



Available online through

www.jbsoweb.com

ISSN 2321 - 6328

Research Article

PATTERN OF RECURRENCES IN ORAL SQUAMOUS CELL CARCINOMAS: A RETROSPECTIVE ANALYSIS

Digpal Dharkar¹, Sonia Moses², Mohammad Akheel^{3*}, Tushar Phulambrikar²

¹Surgical oncologist, Department of Surgical oncology, Indian Institute of head & neck oncology, Indore, India

²Registrar, Department of Surgical oncology, Indian Institute of head & neck oncology, Indore, India

³Senior Fellow, Department of head & neck oncology, Indian Institute of head and neck oncology, Indore, India

*Corresponding Author Email: drakheelomfs@gmail.com

Article Received on: 22/04/16 Accepted on: 07/06/16

DOI: 10.7897/2321-6328.04321

ABSTRACT

Aim of the study was to find the pattern of recurrences of oral squamous cell carcinomas from our cancer centre in Madhya pradesh This is a retrospective analysis of 353 head and neck cancer patient for 2 years reporting to Indian Institute of head & neck oncology, Rau, Indore, Madhya Pradesh, India. Out of these 353 head and neck cancer patients, 16 patients had recurrence. Out of these, 14 patients were operated at our cancer centre while 2 patients were operated outside. Data collected were: Diagnosis of the patient, staging, size of tumor, number of positive lymph nodes, perineural invasion, vascular invasion, extacapsular spread, site of recurrence and time interval of recurrence. Out of 16 recurrent cases, tongue and buccal mucosa carcinomas were 37.5% each followed by alveolus for 12.5%. The pathological staging of patients with recurrences when they operated for the first time were 42.8% patients were in stage IV, 35.7 % patients in stage III and 21.4% in stage II. 56.25 % of patients were moderately differentiated carcinomas, 31.25% were well differentiated carcinomas and 12.5% of patients were poorly differentiated carcinomas. 31.25 % of patients had recurrence in 4-8 months time. 12.5% patients had recurrence after 36 months. The mean period of recurrence in our study was 21.6 months. PNI was seen in 57.1% patients, VI was set in 35.7% patients and ECS was seen in 50% of patients. It's always necessary to understand the factors leading to prognosis of the patient with oral squamous cell carcinomas. An accurate assessment of all histological factors has to be done to plan the treatment meticulously for disease free survival of patient.

KEYWORDS: Squamous cell carcinoma, loco-regional recurrence, metastasis

INTRODUCTION

Oral squamous cell carcinoma (OSCC) is a multifactorial disease. It has a remarkable incidence worldwide and has a fairly burdensome prognosis, encouraging further research on prognostic factors that may modify the outcome of the disease¹. While determining the prognosis of individual with OSCC all the factors like demographic, general physical factors, clinical factors, histological factors, and molecular factors should be taken in to consideration. Prognosis is the prediction of probable cause and outcome of the disease based on pathogenesis of the tumor and presence of risk factors. This retrospective study was done to find the pattern of recurrences of OSCC to understand the factors contributing to it and to devise meticulous plans to have a disease free survival.

MATERIALS & METHODS

This is a retrospective analysis of 353 head and neck cancer patient from January 1st 2015 to December 31st 2015 reporting to Indian Institute of head & neck oncology, Rau, Indore, M.P. Out of these 353 head and neck cancer patients, 16 patients had recurrence. Out of these, 14 patients were operated at our cancer centre while 2 patients were operated outside. Data collection was done : Diagnosis of the patient, staging (pTNM), pT size of tumor, number of positive lymph nodes, Perineural invasion, vascular invasion, extacapsular spread, site of recurrence and time interval of recurrence. All these information was tabulated

and analysis was done to find the pattern of recurrences in our patients.

