

A Cytomorphological Study of Metastatic Deposits of Oral Squamous Cell Carcinoma - With Unusual Case Presentations**Pooja Malviy¹, Poonam Nanwani², Reena Jadhav³, Hukam Singh Meena⁴, Ashok Panchonia⁵, Meena Mittal⁶**¹Post Graduate Student, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India²Assistant Professor, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India³Senior Resident, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India⁴Pg Resident, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India⁵Professor & Head of the Department, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India⁶Professor, Department of Pathology, M.G.M. Medical College Indore, Madhya Pradesh, India

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Abstract:**Background:** Oral squamous cell carcinoma (OSCC) has been estimated to be the sixth most common cancer worldwide. The distant metastasis of OSCC is more lethal than regional and plays a critical role in the management and prognosis in oral cancer patients.**Aim:** This study evaluates the role of fine needle aspiration cytology (FNAC) for assessing metastatic deposits of oral squamous cell carcinoma in a tertiary care center, India.**Materials & methods:** This cross-sectional observational study was done in an Indian tertiary care center's pathology department. Fifty patients with metastatic deposit of oral squamous cell carcinoma were enrolled in this study. Cytology and histopathological examination was done in all cases.**Results:** In the present study oral squamous cell carcinoma is more common in males (62%) than female (38%) and predominantly found in elderly age groups after >40 yrs (84%). Regional metastasis is more commonly seen rather than distant metastasis. Level I & II Lymph nodes involve early. Lung is the most common site in distant metastasis. Survival and outcome is less with distant metastasis.**Conclusion:** OSCC has the potential for regional as well as distant metastasis, and distant metastasis of OSCC lead to significant mortality as compared to regional metastasis.**Keywords:** Oral squamous cell carcinoma (OSCC), Metastatic deposit, regional metastasis, distant metastasis.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Oral squamous cell carcinoma (OSCC) is the most common form of carcinoma of oral cavity and ranks as the 6th most common cancer in the worldwide and 3rd most common cancer in India with 5 year survival rate around 60%. However diagnosed early survival rate surpasses 90% (by Ministry of Health and family welfare, Government of India). Approximately 94% of all oral malignancies are Squamous cell carcinoma (SCC) [1, 2]. More than 90% of the oral cancers occur in patients over the age of 45, with a male predilection. An alarming observation is an increased incidence and prevalence of OSCC particularly in younger persons [3]. The most important risk factors for oral SCC are use of tobacco or betel quid and the regular drinking of alcoholic beverages. However, infection with high-

risk human papillomavirus (HPV) genotypes, and a diet low in fresh fruits and vegetables have also recently been implicated in the etiopathogenesis of oral SCC [4, 5]. Metastasis could be of two types that are regional metastasis and distant metastasis. In terms of regional metastasis, nodal metastasis transpires when tumor cells at the primary site penetrate lymphatic channels and migrate to regional lymph nodes in the neck, forming a micro-metastasis [6]. Lymph node metastasis is a critical prognostic indicator for oral and oropharyngeal carcinomas [7]. The most common site for OSCC metastasis is cervical lymph nodes, and it reduces the survival rate by 50% [8, 9]. For distant metastasis, carcinomas require certain biological events in order to spread from the primary tumor site to an anatomically distant site. Several steps

are required for cancer cells to spread from their original site to the metastatic one [10]. The cascade starts at the primary tumor site where the cancer cells locally breach the basement membrane to invade the surrounding extracellular matrix and connective tissue [11]. Then, the tumor cells move to lymphatic or blood vessels and travel to distant metastatic sites. At this point, tumor cells start to extra-vasate from the vessels into the stroma of the metastatic site [12]. The distant metastasis plays a critical role in the management and prognosis of oral cancer patients [13].

Aims and Objectives

This study evaluates the clinico-pathological and cytomorphological presentation of metastatic deposits of oral squamous cell carcinoma cytologically with reference to histopathological findings.

