral cancer

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patients being diagnosed in advanced stages and that too in tertiary level hospitals & not in primary health centers.

The present study describes clinical and epidemiological features of the patients who underwent surgery for oral squamous cell cancer in our hospital for 10 year duration from 1998 to 2007, along with a review of the literature.

Aims and Objectives

The aim of our study was to know the epidemiological & clinical features of oral cancer at a tertiary care hospital in Rajasthan.

Materials and Method

For this retrospective analysis, records of all the oral cancer patients attending the Department of General Surgery at our institute during the ten year period from 1998 to 2007 were retrieved (n=1500). The criteria for inclusion in the study were as follows: [1] Histopathologically confirmed squamous cell cancer of the oral cavity [2] Patients who had undergone surgery upfront. [3] Patients who had complete records.

A total of 139 patients of oral squamous cell cancer (SCC), admitted from 1998 to 2007 were included in the study. Data were analyzed with respect to following epidemiological features, demographics (age & gender), habits (tobacco smoking and alcohol consumption), presentation (main symptoms & delay in diagnosis) & clinicopathological data (location of the tumor, histological type, and TNM stage), surgical management & postoperative course. Tumor staging was done clinically according to AJCC cancer staging manual (6th edition).

Results

1. Patient & Disease Profile. (Table 1)

The M: F ratio in our study was 2.22:1 with 69 % patients being male & 31 % females. Patient age varied from 21 years to 76 years with average age being 50.4 year. Average age was slightly higher for female patients (51.3) than male patients (50.2).

The three most common clinical symptoms at presentation were oral ulcer (76 %), pain at local site (43 %) & swelling/growth (33 %). Bleeding from tumor was present in 07 % of cases. Tobacco chewing (47 %), smoking (40 %) & gutka chewing (26 %) were among the common predisposing factors identified among our patients. Alcohol (12 %), pan (10 %) & betel nut (06 %) use

was present in minor subset of patients. In 9 % patients, no risk factor could be identified.

Average duration of onset of symptoms before admission to hospital was 19 weeks. This period ranged from 7 days to 9 months. An average patient delay of 10 week was observed in consulting physician. Apart from the patient delay, we also found the physician delay in arriving to a conclusive diagnosis of malignancy after the patients consulted a physician for their complaints. This average professional delay was of 05 weeks.

Common primary tumor sites were buccal mucosa (30 %), oral tongue (23 %) & lower alveolus (21 %). (Fig. 1)

The tumor morphology was ulcerative (49 %) or ulceroproliferative (34 %) in most of the cases. Proliferative/exophytic growth was present in 16 % of the patients. Tumor size was T1 in 18 %, T2 in 59 %, T3 in 13 % & T4 in 10 % cases (Fig. 2)

Lymph node involvement was clinically absent in 33 % of cases. In rest of the cases, clinical nodal staging was as follows: N1–16 %, N2–51 %, N3–nil. (Fig. 3)

Patients with metastatic disease were not considered for surgery. Palpable lymph nodal stations in the neck were as follows: level I nodes in 52 %, level II nodes in 78 %, level III nodes in 53 %, level IV nodes in 25 %, level V nodes in 6 %.

AJCC (6th ed) staging of the tumors was as follows: 10 % were stage I, 18 % were stage II, 17 % were stage III & 53 % were stage IVa tumors. (Fig. 4)

The biopsy was moderately differentiated in 55 %, well differentiated in 26 %, poorly differentiated in 6 % cases & carcinoma in situ in 3 %.