RESULTS

Out of 353 HNSCC patients, 16 patients had loco-regional recurrences. Graph 1 shows the site involved by these patients before recurrence. Out of 16 recurrent cases, tongue and buccal mucosa carcinomas were 37.5% each followed by alveolus for 12.5%. This shows that tongue and buccal mucosa were more predicted for recurrence.

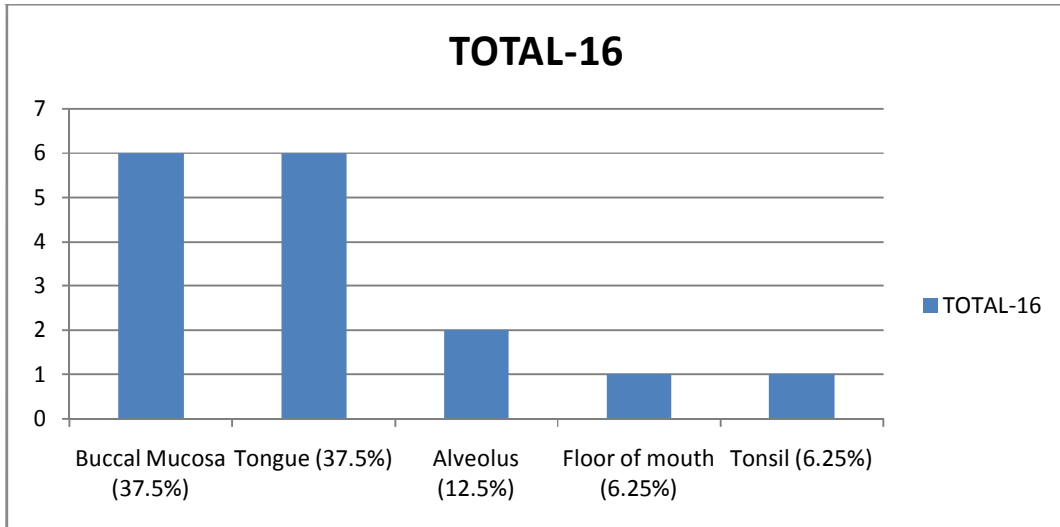
Graph 2 shows pathological staging of patients with recurrences when they operated for the first time. 42.8% patients were in stage IV, 35.7 % patients in stage III and 21.4% in stage II. This shows that Stage IV patients are more predicted for recurrences.

Graph 3 shows histological type of cancers of these 16 patients. 56.25 % of patients had moderately differentiated carcinomas , 31.25% had well differentiated carcinomas and 12.5% of patients had poorly differentiated carcinomas. This shows that recurrences are not directly related to the histological type alone unless other histopathological factors are taken in consideration

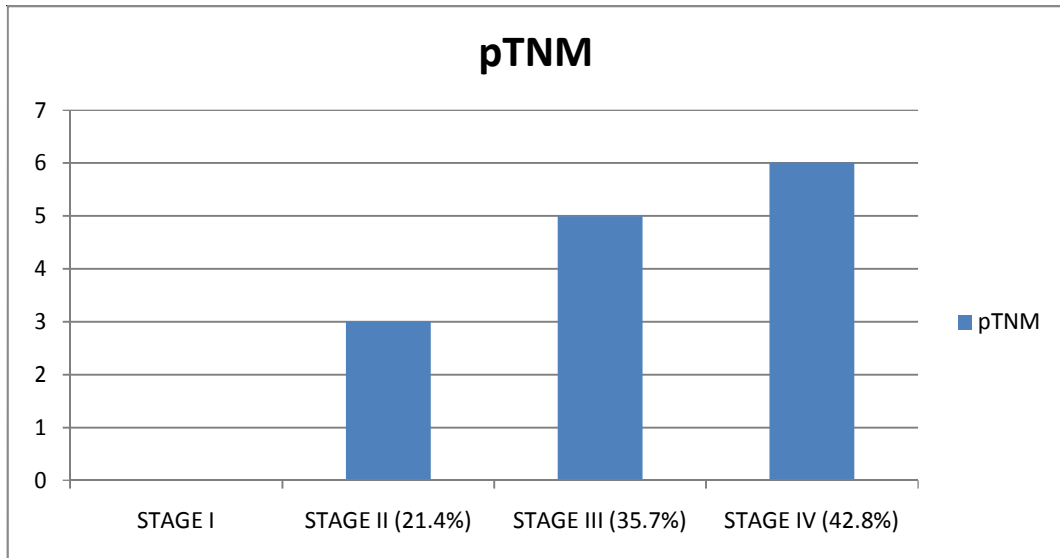
Graph 4 shows the number of patients in time period of recurrence. 31.25 % of patients had recurrence in 4-8 months time. 12.5% patients had recurrence after 36 months. The mean period of recurrence in our study was 21.6 months.

