



ORIGINAL ARTICLE

Association of Anneroth's Scoring and Frequency of Cervical Lymph Node Metastasis among Primary Oral Squamous Cell Carcinoma Patients

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[Received on: 2 February 2019; Reviewed on: 12 April 2019; Accepted on: 1 May 2019; Published on: 1 July 2019]

Abstract

Background: Primary Oral Squamous Cell Carcinoma can metastasize in the cervical lymph nodes. **Objective:** The purpose of the present study was to see the association of Anneroth's scoring and frequency of cervical lymph node metastasis among primary oral squamous cell carcinoma patients. **Methodology:** This cross sectional study was conducted in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College and Hospital, Dhaka, Bangladesh from November 2009 to December 2010 for a period of one year. Patients attending in the place of study with diagnosed case of oral squamous cell carcinoma were selected for the study after fulfilling the inclusion criteria. The resected primary lesion and neck lymph nodes were sent for histopathological examination. Histopathological grading of the primary lesion was done and neck lymph nodes were graded as metastatic and non-metastatic. **Results:** This prospective study with 50 cases of oral squamous cell carcinoma was taken of which 28 cases were non-metastasis tumor. Each case was graded according to TNM classification, Broder's grading and Anneroth's classification. Both Anneroth's classification (p=0.002) and Broder's grading (p=0.017) were significant but Anneroth's one was more significant than Broder's. **Conclusions:** There is an association between Anneroth's grading system with lymph node metastasis. [*Journal of Current and Advance Medical Research 2019;6(2): 69-72*]

Keywords: Broders grading; Anneroth's scoring; Cervical Lymph Node; Metastasis; Primary; Oral; Squamous Cell Carcinoma

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Cite this article as: Haque MA, Goswami UK, Rahman MM, Islam MW, Morshed MM, Islam MR, Azam MB. Association of Anneroth's scoring and Frequency of Cervical Lymph Node Metastasis among Primary Oral Squamous Cell Carcinoma Patients. J Curr Adv Med Res 2019;6(2): 69-72

Funding: This study has been performed without any funding from outside else.

Conflict of Interest: There was no conflict of interest to any of the authors.

Contributions to authors: Haque MA, Goswami UK involved in protocol preparation, data collection; statistical analysis Haque MA; Rahman MM, Islam MW, Morshed MM, Islam MR, Azam MB had involved in manuscript writing & revision of the manuscript.

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Introduction

As per site of metastasis in cervical lymph nodes a high rate of metastasis was reported in the submandibular and superior internal jugular nodes¹. Though the rate of metastasis in the cervical lymph nodes was as high as about 60% in T₃ and T₄ cases as compare with about 30% in T₁ or T₂ cases, no significant different was noted between them suggesting miss prediction of metastasis cervical nodes by means of T classification alone². Prognosis has been examined since Broder's reported the degree of keratanization of cancer cells in relation to prognosis³. Significant relation was evident between the degree of histological malignancy could be served as a predictor for metastasis in cervical lymphnodes.

There have been many reports indicating correlation between the incidence of neck metastasis and various clinical or histological features. Several investigators⁴ have reported that the incidence of nodal involvement was correlation with the T stage, however, others⁵ found no correlation between these parameters. These results suggest that histopathological grade of malignancy, as well as clinical features, must be taken into consideration when deciding neck dissection.

The study was designed to see the association of Anneroth's scoring and frequency of cervical lymph node metastasis among primary oral squamous cell carcinoma patients.

Methodology

This prospective type of cross-sectional study was conducted in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College and Hospital, Dhaka, Bangladesh from November 2009 to December 2010 for a period of one year and two months. Patients who were attended in the indoor hospital with diagnosed case of oral squamous cell carcinoma confirmed by incisional biopsy and palpable cervical lymphnodes were selected as study population. Those who were diagnosed clinically and histopathologically as oral squamous cell carcinoma at any age with both sexes were included in this study. Patient of oral squamous cell carcinoma declared as inoperable for the primary tumour due to advanced neck metastasis or systemic illness were excluded from this study. All investigations were done for general anesthesia fitness added with ultrasonogram of neck for evolution of metastasis or non-metastasis. Surgery were done according to protocol of this centre and

the resected primary lesion and neck lymphnodes were sent for histopathological examination. Histopathological grading of the primary lesion were done according to Anneroth's classification, Neck node also graded as a metastatic or nonmetastatic. Anneroth's classification was done according to 6 morphologic features like Degree of Keratinization, Nuclear polymorphism, Number of mitoses (HPP), Pattern of invasion, Stage of invasion (Depth), Lymphoplasmocytic infiltration. Each of the morphological criteria was scored from 1 to 4 according to the definition's given by Anneroth et al. Summation of score were divided into four groups. The results were compared in the metastasizing and non- metastasizing group. The evaluation of histopathological variables was realized in the same microscopic field. An informed written consent was taken for every patient explaining the nature and objectives of the study prior to data collection. Continuous data are presented as Mean, SD. and percentages for categorical data. One-way ANOVA was used for multiple groups Comparisons and Mann-Whitney test for pair wise comparisons. A p-value of <.05 was considered for statistical significance.

