FREQUENCY OF METASTATIC SQUAMOUS CELL CARCINOMA IN CERVICAL LYMPH NODES IN PATIENTS PRESENTING WITH ORAL SQUAMOUS CELL CARCINOMA

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Abstract

Objective: To determine the frequency of FNAC (Fine needle aspiration cytology) findings in cervical lymph nodes of patients presenting with squamous cell carcinoma of the oral cavity in our setup.

Materials & Methods: This Cross-sectional descriptive study was done in Advanced FNAC clinic, Peshawar, from January 2017 to March 2018 (1 year; three months). Non-probability purposive sampling was done. A total of 54 diagnosed cases of oral squamous cell carcinoma presenting with cervical lymphadenopathy were included in the study. Patients in whom lymphadenopathy was due to infection and tuberculosis were excluded from the study. FNAC samples were obtained from the cervical lymph nodes of patients; slides were prepared and examined. The results were drawn accordingly. Mean, and the standard deviation was calculated for quantitative variables, e.g. age. Frequencies and percentages were calculated for qualitative variables like diagnosis and gender. Data were analyzed using SPSS -18.

Results: A total of 54 cases diagnosed as Squamous cell carcinoma of the oral cavity in Khyber college of dentistry were referred for cervical lymph node FNAC. Age of study sample ranged from 40 to 60 years, with a mean of 54 ±12 SD. There were 49 (90%) male and 5 (10%) female cases. Cervical lymph node FNAC findings showed that about 14 (26%) cases had a large number of immunoblasts with no atypical cells, suggestive of reactive lymphoid hyperplasia. While 40 (74%) cases had dimorphic squamoid cells with hyperchromatic nuclei and high nuclear to cytoplasmic ratio with lymphoid aggregates, suggestive of metastatic squamous cell carcinoma.

Conclusion: This study showed that the frequency of metastatic squamous cell carcinoma in cervical lymph nodes was very high in patients with squamous cell carcinoma of the oral cavity as compared to reactive hyperplasia. FNAC is diagnostically important and minimally invasive technique that can be used in the workup of patients presenting with cervical lymphadenopathy.

Key Words: Fine needle aspiration cytology, lymph nodes, squamous cell carcinoma, reactive hyperplasia

Introduction

Squamous cell carcinoma of the oral cavity is one of the most common malignant tumours of the head and neck area¹,²,³. It constitutes about 80-95% of oral cavity malignancies¹,³,⁴. It is common because most of its risk factors affect the most superficial
layers of the mucosa and gingiva, thus predisposing to squamous cell carcinoma\(^5\). It commonly spreads to the lymph nodes of the cervical region\(^1,4\). The presence or absence of spread of squamous cell carcinoma to the cervical lymph nodes determines the prognosis in the patients\(^5,6,7\). The presence of nodal metastasis is associated with poor outcome in patients with squamous cell carcinoma of the oral cavity\(^7,8,9,10\). Unilateral cervical metastasis decreases the survival rate by 50%, while bilateral cervical metastasis decreases survival rate by further 25%\(^5,11,12\). Sometimes, the metastasis remains occult and undetected for a long time, which causes a further decline in survival rate and thus, poor prognosis\(^13\). Therefore, early detection of nodal metastasis is important.

About 500,000 new cases of head and neck cancers are diagnosed every year globally\(^3\). Out of which, about 363,000 cases are of oral squamous cell carcinoma\(^3,5\). Squamous cell carcinoma of the oral cavity leads to almost about 200,000 deaths annually worldwide\(^3,5\). Metastasis to cervical lymph nodes occur in about 80% of patients of oral squamous cell carcinoma\(^25,26\). There are various investigation tools for the detection of metastasis in lymph nodes in cases with oral squamous cell carcinoma\(^7,14,15\). The investigation tools include ultrasound scan, computed tomography scan, magnetic resonance imaging, positron emission tomography and fine needle aspiration cytology (FNAC)\(^5,7,12,14,16,17\). The earlier the metastasis is detected, the better the outcome\(^18\). The cytological examination of lymph nodes is a simple, cost-effective and quick procedure to provide information about the metastasis to the lymph nodes\(^19\). Cytological examination of the lymph node is done by fine-needle aspiration cytology (FNAC).

FNAC is a simple and reliable method for detecting metastasis to the lymph nodes\(^18,19\). It is a relatively painless and minimally invasive procedure\(^19,20,21\). Its accuracy can approach that of histopathology in providing a definite diagnosis in many cases\(^19\). It can be done on an outpatient basis and also prevents unnecessary surgery\(^18\). Therefore, it is now the first-line investigation technique for workup of enlarged lymph nodes\(^13,18,19\).

The present study was done to determine the frequency of metastatic squamous cell carcinoma in cervical lymph nodes in patients of squamous cell carcinoma of the oral cavity in our setup, thus highlighting the diagnostic importance of FNAC.