Graph 5 shows inter-relation of PNI, VI and ECS with depth of tumor infiltration. PNI was seen in 57.1% patients, VI was seen in 35.7% patients and ECS was seen in 50% of patients. Hence this shows that PNE, VI and ECS are mostly evident when tumor infiltration is more than 5mm.

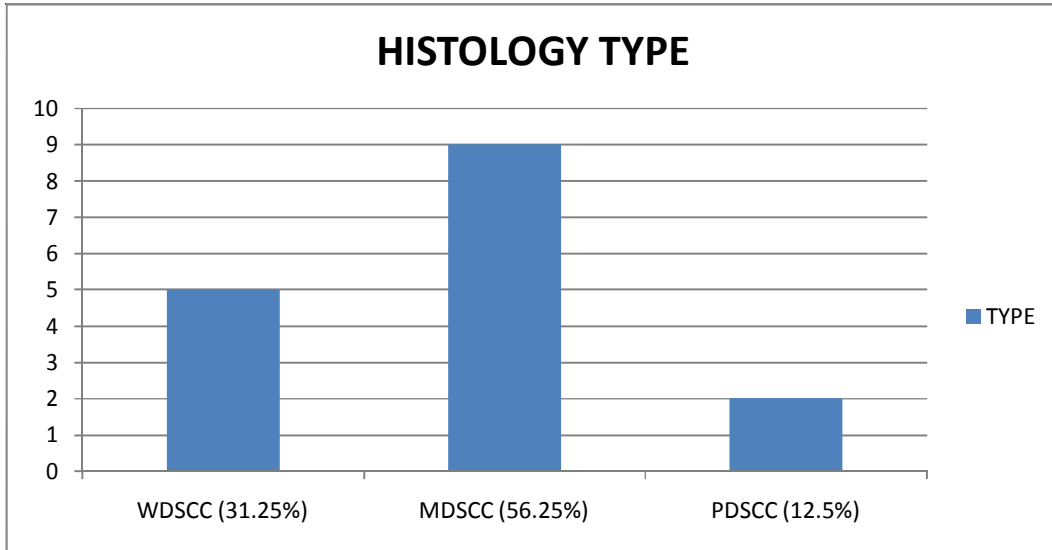
Graph 6 shows the inter-relation between number and size of positive nodes and extracapsular spread. This shows that the incidence of ECS increase with increasing number positive lymph nodes. The incidence of ECS was 42.8% with 4 positive lymph nodes and the mean size of the lymph nodes was 2.1 cm.



