Cervical Lymph nodes Enlargement in Relation to Thickness of Oral Squamous Cell Carcinoma

Sabah M. H. Saka B.D.S, M.Sc, Ph.D *

Abstract:

Tumour thickness measurement was evaluated in relation to clinical nodal status on 26 patients with oral squamous cell carcinoma. The measurement estimated on Haematoxylene and Eosin stained microscopic sections of the resection specimen of each case by using a micro – occulmeter on illuminated viewer. The thickness considered the distance between surfaces epithelium from which the invasion started to the deepest invading front.

Analysis of clinical data showed that 14 of the cases had palpable lymph nodes, whereas 12 cases had no palpable nodes. It was found that the mean tumour thickness in group with palpable nodes was 9.5 mm. whereas the mean tumour thickness in group with no palpable nodes was 4.5 mm. This difference, statistically, using t-test was highly significant ($p < 0.004$). It is concluded, therefore, that, tumour thickness as a single structural parameter can help in the prediction of cervical lymph nodes involvement in patients with oral squamous cell carcinoma. Thus, an additional method of treatment can be chose following local resection of the tumour.

Key words:

Squamous cell carcinoma, thickness of tumour, lymph nodes, metastasis.

Introduction:

Human carcinomas show marked variations in the term of survival, prognosis and regional lymph nodes metastasis. This is probably resulted from function of many variables. Of these, the size of tumour is a factor that influences the prognosis of a particular case. Although there is a roughly inverse relationship between the size of the tumour and regional lymph nodes involvement, very small tumours may recur and metastasize [1].

In estimating prognosis of human cancer, the possible reason for lacking the reliability of tumour size is probably considering the size as two dimensions and neglecting the tumour volume. Considering the tumour thickness in 98 melanoma cases, it was found that thickness of the tumour was of value in assessing prognosis [2].

* Assistant Professor in the Department of Oral Pathology, College of Dentistry, Al-Mustansirai University.

A comparison between two groups of patients with lip squamous cell carcinoma was performed: A group with no lymph node metastasis and another with lymph node metastasis. It was found that the mean thickness of tumours in group with negative nodes was significantly less than mean thickness of tumours in the group with positive nodes[3]. In a study of 84 patients with floor of the mouth squamous cell carcinoma of stage I and stage II, it was observed that tumour thickness showed a strong correlation with the appearance of later metastasis in regional lymph nodes. Only 2% of patients with tumour thickness less than 1.5 mm developed nodal metastasis during the mean follow-up period of 69 months, by contrast to 60% of patients with tumour thickness of more than 3.5 mm and this was true regardless the size of the tumour[4].

Tumour thickness was found also of value in terms of predicting regional lymph node metastasis in 57 patients with oral squamous cell carcinoma that arisen in different anatomical sites. Only 8% of patients with tumour less than 4 mm had nodal metastasis. On the other hand, patients with tumour thickness of 4-8 mm and more than 8 mm, the lymph node metastasis was markedly increased and amount to 35% and 83% respectively[5].

In a prospective study of patients with squamous cell carcinoma arisen from single anatomical site,

namely tongue, it was concluded that tumour thickness of 4 mm was a dividing line for separation between patients with and without lymph node metastasis[6].

The present study is designed to find out whether or not tumour thickness of oral squamous cell carcinoma as a single parameter can help in the prediction of regional lymph nodes metastasis and be of value as a prognostic indicator.

Materials and Methods:

The materials consist of 26 diagnosed and surgically treated cases of oral squamous cell carcinomas. These cases were retrieved from the records of general surgery and oral and maxillo-facial units in Mosul Hospitals.

In the clinical records of each patient, the condition of regional cervical lymph nodes was stated and indicated whether there was palpability or not. The patient upon whom a local resection was performed surgically were only included in the study. Therefore, it was possible to categorize the patients into two groups. A group with palpable cervical lymph nodes as mentioned in the clinical records, and another group with no palpable cervical lymph nodes.

The microscopic sections of the resection specimens of the studied cases were obtained, if available, from the histopathology units in Mosul Hospitals or else from the private histopathology

laboratories as indicated in thee report of each patient.

All the Haematoxylene and Eosin stained sections were re-examined to make sure that the diagnosis made is that of squamous cell carcinoma. Then the measurement of the tumour thickness was assessed by placing the section on illuminated viewer and examined by using a micro-occulometer device to the nearest millimeter. The thickness was considered the distance between the epithelial surface from which the invasion started and the deepest part of invading front of the lesion. The data of the measurement obtained were recorded for each patient and then analyzed.

Results:

Following analysis of the data related to palpability of regional lymph nodes obtained from clinical reports and data of the tumour thickness measurements obtained from microscopic sections of the 26 cases, it was possible to represent two groups of patients according to lymph nodes status.Fourteen of the cases had clinically palpable nodes while in the remaining 12 cases the nodes where clinically not palpable.It was found that tumours in group with palpable nodes had generally greater thickness.The mean thickness of tumours in group with palpable nodes was 9.5 mm,

whereas the mean thickness of tumors in group with no palpable nodes was 4.5 mm. Statistical analysis using t-test showed a highly significant difference between the mean thickness of the tumours in the two groups ($p<0.004$).

