

Corelation Of Pre Operative Tumour Depth Of Invasion With Histopathology In Oral Tongue Cancers – A Comparison Of Radiological Modality- An Updated Study

Background- Head and neck cancers are 6th most common cancers in the world, among which carcinoma tongue is know for its aggressive behavior. It is known that depth of invasion of the primary lesion is in direct correlation to cervical neck nodal metastasis, which is associated with a prognosis. In view of this phenomenon 8th edition of american joint committee on cancer (ajcc) introduced the concept of depth of invasion to the T classification. Radiology have important role in the assessment of pre-operative depth of infiltration of the lesion, Computer tomography and Magnetic resonance imaging are commonly used to asses DOI. However there is no standard approach for assessing the DOI of tongue malignancies via diagnostic imaging.

Objective –This study was aimed to report the correlation between DOI measured on MRI / CT and pathological DOI.

Methodology- this is a retrospective study of 82 patients with biopsy proven squamous cell carcinoma of oral tongue, that presented to our tertiary care center between 2018-2020. The radiological tumour depth of invasion was compared with the histological depth of invasion.

Radiological evaluation

Radiological DOI was measured from the horizon reference line connecting the normal mucosa adjacent to tumour to the deepest aspect of the tumour lesion. In CT we used contrast CT, and in MRI- contrast enhanced T1 weighted images.

Pathological evaluation

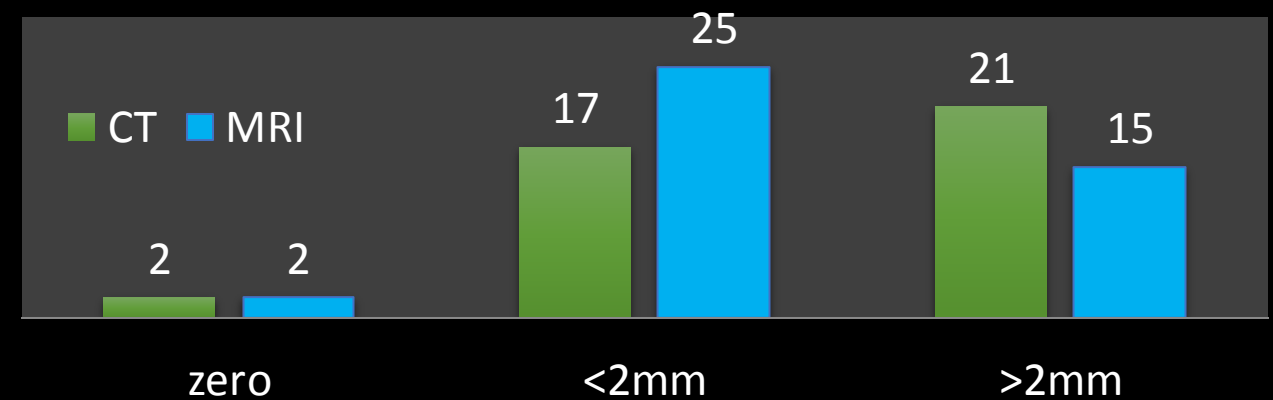
Excised specimens were resected in coronal planes, fixed in 10% neutral buffered formalin, embeded, sectioned and stained with hemotoxylin and eosin. Pathological DOI was measured according to AJCC staging system, 8TH edition.



Measurement of DOI of a patient with oral tongue squamous cell carcinoma- a- pathological DOI, b- contrast enhanced MRI, c- contrast enhanced CT

Results- Median age was 59 years, advanced stage tumours- III, IV were 27 and 26 respectively. Preoperatively Contrast enhanced computer tomography was used in 42 and magnetic resonance imaging were used 39 patients. Concordance between radiological and pathological DOI were found in 4 patients, discordance less than 2 mm were found in 42. Discordance between the two imaging modalities were not statistically significant ($p=0.1157$)

Statistical analysis- The Wilcoxon signed rank test was used to compare the absolute value of the difference between radiological DOI and Pathological DOI.



Discussion-the current study compared the CT and MRI with pathological DOI, to ascertain the usefulness of radiology in estimating the pathological DOI. A slight discrepancy between the histological DOI and Imaging DOI is inherent due to their nature, as they are similar but not the same. The discrepancy may be due to the shrinkage of specimen during formalin fixation and the effect of inflammation, edema. The other cause may be the difference in the reference line used pathology and CT/MRI. Considering all these factors discordance with in 2mm were considered acceptable in our study. In our study there were no significant differences between pathological DOI and radiological DOI among different stages. The limitations of this study was retrospective, included a small number of patients, involved in a single centre.

Conclusion- The current study showed the usefulness of Radiological DOI for estimating pathological DOI. There was no significance of one over the other imaging modality in determining the DOI. CECT can be considered for pre treatment evaluation of oral tongue cancers if contrast MRI is not amenable.

References

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