

Original Article

Role of Clinical Palpation in Evaluation of Cervical Lymph Node in Oral Squamous Cell Carcinoma

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ABSTRACT:

A cross sectional study of 29 cases of oral squamous cell carcinoma with or without cervical lymph node metastasis was done among Bangladeshi patients from January 2006 to December 2007. Majority of the study subjects (34.5%) belonged to the age group of 40-49 years. 58.6% of the study subjects were male, while remaining 41.4% of them were female. 51.7% of the lesions were located in the alveolar ridge where the other common sites were buccal mucosa (27.6%) and retro molar area (13.8%). Half of the study subjects (51.7%) were habituated to betel quid chewing followed by 37.9% and 10.3% were habituated to smoking and betel quid-smoking respectively. Grade I lesions was most prevalent (75.9%) in the study subjects. Majority of cases presented with Stage IV lesions (55.2%). The sensitivity, specificity, positive predictive value, negative predictive value & accuracy of clinical palpation method for determining metastatic cervical lymph nodes were 93.33%, 64.29%, 73.68%, 90% and 79.3% respectively. Careful and repeated clinical palpation plays important role in evaluation of cervical lymph nodes though several modern techniques may help additionally in the management of oral cancer.

Introduction:

The most important factor in determining prognosis of Oral Cancer is whether regional nodal metastasis is present. Survival rates decrease by 50% when nodal metastases are present; a contra lateral node reduces survival by an additional 50%. Consequently bilateral nodal

involvement reduces survival actually by 75% and extra nodal involvement reduces this by another 50%¹. Furthermore, the presence of cervical adenopathy has been correlated with an increase in the rate of distant metastasis².

Pre-operative assessment of the cervical lymph nodes helps in planning suitable surgical management of the neck, wherein the justification to operate the neck is being questioned more often than not, owing to the fact that only about 30% of clinically negative necks are histopathologically positive once operated³. Evaluating neck metastasis based on

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physical examination findings has been the classic method for patients of new tumors in the head and neck. Though clinical palpation of the neck demonstrates a large variation of findings among various examinations it is both inexpensive to perform and repeat. Here sensitivity and specificity are in the range of 60 – 70%, depending on the tumor studied. Because of the knowledge of sensitivity and specificity of palpation, a neck side without palpable metastasis is still at risk of harboring occult metastasis, with the risk determined by the characteristics of the primary tumor. The incidence of false negative (occult) nodes based on physical examination findings varies in the literature from 16-60%³. Clinical palpation for detecting cervical lymph node metastasis is sometimes necessary where other investigations are not practicable. Fischbein *et al.* have found clinical examination to have 70% accuracy⁴. The study highlighted the clinico-pathologic characteristics of oral SCC of Bangladeshi patients irrespective of race and religion with evaluation of metastatic cervical lymph nodes of the patients by palpation and postoperative histopathology.

Materials & Methods:

Histologically confirmed 29 cases of Oral Squamous Cell Carcinoma from January 2006 to December 2007 were selected for the study. By convenient sampling, 29 cases of such Oral Squamous Cell Carcinoma patients were selected & after taking informed written consent they were evaluated clinically for neck metastasis. Standard treatment by radical resection and neck dissection with post operative histopathological evaluation was provided to all patients being included in the study. Data were collected through written questionnaire, clinical examination and relevant investigations. After processing data was analyzed using computer software SPSS version 12.

Results:

Table 1: Distribution of patients by age and sex (n=29)

Age Range	Sex		Total
	Male	Female	
30-39 Years	2(66.7%)	1(33.3%)	3(100%)
40-49 Years	6(60%)	4(40%)	10(100%)
50-59 Years	3(50%)	3(50%)	6(100%)
60-69 Years	4(57.1%)	3(42.9%)	7(100%)
70 Years and Above	2(66.7%)	1(33.3%)	3(100%)
Total	17(58.6%)	12(41.4%)	29(100%)

Table 1 shows that majority of the study subjects belonged to the age group of 40-49 years (about 34.5%) followed by the age group 60-69 years (about 24.1%). The age of the study subjects who fulfilled the inclusion criteria ranged from 35 – 85 years (Mean age +/-SD=53.48+/-12.45 years). It is also evident that, 58.6% of the study subjects were male, while remaining 41.4% of them were female; in the highest age group (40-49 years), males were predominant (60%) which is also in all other age groups except in the group 50-59 years where both male and female were equally affected.