Result

A total of 50 patients with known oral squamous cell carcinoma were recruited in the study. All the cases were evaluated according to Anneroth's classification and were analyzed.

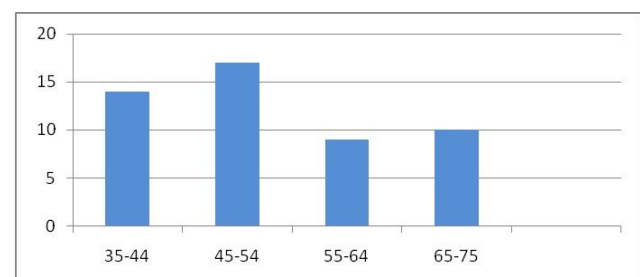


Figure I: Among the study subjects maximum from the age group of 45 to 54 years with the mean age of 49.5 years

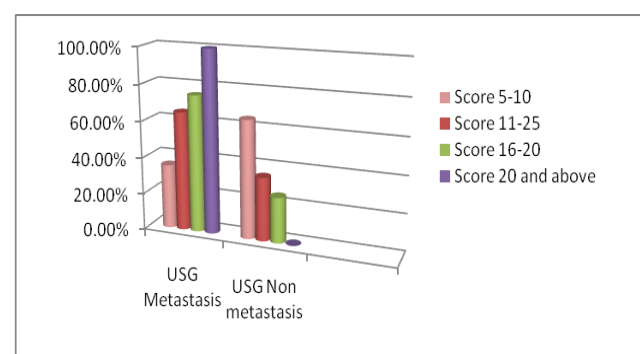


Figure II: Anneroth's score and degree of lymphnodes metastasis by Ultrasonogram of neck (n=50)

Figure II Shows G IV of Anneroth score expiss highest (100%) metastasis by USG of neck where as in G I Anneroth's score were only 35.29% metastatic and 64.70% non-metastatic. This shows that higher the aberration of histopathological feature and tumour host relationship, higher the chance of metastasis. This result is statistically significant. (P=0.019)

Table 1: Anneroth's score and cervical lymphnodes metastasis (clinical examination) (n=50)

Anneroth's Score (Group)	N1	N2	N3	Total
Score 5-10 (GI)	7(58.3)	5(41.7)	0	12(100.0)
Score 11-15 (GII)	18(60.0)	12(40.0)	0	30(100.0)
Score 16-20 (GIII)	3(50.0)	3(50.0)	0	6(100.0)
Score 20+ (GIV)	1(50)	1(50.0)	0	2(100.0)
Total	29(58.0)	21(42.0)	0(0.0)	50(100.0)

*parenthesis within bracket indicates percentage

Table 1 shows on these samples the relationship between Anneroth's Score of the primary SCC and frequency of cervical LN metastases clinically was given in table 5. Anneroth group II of the primary Oral squamous cell carcinoma had clinically metastatic lymph node more (60%) than others.

Table 2: Anneroth's score and degree of lymphnodes metastasis (Histopathological) (n=50)

Anneroth's Scores	Metastasis	No metastasis	Total
Score 5-10 G I	2(10%)	18(90%)	20(100%)
Score 11-15 G II	14(60.9%)	9(39.1%)	23(100.0%)
Score 16-20 G III	5(83.3%)	1(16.7%)	6(100.0%)
Score >20 G IV	1(100.0%)	0(0.0%)	1(100.0%)
Total	22(44.0%)	28(56.0%)	50(100.0%)

Table 2 Shows G IV of Anneroth's score indicate highest (100%) metastasis where as in G I of Anneroth's score show lowest percentage only 10% were metastatic and 90% were non metastatic. This

indicate that higher the aberration of histopathological feature and tumour host relationship, higher the chance of metastasis i.e higher the Anneroth's score higher the chance of metastasis on the cervical lymphnodes. This result is statistically significant. (P= 0.002)