Table: Summarize number of cases with and without palpable lymph nodes in relation to tumour thickness (mm), means and standard deviation (SD).

Cases with Palpable nodes	Tumour thickness (mm)	Cases without Palpable node	Tumour thickness (mm)
1	12	1	4
2	8	2	6
3	9	3	3
4	10	4	2
5	16	5	7
6	6	6	8
7	7	7	4
8	4	8	2
9	8	9	3
10	18	10	5
11	6	11	6
12	14	12	4
13	9		
14	6		
Mean	9.5	Mean	4.5
SD	4.32	SD	1.93

Discussion:

The TNM classification of tumours arising in the head and neck is generally a useful method to estimate prognosis and plan therapy. There are, however, exceptions where in relatively small tumours are rapidly lethal and

large tumours are associated with long term survival.

Several investigators have challenged the value of TNM system especially in regard to tumour size [7-10]. Since the largest tumour diameter is only one aspect of a three- dimensional mass, it is not surprising that the tumour stage could be a poor prognosis measure.

Tumour thickness has been proposed as an additional parameter that may help into further define prognosis in head and neck carcinoma. The tumour thickness has been found to be extremely useful as prognostic factor in melanoma [11] and colon carcinoma [12] and a number of reports have provided similar findings in oral squamous cell carcinoma [7-9].

In the present study of 26 cases with oral squamous cell carcinoma, it was found that tumour thickness was strongly related to palpability of regional lymph nodes. Majority of the cases (13/14) with palpable lymph nodes showed tumour thickness 6 mm and more, only 2/12 cases with no palpable nodes showed tumour thickness more than 6 mm. these findings are in agreement with other studies that showed 6 mm tumour thickness as dividing line between cases with and without nodal metastasis in buccal squamous cell carcinoma [13] and 5 mm as dividing line between cases with good and poor prognosis of oral squamous cell carcinoma [7].

Although tumour thickness has been proved to be an accurate prognostic factor, its usefulness might be limited because measurements require resection of the lesion or a generous punch biopsy through the deepest area. This would be difficult at some less accessible sites. Still for these patients undergoing resection alone, tumour thickness could be used as a method to decide on elective regional node dissection as a second procedure. Measurement of tumour thickness does have an advantage of being simple, reproducible and inexpensive. This analysis of oral squamous cell carcinoma, although preliminary, but can be concluded that such measurements of tumour thickness add a useful and easily determined prognostic factor for patients with oral squamous cell carcinoma.

References:

1- Anneroth G, Batsakis J, Luna M. Review of literature and a recommended system of malignancy grading in oral squamous cell carcinoma. Scand J Dent Res 1987; 95:229-249.

2- Breslow A. Thickness cross-sectional areas and depth of invasion in the prognosis of cutaneous melanoma.AnnSurg1970;172:902-908.

3- Frierson, HF, cooper PH. Prognostic factors in squamous cell carcinoma of the lower lip. Hum.Pathol 1986; 17:346-354.

4- Mohit-Tabatabai, MA, Sabel, HJ Rush, BF, Mashberg A. Relation of the thickness of floor of mouth stages I and II cancers to regional node metastasis. Am J Surg 1986; 152:351-353.

5- Shingaki S, Suzuki I, Nakagima T, Kawasaki T. Evaluation of histopathologic parameters in predicting cervical lymph node metastasis of oral and oropharyngeal carcinomas. Oral Surg Oral Med Oral pathol 1988; 66:683-688.

6- Fakih AR, Rao RS, Borges AM, Patel, AR. Elective versus therapeutic neck dissection in early carcinoma of the oral tongue. Am J Surg 1989; 158:309-313.

7- Platz H, Fries R, Hudec M. The prognosis relevance of various factors at the first admission of the patient. J Maxillofac Surg 1983; 11: 3-12.

8- Moore CM, Kuhns JG, Greenberg RA. Thickness as prognosis aid in upper aerodigestive tract cancer. Arch Surg 1986; 121: 1410-1414.

9- Spiro RH, Huvos AG, Wong GY, Gneeco CA, strong EW. Predictive value of tumour thickness in squamous cell carcinoma confined to the tongue and floor of the mouth. Am J Surg 1986; 152: 345-350.

10- Jacobs JR, Spiznegel EL, Sessions DG. Staging parameters for cancers of the head and neck. A multifactorial analysis 1985.

11- Batch CM, Soonge, SJ Murad TM. A multifactorial analysis of melanoma. II Prognostic factors in patients with stage I (localized) melanoma. Surg 1979; 86: 343-351.

12- Wolmark N, Fisher ER, Wieand S. The relationship of depth of penetration and tumour size to the number of positive nodes in Dukes colorectal cancer. Cancer 1984; 53:2707-2712.

13- Urist MM, O'Brien CJ, Soonge SJ. Squamous cell carcinoma of the buccal mucosa Analysis of prognostic factors. Am J Surg 1987; 154:411-414.