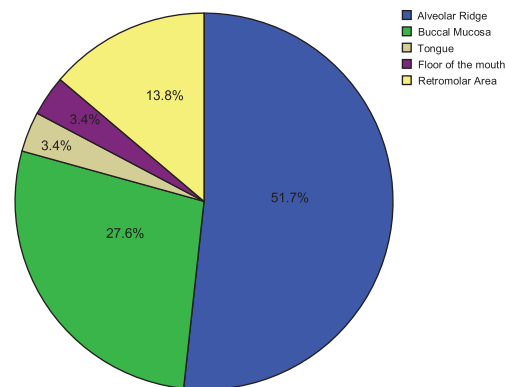


Fig 1: Site distribution of study patients

Figure 1 shows that about half (51.7%) of the lesions located in the alveolar ridge. Beside the alveolar ridge the other common sites were buccal mucosa (27.6%) followed by retro molar area (13.8%). Tongue and floor of the mouth were affected with the same frequency (3.4%).

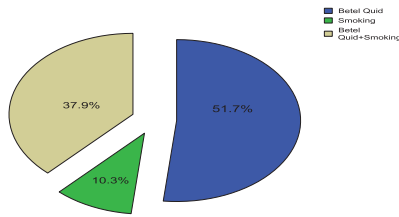


Fig 2: Distribution of patients by their habits (n=29)

Figure 2 shows that about half of the study subjects (51.7%) were habituated to betel quid chewing followed by 37.9% and 10.3% habituated to smoking and betel quid-smoking respectively.

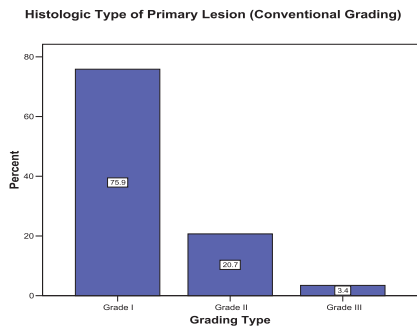


Fig 3:

Figure 3 shows that Grade I lesions was most prevalent in the study subjects (75.9%). 20.7% and 3.4% of the lesions were Grade II and Grade III respectively in the conventional grading system.

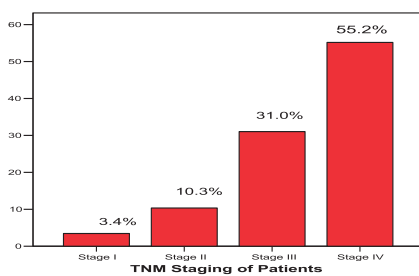


Fig 4: Distribution of patients by TNM Staging (n=29)

Figure 4 shows that most of the cases were Stage IV (55.2%) followed by 31% Stage III, 10.3% Stage II and 3.4% Stage I lesion in TNM Staging system.

Table 2: Relationship between Palpation Finding of Lymph Node & Histological Finding of Lymph Node

Palpation Finding of Lymph Node	Histological Finding of LN		Total
	Positive	Negative	
Positive	14(73.7%)	5(26.3%)	19(100%)
Negative	1(10%)	9(90%)	10(100%)
Total	15 (51.7%)	14 (48.3%)	29 (100%)

It was found that sensitivity, specificity, positive predictive value, negative predictive value & accuracy of palpation method for determining metastatic cervical lymph node were 93.33%, 64.29%, 73.68%, 90% & 79.3% respectively.

Discussion:

The cross sectional study of 29 cases of oral squamous cell carcinoma selected conveniently fulfilling the inclusion criteria was done from January 2006 to December 2007. The endeavor was initiated with the aim of evaluating the clinical and pathological characteristics of oral squamous cell carcinoma with role of palpation method in evaluating cervical lymph node metastasis.

In analysis, 58.6% of patients were male which finding corresponded to other studies on Bangladeshi patients (53% by Sitan⁵, 56.5% by Adhikari⁶). The age ranged from 35 to 85 years where majority of the study subjects (34.5%) belonged to the age group of 40-49 years. This data showed similarity with Shaheed⁷ et al and corresponds with the information of Sitan⁵ 2006 (50-59 years) and Adhikari⁶ 2006 (60-69 years) and Langdon⁸ et al 1992 (70-79 years). On clinical examination we found that about half of the lesions (51.7%) were located in the alveolar ridge where other common sites were buccal mucosa (27.6%) followed by retro molar area (13.8%). Tongue and floor of the mouth were affected with the same frequency (3.4%). This distribution is almost similar to Sitan⁵ 2006 but showed disparity with Richard⁹ et al and Hsie¹⁰ et al.