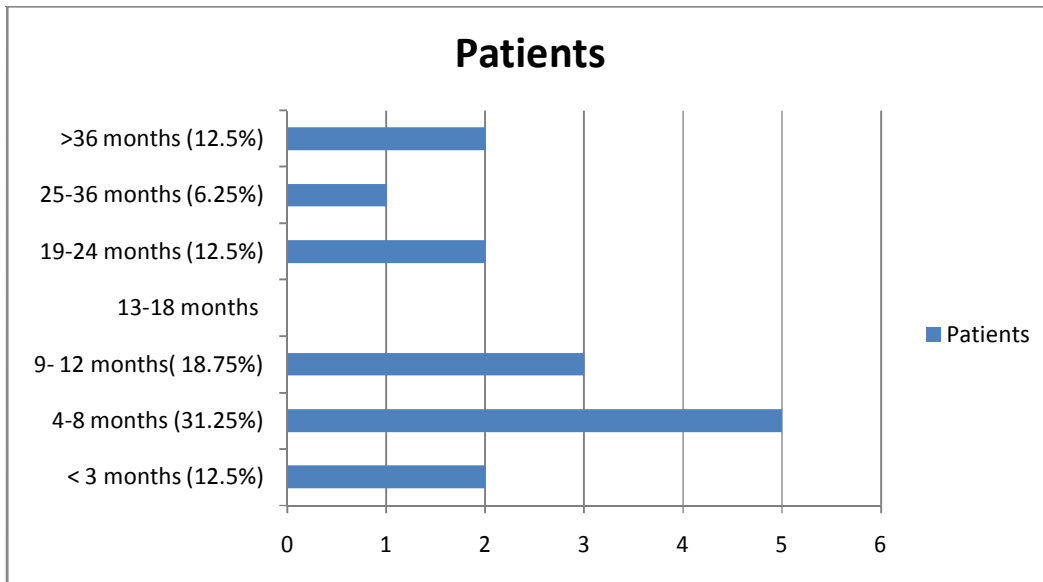
GRAPH 1: SITE INVOLVED BY CANCER



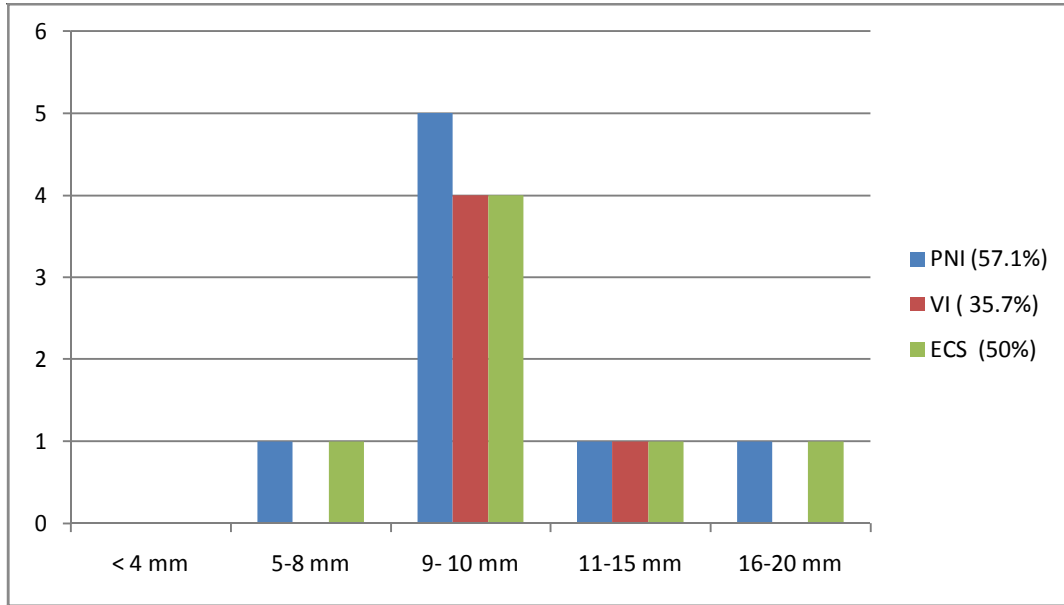
GRAPH 2: PATHOLOGICAL STAGING OF THE CANCERS



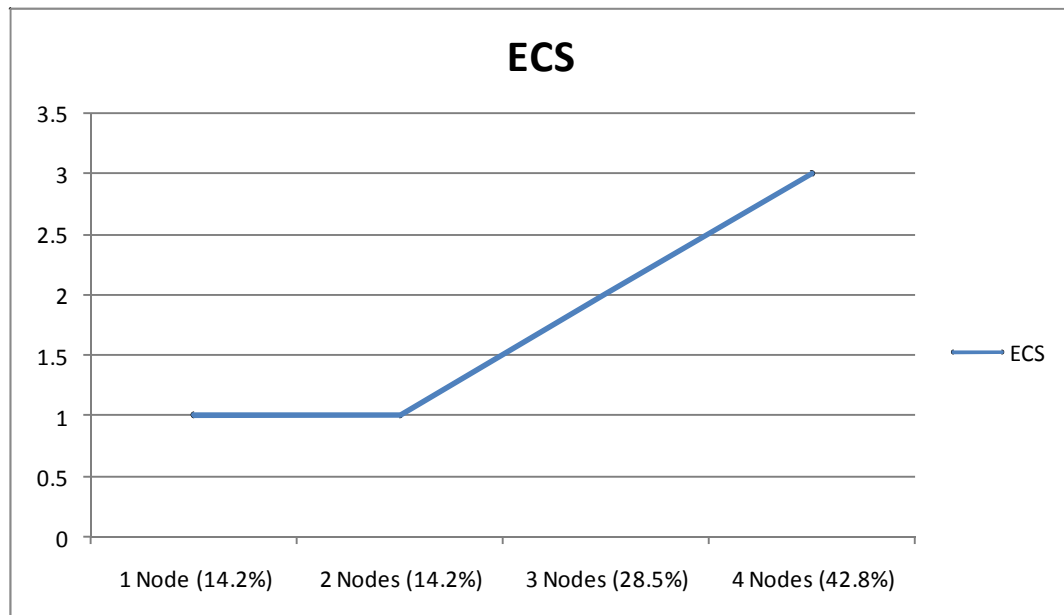
GRAPH 3- HISTOLOGICAL TYPE



GRAPH 4 – TIME PERIOD OF RECURRENCE



GRAPH 5- RELATIONSHIP BETWEEN PERINEURAL INVASION, VASCULAR INVASION AND EXTRACAPSULAR SPREAD WITH DEPTH OF TUMOR



GRAPH 6- RELATIONSHIP BETWEEN POSITIVE NODES AND EXTRACAPSULAR NODES (ECS)

DISCUSSION

This article discusses the prognostic implications of OSCC. The extension and the size of the tumor determine clinical and pathological stage of a tumor. Pathologically, the tumor size is the maximal cross-sectional diameter of a resected specimen². Moore et al³, stated that 84% of patients with tumor diameter less than 2 cm survived a disease free period of 3 years as compared to 52% of patients with a tumor larger than 2 cm in diameter. In our study all patients who had recurrences had tumor size of more than 2 cm except for 1 patient who has 1.5 cm. Tumor thickness or depth of infiltration of tumor cells is more reliable predictor of nodal metastasis than surface diameter. Wolggar et al⁴, told that when the tumor depth

exceeded 5 mm, the metastatic rate was 64.7% while it was only 5.9 % when the depth of invasion was less than 5 mm. Hence 5mm was kept as deciding point at which cervical metastasis was probable. Similarly in our study the mean depth of invasion was 6 mm for cervical lymph node metastasis in our patients with recurrence.

The thickness of the tumor can be measured with a special instrument called ocular micrometer. The depth of tumor was measured from top of the granular layer of overlying epithelium till deepest invasive layer^{5,6}. The tumor was called as superficial when it was from 0 to 0.76 mm and of intermediate depth when it was from 0.76 to 1.50 mm and considered as deep lesion when the tumor thickness is greater than 1.50mm. Hence all our 14

patients had deep lesions and hence this can be one of the reason for recurrence. In 1920 Broder's grading system came into existence which is a simple scheme for assessing prognosis but due to its failure to predict survival in a multivariate modeling it was not widely accepted⁷. In 1987, Anneroth et al⁸. proposed a new malignancy grading system which is widely used today. We have used this classification in our study and found that out of 14 patients, 31.25 % had well differentiated carcinomas, 56.25% had moderately differentiated and 12.5% had poorly differentiated carcinomas. Many studies done have found that pattern of invasion was a independent prognostic factor. Tumor cells invading in the form of small clusters or groups or in a dispersed pattern was associated with a very poor prognosis. In addition to pattern of invasion, lymphatic infiltration and vascular invasion also had a prognostic implication^{9,10,11}.