### Materials and Methods

This Cross-sectional descriptive study was done in Advanced FNAC clinic, Peshawar, from January 2017 to March 2018. A total of 54 diagnosed cases of squamous cell carcinoma presenting with cervical lymphadenopathy referred from Khyber College of Dentistry, Peshawar, were included in the study. Patients in whom lymphadenopathy was due to infection and tuberculosis were excluded from the study. FNAC samples were obtained from cervical lymph nodes of patients; slides were prepared and examined under a microscope by a histopathologist. The results were drawn accordingly. Mean, and the standard deviation was calculated for quantitative variables e.g. age. Frequencies and percentages were calculated for qualitative variables like diagnosis and gender. Data were analyzed using SPSS version 18.

### Results

A total of 54 cases diagnosed as Squamous cell carcinoma oral cavity were referred for cervical lymph node FNAC. Age of study sample ranged from 40 to 60 years, with a mean of 54 ±12 SD. There were 49 (90%) males and 5 (10%) female cases. Male to female ratio was 9.8:1. Cervical lymph node FNAC findings of 54 patients are shown in table 1.

### Discussion

In the present study, it was found that the age range of the study population was 40 – 60 years. It is a proven fact that squamous cell carcinoma of oral cavity occurs in sixth to seventh decade of life\(^1\). The present study showed that about 90% of the cases were males while 10% of cases were females. Male to female ratio was 8.1:1. Similar male predominance was reported by Mehdi G et al., showing a male to female ratio of 3.1:1\(^19\). Similar high male to female ratio was reported in other studies as well\(^1,15,18,22,23\). The higher incidence in males in the present study

<table>
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<th>Table 1: Cervical lymph node FNAC findings of 54 patients of squamous cell carcinoma oral cavity</th>
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<tr>
<td><strong>FNAC diagnosis</strong></td>
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<tr>
<td>Metastatic squamous cell carcinoma</td>
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<td>Reactive lymphoid hyperplasia</td>
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</table>
Frequency of metastatic squamous cell carcinoma in cervical lymph nodes

Squamousoid cells with hyperchromatic nuclei, high nuclear to cytoplasmic ratio, with lymphoid cell aggregates on cytological smears (Figure: 1, 2, 3, 4). The remaining 14 (26%) cases were diagnosed as reactive hyperplasia by cytological examination. These cases showed lymphoid aspirate with a large number of immunoblasts, and no atypical cells on cytological smears (Figure 5). So in the present study, metastatic disease was common, and FNAC successfully detected infiltration in the lymph nodes. These findings are consistent with those in other studies 17, 27, 28.

In a study done by Geetha, about 67% of cases of oral squamous cell carcinoma had metastatic infiltration in the lymph nodes as diagnosed through FNAC5. This data is somewhat similar to the present study. Their study concluded that FNAC was a reliable diagnostic tool to detect metastasis in lymph nodes in patients with squamous cell carcinoma of the oral cavity5. In another study done by Azam et al., FNAC was used as a tool to assess cervical lymph nodes in oral squamous cell carcinoma patients, and it was found that out of 37 cases, about 25 (67.6%) patients had metastatic disease in lymph nodes17. The incidence reported by that study is somewhat close to the one reported in the present study. Azam et al. also reported FNAC to be a helpful and accurate technique to assess nodal metastasis in oral carcinomas17. However, Khuraijam reported the incidence of metastatic squamous cell carcinoma in lymph nodes of about 36%, which is quite lower than that reported in the present study18. In another study, metastatic squamous cell carcinoma was reported in 45% of cases 29. Konar K reported the incidence of 14.7%, which is quite low as compared to the present study13. All of these studies reported FNAC to be diagnostically significant to detect nodal metastasis 13, 18, 29. Dabirmogadham and Konar K also suggested in their study that FNAC is a reliable technique to workup the metastatic lymph nodes 13, 30.

The present study showed that the frequency of metastatic involvement of lymph nodes in cases of squamous cell carcinoma was the same as reported in the literature. It was through FNAC that malignancy was detected in the lymph nodes in the present study. It is a proven fact that detection of malignancy in lymph nodes through FNAC is reliable 11, 13, 19, 30.

The present study showed about 40 (74%) cases of oral squamous cell carcinoma had metastatic infiltration on cytological smears. This value is consistent with that reported in literature i.e 80%-85%25, 26. The cases of metastatic infiltration showed dysmorphic squamous cells with hyperchromatic nuclei, high nuclear to cytoplasmic ratio, and lymphoid cell aggregates on cytological smears (Hemotoxylin-eosin stain in fig. 3, and quick diff stain in fig. 1, 2, 4, x1000).
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Conclusion

This study showed that the frequency of metastatic squamous cell carcinoma in cervical lymph nodes was very high in patients with squamous cell carcinoma of the oral cavity as compared to reactive hyperplasia. This finding is quite consistent with that reported in the literature. FNAC is a reliable investigation and should be considered for detecting metastatic lesions in lymph nodes.

References

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