In the study different personal habits were taken into consideration as risk factors for oral Squamous cell carcinoma. Habit of betel quid chewing was present among 51.7% patients, which are almost similar to other investigators^{5,6,11,12}. The second most common habit was smoking (37.9%), which was followed by both betel quid, and smoking (10.3%).

Histologically 75.9% of our study specimens were well differentiated, 20.7% were moderately differentiated and 3.4% were poorly differentiated. This finding is almost similar to Shaheed³ et al, which is 72%, 18% and 6% respectively. The study showed that most of the cases were Stage IV (55.2%) followed by 31% Stage III, 10.3% Stage II and 3.4% Stage I lesion in TNM Staging system which is almost similar to other studies^{5,6}.

Lymph node metastasis in neck is one of the most important factors in the prognosis and treatment of patients with head and neck squamous cell carcinoma^{1,2}. In addition, because lymphatic metastasis is a frequent event that impacts prognosis, a decision to treat the lymph nodes in the neck has to be made in almost all patients, even if metastases are not apparent clinically. It is therefore important to assess as reliably as possible whether a patient has regional lymph node metastases. The presence of cervical lymph node metastasis in oral squamous cell carcinoma often also changes the extent of surgical treatment or radiotherapy and chemotherapy.

Clinical palpation is a technique to stage cancer in the neck¹³. In a recent decision-analysis study, a risk of occult neck metastases (in a palpatory-negative neck) above 20% was found to be indicative for elective neck treatment, either radiation therapy or surgery. This risk of occult metastasis, which can occur in both sides of the neck, is determined by characteristics of the primary tumor such as size, site, and several biological criteria. Because of the increased risk of nodal metastases, even in clinically negative necks, most patients with tumors staged as T2 or larger undergo some form of elective neck treatment. The disadvantage of this policy is that the majorities of patients do not harbor metastases and, therefore, will be subjected to the morbidity of unnecessary treatment. By detecting some otherwise clinically occult

adenopathy, modern imaging techniques may have increased sensitivity for detecting positive nodes, and consequently, may decrease the risk of occult metastasis to below 20%. If this can be accomplished, the clinician may refrain from a neck dissection or radiation, and adapt a wait-and-see policy with careful follow-up to detect a neck metastasis as early as possible. The drawback of palpation method for evaluating neck lymph node is that it is a subjective method and is totally operator and experience dependent. It can be competitive with other investigation modalities if the skill can be improved by repeated examinations of neck. In our study subjects we examined the necks repeatedly for quality evaluation of cervical lymph nodes.

The study shows that the sensitivity, specificity, positive predictive value, negative predictive value & accuracy of palpation method for determining metastatic cervical lymph node are 93.33%, 64.29%, 73.68%, 90% & 79.3% respectively. This result is comparable to Chowdhury¹⁴ et al where the results are 75.6%, 60%, 88.6%, 37.5% and 72.5% and Haberal^{15,16,17,18} et al where the results are 64%, 85%, 78%, 74% and 75%. The comparison proves that positive predictive value and accuracy rates are almost same in all studies though there are some dissimilarity exists in sensitivity, specificity and negative predictive value. It is to be mentioned here that in this study palpation method showed high sensitivity (93.33%) and specificity (64.29%), which have limited clinical value as probably many metastatic lymph nodes, were palpable. The sensitivity would have been lower if the study was limited to N₀ neck population.

Updated Imaging techniques like CT, MRI, and Sonography are more accurate than palpation^{16,17}. Most clinicians have maintained, however, that the accuracy of these techniques is not high enough to justify a change of policy. Indeed, in 25% of pathologically verified tumor-positive neck dissections, only micro metastases smaller than 3 mm, which are undetectable by most techniques, are present. Lymph nodes 2–3 mm in size can be seen as nodules on CT and MR images, and may even be better seen with high-resolution scanners^{19,20}. Nonetheless, differentiation between benign and malignant metastatic disease still remains a problem.

Recently, other techniques such as radioimmunosciintigraphy and positron emission tomography have been explored, but these expensive techniques still have to prove their value in clinical practice.

Conclusion:

Patients with oral squamous cell carcinoma are mostly habituated with betel quid and or smoking and come in late stage of disease when treatment becomes difficult. Early diagnosis with proper evaluation of both primary lesion and metastatic cervical lymph nodes is expected for good outcome of the disease. Careful and repeated clinical palpation plays important role in such evaluation though several modern techniques may help additionally in the management of oral cancer.

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