Materials and Methods

This prospective observational study was carried out in the Department of pathology in M.G.M. Medical College & M.Y.H. Indore, India. The duration of study was 2 years. A total of fifty patients with metastasis of diagnosed OSCC attending OPD/IPD of our hospital during study were enrolled. Fine needle aspiration of desired site were done at the cytology department microscopic examination done after staining. Level of lymph nodes assigned by the use of radiological findings provided by patients.

Inclusion Criteria

- Patients of all age groups with both sexes

- Patients of metastasis deposits of known case of oral squamous cell carcinoma
- Patient who provided written informed consent for the study

Exclusion Criteria

- Patients of newly diagnosed squamous cell carcinoma and other than oral squamous cell carcinoma
- Patient who not provided written informed consent for the study

Socio-demographic profile (age, gender, residence, occupation, education, socio-economic class), risk factors, complete history and clinical examination were recorded from all the study patients. Cytological and histopathological analysis was performed and analyzed.

Statistical analysis: Standard descriptive techniques were used to summarize the data: for categorical variables, frequency and percentages; for continuous variables, mean, SD, or median and range were used. For analysis of variance, the chi-square test and the student's t-test were used; $P < 0.05$ was regarded as statistically significant.

Result

According to the present study oral squamous cell carcinoma is more common in males (62%) than female (38%). Oral squamous cell carcinoma is predominantly found in elderly age groups after >40 yrs (84%) and 16% patients were in 20-40 years age group [Table 1&2].

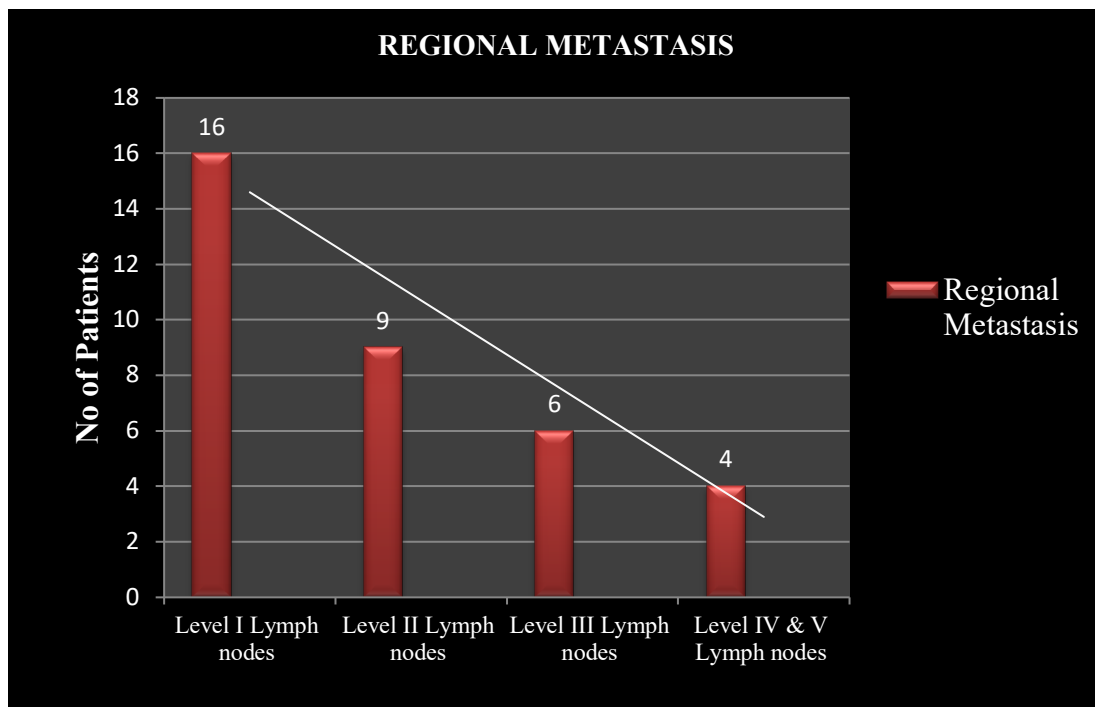
Table 1: Gender distribution among study subjects