Up to 54 % of OSCC has perineural invasion. Locoregional occurrence of the tumor can be mainly due to perineural invasion which has centripetal and centrifugal propagation of tumor cells and is mainly responsible for tumor recurrence¹². In our study there was perineural invasion in 57.1% of patients which can be a reason for recurrence. The relationship between prognosis is independent of nerve diameter, so in all cases of OSCC, the pathological specimen should be examined for perineural invasion even in nerves less than 1 mm in diameter. Vascular invasion is presence of neoplastic cells in endothelial cells. It has an increased risk of distant metastatic disease¹³. The skin of face and scalp is most commonly affected by metastases, suggesting that blood vessels and patterns of innervations may influence the spread of metastases¹⁴. In our study vascular invasion was seen in 35.7% of our patients.

Lymph nodes histologically positive for OSCC provide one of the simplest and perhaps the most important markers in head and neck cancer. Lymph node number exhibited a strong dose-response correlation with distant metastasis and survival. It also indicated the risk for regional recurrence and distant metastasis¹⁵. Extracapsular extension occurs in approximately 60% of patients with positive cervical nodes and is of paramount importance in predicting patient outcomes. A recent study reported a strong association between the presence of ECE and clinical N stage, in TNM stage¹⁶. In our study the incidence of extracapsular extension increases with number and size of positive lymphnodes. The mean size of lymphnodes was 2.1 cm. Extracapsular extension is a significant determinant of prognosis due to its association with an increased risk of recurrence in the neck and distant metastasis¹⁷. If there is a macroscopic extracapsular extension then the risk of local recurrence is tripled when compared to microscopic extracapsular extension. The 5 year survival rate was 24 % when there is extracapsular spread. Mamella G et al¹⁸ had indicated that when node size was greater than 2 cm in diameter, there was an increased risk for regional recurrence.

The anatomic location of the lesion could also be considered as a prognostic indicator since the lymphatic spread is different. Studies suggests that tongue, soft palate and floor of the mouth presented with the worst prognosis for OSCC which is also confirmed from our study. Studies had found that lower lip tumors often had a better prognosis when compared to other oral locations¹⁹. Squamous cell carcinoma of the tongue and floor of the mouth generally have poor prognosis due to the multiple lymphatic drainage and presence of cervical metastases.

CONCLUSION

Its always necessary to understand the factors leading to prognosis of the patient with OSCC. An accurate assessment of all histological factors has to be done to plan the treatment meticulously for disease free survival of patient. There is a need to conduct studies in every cancer centre to understand the epidemiology and pattern of failure of the treatment followed. Prognosis assessment sheet is a new kind of hypothesis which needs to be testified by conducting multicentre case control longitudinal studies at a large sample scale.