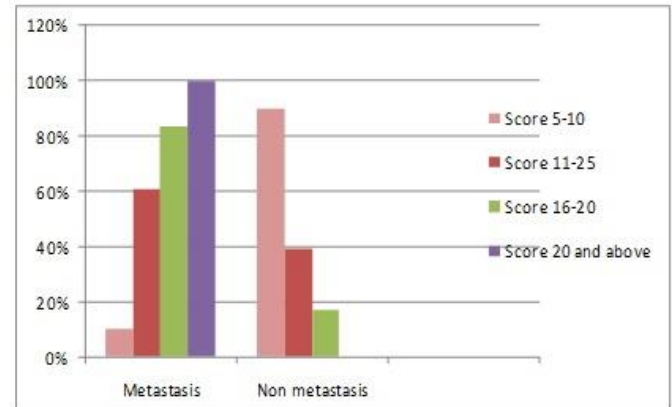


Figure 7: Anneroth's score and degree of lymphnodes metastasis. (Histopathological) (n=50)

Figure 7 Shows G IV of Anneroth's score indicate highest (100.0%) lymphnodes metastasis where as in G I of Anneroth's score shows lowest percentage only 10% of metastasis and highest 90% were non metastatic. This shows that higher the aberration of histopathological feature and tumour host relationship, higher the chance of metastasis like higher the Anneroth's score, higher the chance of metastasis on the cervical lymphnodes. This result is statistically significant (P= 0.002).

Discussion

It is the relentless invasion and growth into the surrounding tissues that characterize the oral squamous cell carcinomas. The incidence of neck metastasis in oral squamous cell carcinoma, as cited in the literature, is relatively high, at 45.0% to 60.0%⁶. Several investigators have reported that the incidence of nodal involvement was correlated with the T stage, however, others found no correlation between these parameters.

One of the main reasons is that, oral squamous cell carcinoma usually exhibits a heterogenous cell population with differences in the degree of differentiation⁷. To make the morphologic criteria more precise Anneroth and Hansen modified grading system for application to oral squamous cell carcinoma.

For the prediction of nodal metastasis from the histopathological grading of primary oral squamous

cell carcinoma the clinical validity of the modified version of the classification was tested in a comprehensive study of 89 patients with SCC of the floor of the mouth. A statistically significant correlation was found between the mean total malignancy scores and clinical staging, frequency of recurrence and death. This was conducted to find out correlation of clinical and histopathological relation of primary and metastatic cervical lymphnode for the ease of treatment planning in the department of Oral and Maxillofacial Surgery, Dhaka Dental College and Hospital.

In this study age range was 35 to 75 years with the mean age of 49.5 years. The highest percentage of the subjects was from the age group of 45-54 years. In another study it has been shown that highest incidence is in the age of 54 ± 8.4 years.

Anneroth's grading and cervical lymph node metastasis histopathologically accounts about 44%. G IV of Anneroth's score shows highest (100%) metastasis where as in G I cases shows only 10% were metastatic and 90% were non metastatic but all most all of the cases (100%) were clinically positive neck node. we are showing that higher the aberration of histopathological feature and tumour host relationship, higher the chance of metastasis like higher Anneroth's score, higher chance of metastasis on the cervical lymph node. This result is statistically significant. In another study in Anneroth's grading 30% cases were metastasis positive and in G III maximum cases (100%) were metastasis positive⁸. According to the present study if we find higher grading score we must find for metastatic lymphnode and make out the surgical planning.

Anneroth's score and degree of LN metastasis by USG shows G IV of Anneroth's score shows highest (100%) metastasis on USG where as in G I cases only 35.29% were metastatic and 64.70% were non metastatic. This shows that higher the aberration of histopathological feature and tumour host relationship, higher the chance of metastasis like higher the anneroth's score, higher the chance of metastasis on the cervical lymph node. This result is statistically significant.

Present study also indicated that the histologically confirmed neck level of metastasis almost coincided with the preoperatively detectable level in patients showing low malignancy, however,

the former was often much more advanced than the latter in patients showing high malignancy⁹.

To predict future prognostic value of Anneroth's classification has three parameters as tumour cell population along with three parameters under tumour-host relationship. Total scoring of six parameters give an idea about the extension, involvement and aggressiveness of tumour. This grading system also revealed significant relation with palpable.

Conclusion

This hospital based cross sectional study of patients with squamous cell carcinoma of the oral cavity has been carried out, with special reference to the location of neck metastases and is found that there is an association between Anneroth's grading system with lymph node metastasis. An apparent correlation has been found between histologic grade of malignancy and the prevalence of neck metastases. A large multi-institutional prospective study is expected in the future.

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