	Male	Female	Total
Metastasis	31 (62%)	19 (38%)	50

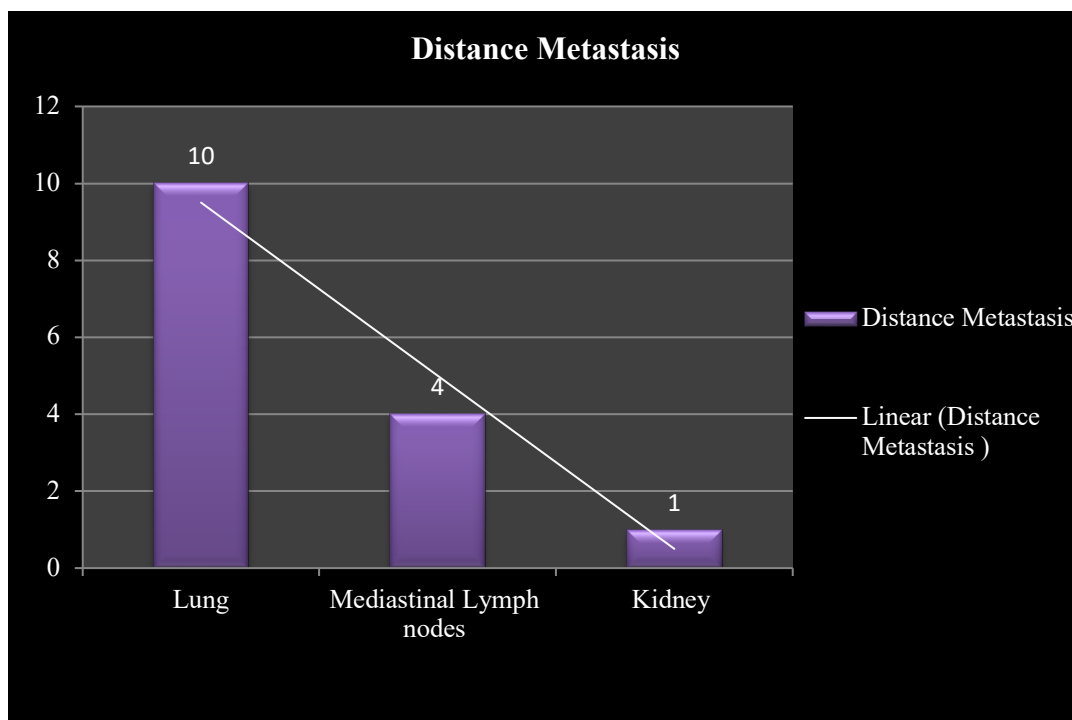
Table 2: Age distribution among study participants

	0-20 Year	20-40 Year	Above 40 Year	Total
Age of presentation of metastasis in OSCC	0 (0%)	08 (16%)	42 (84%)	50

Regional metastasis is more commonly seen rather than distance metastasis. Level I & II Lymph nodes involve early. Lung is the most common site in distance metastasis. Survival and outcome is less with distance metastasis



Graph 1: Showing regional metastasis among study patients



Graph 2: showing distance metastasis among OSCC patients

Special case presentation

Case-1: 50-year-old male presented with complaints of abdominal pain for 20 days, there was no palpable lump. Patient is a known case of oral squamous cell carcinoma, for which he is gone for chemotherapy and surgery. The patient is advised to CECT, which suggested a heterogeneously enhancing soft tissue attenuation

mass lesion in the lower pole of right kidney-possibility of neoplastic aetiology of renal origin.

FNAC Right kidney advised to the patient found distant metastasis, Features suggestive of Metastatic deposits of Squamous cell carcinoma. We were not able to performed histopathologic examination, due to patient was certified early by the rapid progression of the disease.

