

ORIGINAL ARTICLE

Diagnostic Accuracy of Multislice Contrast CT scan in Detection of Squamous cell Carcinoma of Oral cavity, in clinically suspected Patients

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ABSTRACT

Objective: To evaluate the diagnostic accuracy of multislice computed tomography (CT) in detection of squamous cell carcinoma (SCC) of oral cavity in clinically suspected patients taking histopathology as gold standard.

Material and Methods: This cross-sectional study has been conducted at Radiology department of Civil Hospital Karachi from 8th September 2018 to March 2019. All the cases having suspected oral squamous cell carcinoma and either of gender were included. Patients underwent computed tomography by using multislice scanner. Then patients undergone biopsy sampling and patients were labeled as positive or negative for squamous cell carcinoma of oral cavity on MDCT and histopathology. Sensitivity, specificity, and diagnostic accuracy of multislice CT for squamous cell carcinoma of oral cavity were measured taking histopathology as gold standard.

Results: Total 168 cases were studied and out of them males were 76.8% and females were 23.2%. Mean gutka addiction history was 11.52±5.21 years. Mean lesion size on CT scan was 2.44±1.43 cm. In our study, 35.1% patients were diagnosed positive by multislice computed tomography and 43.5% through histopathology. Sensitivity, Specificity, PPV, NPV and accuracy were 86.4%, 79.8%, 69.9%, 91.6%, and 82.1% respectively.

Conclusion: Multislice CT observed to be the effective diagnostic tool for the detection of SCC of oral cavity.

Keywords: Multislice Computed Tomography, cancer, Oral Cavity

INTRODUCTION

Oral carcinoma is the 6th most common threat throughout the worldwide. Oral malignancy is of significant worry in Southeast Asia basically due to the predominant oral propensities for betel quid biting, smoking, and liquor utilization.¹ Buccal mucosa was the most well-known site followed by horizontal piece of tongue and base of tongue, lip and palate.² Prevalence of the oral malignancy is most elevated in Pakistan, Brazil and India.³ It is 2nd commonest malignancy in Pakistan among both genders.⁴ Males are influenced greater than females with male to female proportion of 1.5:1. Significant causes oral malignancy are poor nutrition, areca nut, betel quid and naswar, and container masala (gutka).⁵ Most of the cases have been analyzed in the center and in more old age population, yet as of late, many investigations have shown expanded frequency in youthful age person's moreover.⁶ Regarding symptoms of oral cancer, the pain noted to be the commonest presentation and the mouth floor and the tongue are highly involved. Oral squamous cell carcinoma in its underlying stages shows an erythroleukoplastic region without the symptoms, however in advanced disease stages there are lumps and ulcers with the nonregular surfaces which are unbending to touch.⁷ Radiological finding of the lesions of oral cavities is the change to radiologists due to closeness of soft tissues, glandular structure and rigid relations and it can likewise be clouded by curios from metallic false teeth and went against mucosal surfaces. In imaging head and neck malignant

growth, MDCT gives a superior appraisal of involvement of the cortical bone.⁸ Squamous cell carcinoma of oral cavity is locally forceful illness if not diagnosed and treated at the beginning phase. Early diagnosis and proper management may decrease the morbidity and mortality. However insufficient data material is available to help establish its role in local set up with regards to sensitivity and specificity. This study would therefore help in detection of early lesions by contrast enhanced computed tomography in clinically suspected patients which would provide better management in local set up.

MATERIAL & METHODS

This cross-sectional study was performed at the Department of Radiology, Dow University, Civil Hospital, Karachi during six months from September 2018 to March 2019. All the cases having clinically diagnosed as oral squamous cell carcinoma, age 21-60 years and either of gender were included. All the cases who were previously biopsy proven as the oral malignant cases, previously treated or were under chemotherapy or radiological treatment and having history of chronic renal failure and pregnant women because of high risk of radiation damage to fetus were excluded. Informed consent was taken and patients underwent computed tomography by using multislice CT scanner (Toshiba Spiral CT Asterion machine) by senior CT technicians with at least 3 years' experience. CT findings were assessed by senior radiologist with at least 5 years post fellowship experience

and patients were labeled as positive or negative for squamous cell carcinoma of oral cavity on CT features (as per operational definition). Then patients were undergone biopsy sampling by senior oral surgeon and samples were sent to Institutional histopathology department. Data was collected via self-made study proforma and data was analyzed via SPSS version 20.