2. Treatment Practices Utilized (Table 2)

Forty six percent patients underwent wide excision for their tumor with or without neck dissection. The rest 54 % underwent en block resection of their growth along with hemi or segmental mandibulectomy & neck dissection (Commando Procedure). Operative approach to the primary growth was through the per-oral route in 31 % cases while lower cheek flap was used in 54 % of the patients. reconstructive procedure for closure of the defect was needed in 50 % patients. Reconstruction was done using PMMC flap in 70 % patients while forehead flap was used for reconstruction in 23 % cases. Neck dissections were performed in 67 % of the patients. Majority of these neck dissections were RND's (85 %) while modified radical neck dissection (MRND) (07 %) & supraomohyoid neck dissection (SOHND) (08 %) was done in rest of the cases. Maxillary resections were done in 11 % cases. Per operative blood transfusions were needed in 64% patients while post operative blood transfusions were needed in 19 % patients. In the final histo-pathological report tumor margins were reported as positive in 10 % of the patients.

Table 1 Site wise management

Site	Buccal mucosa	Tongue	Lower alveolus	GB SULCUS	RMT	Upper alveolus
Number of cases	41	31	29	11	09	08
Sex ratio	3.1:1	2.9:1	1.23:1	1.2:1	8:1	1.66:1
Average age (years)	53	52	47	50	50	48
Stage (%)						
I	08	25	03	-	12	12.5
II	09	45	03	18	-	50
III	18	07	25	18	22	37.5
IV	65	23	69	64	66	-
Surgery for primary tumor (%)						
Wide excision	30	85	06	27	11	100
Commando	70	15	94	73	88	-
Reconstruction done	63	12	90	81	77	-
Management of neck (%)						
RND	71	03	94	64	88	12.5
MRND	07	06	-	09	-	12.5
SND	02	16	03	-	-	-
Post Op Complications (%)	44	06	66	36	32	25
Adjuvant RT/CTRT (%)	78	65	93	72	88	87.5
Mean Hospital Stay (Days)	30	08	40	22	41	24

3. Post Operative Course & Follow up

Major post operative complications were noted in 34 % of patients, which led to an increase in the hospital stay. Most of these complications were related to wound infection (33 %) & orocutaneous fistula formation (20 %). Flap necrosis was seen in 12 % patients. Two patients had complete flap loss. Operative management of complications was done in 12 % patients.

Hospital stay varied from 7 to 105 days with a mean of 30 days & a median duration of 24 days. The mean duration

was much higher for patients with complications (46 days) as compared to patients not having any complication (19 days). Adjuvant radiotherapy was received by 79 % patients while 07 % patients received chemo-radiation. The average delay in initiation of adjuvant therapy was 07 weeks.

A mean follow up of 3.4 years was available. Recurrence rate at two year follow up was 36 %. Most of the patients (79 %) were lost to follow up at the time of study. Recurrences were found at local site in 42 % patients while nodal recurrence and distant metastasis were observed in 29 % each.

Fig. 1 Tumor site

Fig. 2 Primary tumor (T Stage)

Discussion

M: F ratio for Head & Neck cancers has been reported from 3.6:1 by Ahluwalia et al. [3] & 3.46:1 by Mehrotra et al. [4] to 2.1:1 by Sunny Lizzy et al. [5]. M: F ratio in our study was 2.22:1. Thus it is clear that the incidence of oral cancers in males is still more than twice that of the incidence in females. This can be explained owing to the higher intake of tobacco & alcohol in males as compared to females.

The average age for patients in our study group was around 50.4 year which closely resembles to data from previous studies. [6–8]

The three most common clinical symptoms present were ulcer (76 %), pain at local site (43 %) & swelling/growth (33 %). Tobacco & gutka chewing were among the common predisposing factors identified in our group while alcohol use was present in a minor subset.

Regarding the most common tumor site, there is a wide variation in data reported by different groups. Most of the studies report either buccal mucosa or oral tongue as the most common sites [6, 7]

The level I & II nodes are the most commonly involved nodal stations in cancers of the oral cavity. [9, 10]

TNM staging in our study group & in other studies [11] revealed a much higher stage at presentation. However, in a study conducted in the department of Dentistry, where most of the patients with oral cancer report initially, stage I was the most common stage at presentation [6].

There is a wide variation in the degree of tumor differentiation among various studies. [3, 6] Majority of tumors in our study were moderately differentiated SCC (55 %).