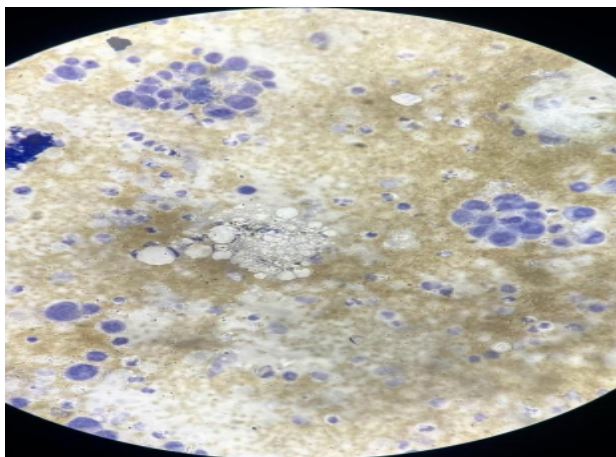


Figure 1: 10x-clusters of large pleomorphic nucleus

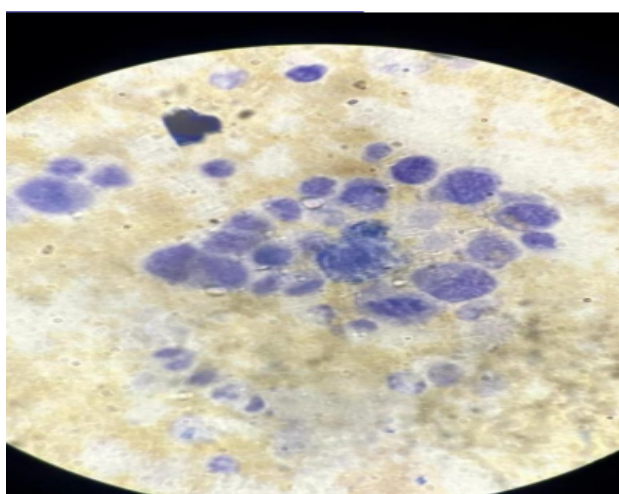


Figure 2: 40x- cells with high N:C ratio and marked pleomorphism with binucleated tumour cells

Case- 2: 52-year-old Male patient came with the complaint of swelling left side neck for 1 month; he has a history of OSCC tongue. In USG Neck multiple cervical lymph nodes were seen on both sides,

the largest measuring 3.6 x 3.3 cm in the left anterior triangle of the neck. CT SCAN- Shows homogenously enhancing lymph nodes at the level of 1A and 1B and level 2 on both sides.



Figure 3: Swelling left side of neck

FNAC shows clusters of large tumor cells having large pleomorphic nucleus with abundant eosinophilic cytoplasm, fair number of binucleated and multinucleated tumor cells seen. Features suggest Metastatic deposits of Squamous cell carcinoma.

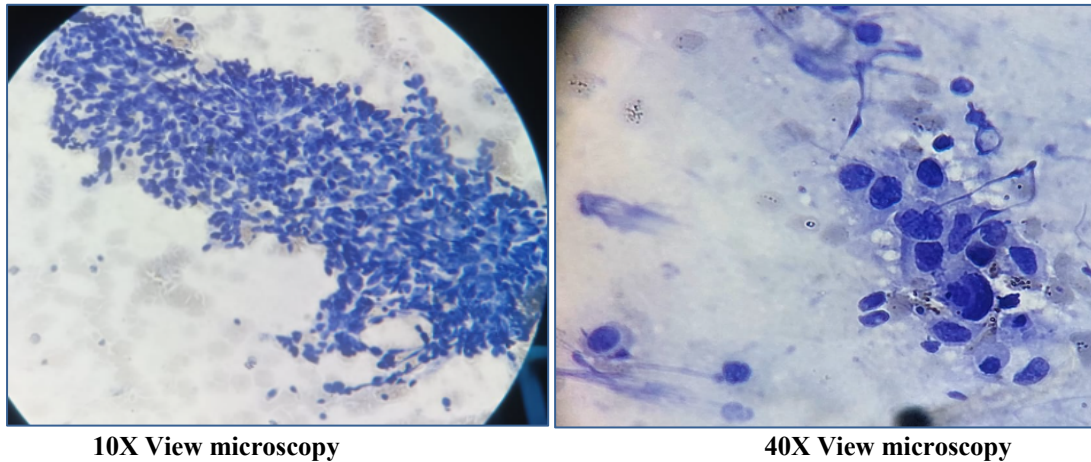


Figure 4:

Histopathological findings shows islands and sheets of tumor tissue composed of moderately pleomorphic cells with hyperchromatic nuclei, adequate cytoplasm and altered nucleocytoplasmic ratio along with intracellular keratinization, Keratin

pearls seen at places along with normal lymphatic tissue, capsule is also appreciated.

Features suggest Metastatic deposits of moderately differentiated Squamous Cell Carcinoma.

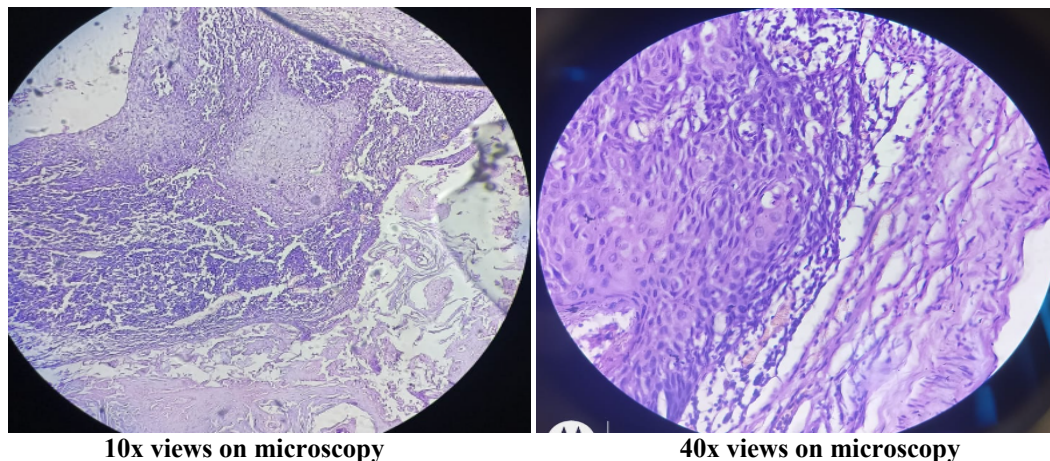


Figure 5:

Case-3: A 52 yr male patient came with the complaint of cough, chest pain, breathlessness, fever, and Hemoptysis. He is a known case of squamous cell carcinoma Submandibular region and ipsilateral lymphadenopathy. X-ray lung shows white opacity in upper lobe of right lung. CT Scan Lung- Multiple enhancing, well circumscribed soft tissue attenuation, rounded, variable sized lesion, predom-

inantly in periphery of the lung with cavitation with diffuse thickening of interstitium. Cytology from pleural fluids- Showed clusters of large tumor cells having large pleomorphic nucleus with abundant eosinophilic cytoplasm against hemorrhagic background. Features suggest possibility of malignant pleural effusion- possibly deposits of squamous cell carcinoma.