RESULTS

Total 168 cases were studied and out of them males were 76.8% and females were 23.2%. Mean age of patients was 43.47 ± 8.67 years. Mean symptoms duration was 15.54 ± 5.41 weeks. Mean gutka addiction history was 11.52 ± 5.21 years. Mean lesion size on CT scan was 2.44 ± 1.43 cm. Among 168 patients, 52.4% were smokers and 10.1% were alcohol addicted. Table.1

In our study, 35.1% were diagnosed positive by multislice computed tomography and 43.5% through histopathology. Sensitivity, Specificity, PPV, NPV and accuracy were 86.4%, 79.8%, 69.9%, 91.6%, and 82.1% respectively as presented in Table-2.

Table 1. Descriptive statistics of demographic characteristics (n=168)

Variables		Statistics
Age	Mean+SD	43.47±8.67 years
Symptom's duration	Mean+SD	15.54±5.41 weeks
Lesion size on CT	Mean+SD	2.44±1.43 cm
Gender	Male	129(76.8)
	Female	39(23.2)
TOTAL		168(100.0%)

Table 2. Diagnostic accuracy of CT scan for detection of squamous cell carcinoma of oral cavity (n=168)

MULTISLICE CT SCAN	HISTOPATHOLOGY			P-VALUE
	Yes	No	TOTAL	
Yes	51 (86.4)	8 (13.6)	59	0.000*
No	22 (20.2)	87 (79.8)	109	
TOTAL	73	95	168	
Sensitivity	Specificity	PPV	NPV	Accuracy
86.4%	79.8%	69.9%	91.6%	82.1%

DISCUSSION

Oral premalignant lesions like, submucosal fibrosis and leukoplakia are early markers of the oral mucosa damage with the of 2-12% to the plain malignancies.⁸ in this study average age was 43.47 ± 8.67 years and males were in majority 76.8%. Similarly, Naz N et al⁹ reported that males were most common 72% and female were 28% and mean age of the cases was 46.66 ± 10.77 years. Diagnosis depends upon clinical history examination and by using the imaging techniques.¹⁰ Several imaging techniques like magnetic resonance imaging MRI and computed Tomography (CT) mostly used for initial diagnosis of the oral cavity squamous cell carcinoma. Computed tomography is more common and valuable imaging modality in the evaluation of the oral malignancy. However, the CT imaging can be the modified to assess the pathologies. Puffed cheek CT plays a helpful part in surveying mucosal cancers where mucosal surfaces are against.¹¹ although little cancers lesions in the mucosa may some way not be seen. In this study Sensitivity, Specificity,

PPV, NPV and accuracy of multislice contrast CT scan were 86.4%, 79.8%, 69.9%, 91.6%, and 82.1% respectively. On other hand Malard O, et al.¹² demonstrated oral and pharyngeal malignant lesions are administrated by the higher rate of node metastatic involvements and the local extensions and further they reported the CT sensitivity in the detection of tumor extension 82%, 67% predictive value. Clinical examination was not proper in diagnosis in the prediction of occurrence or absence of the involvement of nodes. CT sensitivity was 80% in node involvement, 71% specificity, 67% PPV and 83% NPV.¹² Salman R et al¹³ also found sensitivity 100% and specificity 93% of MDCT in neck cancer. This was a single-center and small sample size study and could not seek to examine the long-term clinical outcomes. It was led with metropolitan climate subsequently; the outcomes probably won't be generalizable to bigger populaces.

CONCLUSION

Multislice CT had good sensitivity and specificity in the diagnosis of squamous cell carcinoma of oral cavity. As our results showed 86.4% sensitivity, 79.8% specificity, and 82.1% accuracy. It is cost effective and widely available technique. Early detection and treatment are the short-term goal because this results in considerably better survival rates.

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