REFERENCES

- Deleyiannis FW, Thomas DB, Vaughan TL, Davis S. Alcoholism: Independent predictor of survival in patients with head and neck cancer. *J Natl Cancer Inst.* 1996;88:542–9.
- Piccirillo JF, Lacy PD, Basu A, Spitznagel AL. Development of a new head and neck cancer-specific comorbidity index. *Arch Otolaryngol Head Neck Surg.* 2002;128:1172–9.
- Moore C, Kuhns JG, Greenberg RA. Thickness as prognostic aid in upper aerodigestive tract cancer. *Arch Surg.* 1986;121:1410–4.
- Woolgar JA. T2 carcinoma of the tongue: The histopathologist's perspective. *Br J Oral Maxillofac Surg.* 1999;37:187–93.
- Shaw RJ, McGlashan G, Woolgar JA, Lowe D, Brown JS, Vaughan ED, et al. Prognostic importance of site in squamous cell carcinoma of buccal mucosa. *Br J Oral Maxillofac Surg.* 2009;47:356–9.
- Fagan J, Collins B, Barnes L. Perineural invasion in squamous cell carcinoma of head and neck. *Arch Otolaryngol Head Neck Surg.* 1998;124:637–40.
- Larsen SR, Johansen J, Sorensen JA, Krogdahl A. The prognostic significance of histological features in Oral Squamous Cell Carcinoma. *J Oral Pathol Med.* 2009;38:657–62.
- Anneroth G, Batsakis J, Luna M. Review of literature and recommended system of malignancy grading in oral squamous cell carcinomas. *Scand J Dent Res.* 1987;95:229–49.
- Vural E, Hutcheson J, Korourian S, Kechelava S, Hanna E. Correlation of neural cell adhesion molecule with perineural spread of squamous cell carcinoma of head and neck. *Otolaryngol Head Neck Surg.* 2000;122:717–20.
- Wong CY, Helm MA, Kalb RE, Helm TN, Zeitouni NC. The presentation, pathology, and current management strategies of cutaneous metastasis. *North Am J Med Sci.* 2013;5:499–504
- Mamelle G, Pampurik J, Luboinski B, Lancar R, Lusinchi A, Bosq J. Lymph node prognostic factors in head and neck squamous cell carcinomas. *Am J Surg.* 1994;168:494–8.
- Bello IO, Soini Y, Salo T. Prognostic evaluation of oral tongue cancer: Means markers and perspectives (II) *Oral Oncol.* 2010;46:636–43.
- Zagar GK, Smith JL, Norante JD, McDonald S. Tumours of the head and neck. In: Rubin P, editor. *Clinical oncology: a multidisciplinary approach for physicians and students.* 7. Baltimore: W. B. Saunders; 1993. pp. 319–362.
- Watkinson JC, Gaze MN, Wilson JA. The nature of head and neck cancer. In: Watkinson JC, Wilson JA, editors. *Stella and Maran's head and neck surgery.* 4. Oxford: Butterworth Heinemann; 2000. pp. 1–9.
- Sanghvi LD, Rao DN, Joshi S. Epidemiology of head and neck cancer. *Semin Surg Oncol.* 1989;5:305–309. doi: 10.1002/ssu.2980050503.

16. Jemal A, Siegel R, Ward E, Murray T, Xu J, Smigal C, Thun M. Cancer statistics, 2006. *CA Cancer J Clin.* 2006;56:106–130. doi: 10.3322/canjclin.56.2.106.
17. Jadhav, Kiran B., and Nidhi Gupta. "Clinicopathological prognostic implicators of oral squamous cell carcinoma: need to understand and revise." *North American journal of medical sciences* 5.12 (2013): 671.
18. Mamelle G, Pampurik J, Luboinski B, Lancar R, Lusinchi A, Bosq J. Lymph node prognostic factors in head and neck squamous cell carcinomas. *Am J Surg.* 1994;168:494–8.
19. Lilly-Tariah OB, Somefun AO, Adeyemo WL. Current evidence on the burden of head and neck cancers in Nigeria. *Head Neck Oncol.* 2009;1:1–14. doi: 10.1186/1758-3284-1-1.

Cite this article as:

Digpal Dharkar, Sonia Moses, Mohammad Akheel, Tushar Phulambrikar. Pattern of recurrences in oral squamous cell carcinomas: A retrospective analysis. *J Biol Sci Opin* 2016;4(3):86-91
<http://dx.doi.org/10.7897/2321-6328.04321>

Source of support: Nil; Conflict of interest: None Declared

Disclaimer: JBSO is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the contents published in our Journal. JBSO cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of JBSO editor or editorial board members.