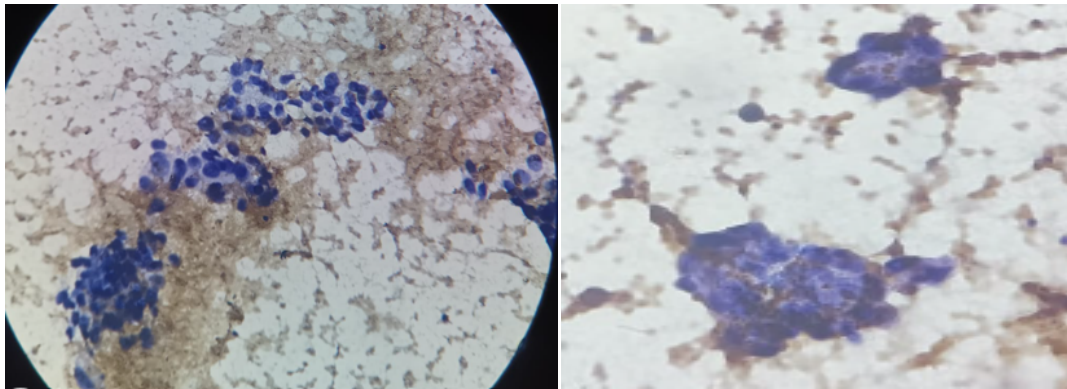


Figure 6:

Histopathology from lung shows - H & E stained section studied show tumor cells arranged in sheets having hyperchromatic nuclei, adequate cytoplasm & altered nuclear cytoplasmic ratio, intercellular

keratinization along with inflammatory cell infiltrate. The tumor cells show squamous differentiation. Features are suggest metastatic deposits of Squamous Cell Carcinoma.

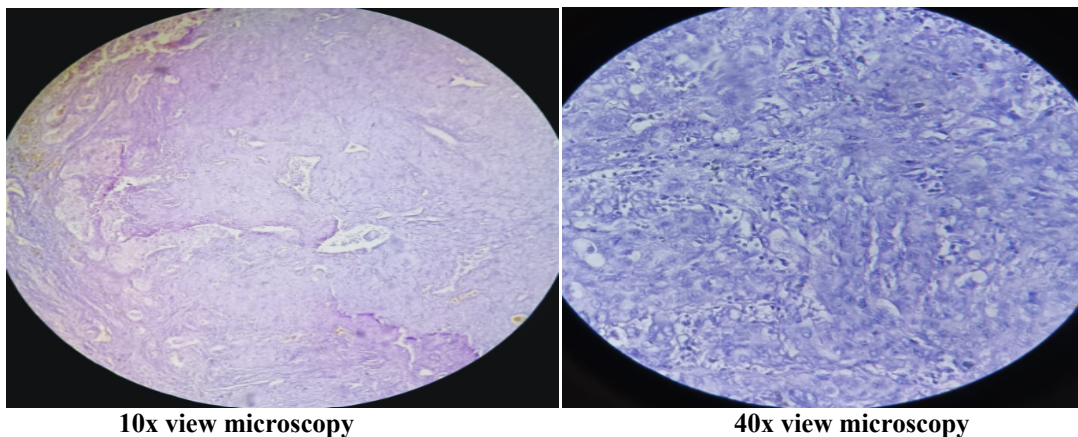


Figure 7:

Discussion

Oral squamous cell carcinoma is a very common cancer among people and its incidence is high due to tobacco alcohol consumption, and smoking. It is essential to diagnose in the early stage because this tumor extends aggressively to the local sites, and also distant sites.

In distance, metastasis staging and plan of treatment is very important so that we can improve patients' survival and prognosis. The cytological test is easy to performed, cost-effective, and feasible for the patient. It shows very important role for diagnosis and to change for staging and treatment of oral squamous cell carcinoma.

In our study majority of the patients were elderly age group (above 40 years) and predominantly males, similar finding also reported by Irani S. et al [14] and Bugshan A, et al [15].

Present study reported that regional metastasis were more common than distant metastasis among OSCC patients, in agreement with the Verma P, et al [16]. Lung was the most common site among distant metastasis in the current study, concordance

with the Smitha T, et al [17]. Survival rates were less in distant metastasis cases as compared to regional metastasis cases in the present research, our results comparable to the other studies [18-19].

Conclusions

Oral squamous cell carcinoma is more common in elderly males. Regional metastasis is more common than distance. Level I & II Lymph nodes involve early. Lung is the most common site in distance metastasis. Survival and outcome is less with distance metastasis. OSCC has the potential for regional as well as distant metastasis, and many potentially malignant diseases can transform into OSCC with the help of various etiological factors. Educating the general population about oral cancer is a must to combat mortality and morbidity

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