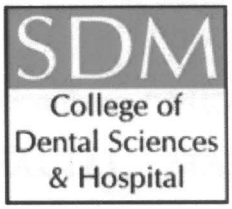

MEASUREMENT OF TUMOR THICKNESS IN OROFACIAL MALIGNANCIES AND ITS SIGNIFICANCE IN CERVICAL NODAL METASTASIS—A PROSPECTIVE STUDY

By

Dr. NEHA .RATHNAKAR

Dissertation Submitted to the
Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore

In partial fulfillment of the requirements for the degree of

MASTER OF DENTAL SURGERY

In

ORAL AND MAXILLOFACIAL SURGERY

Under the guidance of

Dr. Venkatesh .Anehosur,MDS

PROFESSOR

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

S. D. M. College of Dental Sciences and Hospital,

Dharwad

2010- 2013

Rajiv Gandhi University of Heath Sciences,

Bangalore Karnataka

ABSTRACT

Background and objectives:

Prognosis of oral carcinoma is often difficult to predict .the invasive edge of squamous cell carcinoma often displays different meloecular and morphological charecterstics than more superficial parts of the same tumor.it recently has been proposed that cellular charecterstics of this deep invasive front of head and neck squamous cell carcinomas are more important for its invasive and metastatic capacitiy and thus include more prognostic information than central and superficial parts of the same tumor.hence tumor thickness is a most important prognostic factor for nodal metastasis ,inadequate resection margin ,local recurrence ,tumor related death ,and tumor free survival.

Material and methods :

In the present study an attempt was made to assess the the depth of invasion or thickness of oral cancers with the use of pre operative ultrasonography ,computed tomography/MRI ,which is then later on compared with the ,measurements from histological sections after resection of the tumor ,and to correlate this parameter with cervical node involvement . A prospective study was conducted involving 20 patients with biopsy proven squamous cell carcinoma of the tongue,buccal mucosa and the lip who were treated in S.D.M college of dental sciences ,Dharwad. Pre –operative ultrasonographic evaluation was performed using a real time sector scanner ,with a 7.5 MHz and 10 MHz frequency, and the tumor thickness was measured from the

surface epithelium perpendicularly, to the deepest part of the tumor. Pre operative Computed tomographic imaging was performed using SOMATOME SPIRIT-a dual slice spiral CT scanner for lesions involving the buccal mucosa and for all patients with lesions involving the tongue and floor of the mouth ,MRI was performed using Signa HDe 1.5Tesla ,GE company machine to assess the maximum depth of the tumor.This value was then compared with the histopathologic depth which was derived from the resected specimen.Lymph node examination was also performed to evaluate metastasis and extracapsular spread.A cut off thickness will be derived ,beyond which nodal metastasis is probable.

RESULTS:

The depth as assessed by the ultrasound in these cases ranged from 6 to 25 mm with a average of 12.45 mm with a specificity of 81.82 % and a sensitivity of 54 .55 % and a relation coefficient of 0.0374.The CT/MRI depth ranged from 8 to 30mm with a average of 15.5mm, sensitivity of 63.64% and specificity of 81.82 % ,with a relation coefficient of 0.0004 It was statistically very significant that ultrasound was far superior to CT/MRI in measuring tumor thickness in oral carcinoma (p= 0.0551) .The histopathologic depth ranged from 2.88 to 26 mm with a average of 10.11 mm.).The least tumor thickness measured was 2.88 mm and the highest being 26mm.The lowest tumor thickness at which nodal metatstasis was observed was 4.72 mm, so the cut off value of tumor thickness above which metastasis was probable was decided to be 4mm for this series. 3 patients had local recurrences following surgery (13.63 %) and 2 patients suffered from distant metastasis(9.09%).All 5 of them had tumor thickness above 4mm and extracapsular invasion of the tumor.

INTERPRETATION AND CONCLUSION :

From the study it was found that histopathological examination of tumor thickness is still the gold standard as compared to pre operative measurement using USG,CT/MRI. There is an extremely significant correlation between the microscopic tumor thickness and the occurrence of nodal metastasis,with increasing rate of nodal involvement seen with thickness >= 4mm. Extra capsular spread beyond the node capsule was the most significant predictor of both regional recurrence and development of distant metastasis ,and it accounted for decreased survival in patients.

KEY WORDS :

Tumor thickness, extracapsular spread, lymph node metastasis .