Due to higher stage of presentation, commando procedure is commonly done procedure for oral cancers in India

Fig. 3 Regional lymph nodes (N Stage)

Fig. 4 Anatomic stage/prognostic groups

[12]. Surgical procedure included wide excision & Commando procedure in almost equal proportions in our patient population. Lower cheek flap was the most common approach used for resection of the primary tumor in our study as vast majority of our patients had their growth in either buccal mucosa or the lower alveolar region. Peroral approach was used in most patients with Ca tongue.

As for reconstruction of the defect after excision of the primary growth is concerned, it was required in half of our patients. PMMC flap is the most commonly used flap for oral cavity reconstruction in most of the studies in India [13]. PMMC flap has been shown in various studies to be anatomically sound, technically easy and reliable method of reconstruction in head & neck cancer surgery & a useful alternative where microsurgical free tissue transfer is not possible. It is a pedicle flap with few complications & short learning curve [14, 15].

Neck Dissections were done in 67 % of patients in our study. In vast majority of these patients radical neck dissection was done while SOHND & MRND were done in minor subset of patients. Per op blood transfusions were needed in 64 % of the patients while post op transfusions were needed in 19 % patients. Two patients required more than 2 units of blood transfusion. This is in contrast to a study by Melinda s. et al. [16] where blood transfusions were required in 36 % of patients. This greater requirement of blood transfusions in

Table 2 Stage wise treatment

Stage	Total no. of patients	Procedure	Proportion
I	15 (10 %)	Wide Excision	14 (93 %)
		Commando	1 (7 %)
II	26 (18 %)	Wide Excision	26 (100 %)
		Commando	Nil
III	24 (17 %)	Wide Excision	9 (37.5 %)
		Commando	15 (62.5 %)
IV	74 (53 %)	Wide Excision	16 (22 %)
		Commando	58 (78 %)
Total	139 (100 %)		139 (100 %)

our patients is result of increased incidence of anemia in our population.

Tumor margins were reported as positive in 10 % of the resected specimens while Murthy V. et al. [17] reported positive margin in 8 % of patients. Reported overall complication rate ranges from 26 to 50 % which include wound infection, oro-cutaneous fistula formation & partial or complete flap necrosis patients. [12, 18] The overall rate for major postoperative complications in our study was 34 % with complete flap necrosis in 2 patients. Most of the postoperative complications were related to the wound infection and failure of reconstructive methods.

As regards to adjuvant therapy, 79 % patients in our study group received radiotherapy.

Mean hospital stay at 30 days was high in our study. This could be attributed to unwillingness on the part our patients to go home quickly after a major surgical procedure. Most of the patients prefer to stay in the hospital till their drains are out & they start taking oral feeding. Hospital stay in some patients also increases because of post operative complications & their management.

Walvekar et al. [19] in their study of stage III & IV gingivo-buccal sulcus reported a recurrence rate of 35.5 % (2.5 year follow up). As the follow up data was poor in our study, survival estimates could not be calculated.

Conclusion

The fact that majority of the patients in most studies present with advanced oral cancer (stage III & IV) illustrates the need for preventive and early-detection strategies. The role of primary care physician is very important in the implementation of these strategies as he is often the first person to encounter a patient with oral ulcer. Suspicious lesions should be promptly biopsied thereby permitting early diagnosis and treatment of oral cancer.

The profile of patients with oral cancer in our study closely resembles in several aspects to those presented by other authors in India and abroad. There is a marked predominance of men around the fifth and sixth decades of life. The most frequent sites are the buccal mucosa, tongue & lower alveolus.

The differences observed in our study with respect to other studies were mainly with respect to the tumor site, TNM staging & tumor histopathology. Reason for this difference could relate to the fact that Oral Cancers are being dealt by a variety of specialists in different settings. These include General Surgeons, Surgical Oncologist, Dental Surgeons, Plastic Surgeons & Otorhinolaryngologists.

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