

## Original Research

### Assessment of spectrum of radiographic findings in oral cancer patients

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#### ABSTRACT:

**Background:** Oral squamous cell carcinoma (OSCC) is the most common cancer of the oral cavity and constitutes 95% of all cancers of this area. Considering the complex anatomy of the oral cavity and its surrounding structures, imaging plays an indispensable role not only in locoregional staging but also in the distant metastatic work-up and post treatment follow-up. Hence; the present study was conducted for assessing radiographic findings in oral cancer patients. **Materials & Methods:** A total of 20 oral cancer patients were included in the present study. Complete demographic and clinical details of all the patients were obtained. Clinical examination was thoroughly carried out. Radiographic assessment of all the patients was done. Biopsy was obtained and histopathologic confirmation of the diagnosis was done. Radiographic findings were segregated and analyzed. All the results were recorded analyzed using SPSS software. **Results:** Ill-defined radiolucency with ragged borders was seen in 70 percent of the patients while Ill-defined radiolucency with smooth borders was seen in 15 percent of the patients. Ill-defined Radiolucency with flecks of calcification was seen in 1 patient only. 2 patients didn't demonstrate any radiographic change. **Conclusion:** Oral squamous cell carcinoma mostly presents ill-defined radiolucency lesion on radiographic examination.

**Key words:** Oral cancer, Radiographic

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#### INTRODUCTION

Oral squamous cell carcinoma (OSCC) is the most common cancer of the oral cavity and constitutes 95% of all cancers of this area. Men are affected twice as commonly as women, primarily if they are over 50 years of age. Forty percent of the lesions are localized in the tongue and 30% in the floor of the oral cavity. OSCC often affects upper and lower gingiva, buccal mucous membrane, the retromolar triangle and the palate. The prognosis is poor and the five-year survival rate ranges from 20% (OSCC in the floor of the mouth) to 60% (OSCC in the alveolar part of the mandible). Treatment is difficult, because of the localization and the invasiveness of the available methods. The diagnosis is made based on a histopathological examination of a biopsy sample.<sup>1-3</sup> Early OSCC can be treated with either surgery alone while advanced cancers are treated with a

combination of surgery, radiotherapy and/or chemotherapy. Considering the complex anatomy of the oral cavity and its surrounding structures, imaging plays an indispensable role not only in locoregional staging but also in the distant metastatic work-up and post treatment follow-up. Knowledge of the anatomy with understanding of common routes of spread of cancer, allows the radiologist to accurately determine disease extent and augment clinical findings to plan appropriate therapy.<sup>4-6</sup> Hence; the present study was conducted for assessing radiographic findings in oral cancer patients.

#### MATERIALS & METHODS

The present study was conducted for assessing radiographic findings in oral cancer patients. A total of 20 oral cancer patients were included in the present study. Complete demographic and clinical details of

all the patients were obtained. Clinical examination was thoroughly carried out. Radiographic assessment of all the patients was done. Biopsy was obtained and histopathologic confirmation of the diagnosis was done. Radiographic findings were segregated and analyzed. All the results were recorded analyzed using SPSS software. Univariate regression curve was used for evaluation of level of significance.

## RESULTS

In the present study, a total of 20 patients were analyzed. Mean age of the patients was 49.6 years. Out of 20 patients, 16 were males while the remaining 4 were females. Ill-defined radiolucency with ragged borders was seen in 70 percent of the patients while Ill-defined radiolucency with smooth borders was seen in 15 percent of the patients. Ill-defined Radiolucency with flecks of calcification was seen in 1 patient only. 2 patients didn't demonstrate any radiographic change.

**Table 1:** Spectrum of radiographic findings

Radiographic findings	Number of patients	Percentage
Ill-defined radiolucency with ragged borders	14	70
Ill-defined radiolucency with smooth borders	3	15
Ill-defined Radiolucency with flecks of calcification	1	5
No change	2	10
<b>Total</b>	<b>20</b>	<b>100</b>

## DISCUSSION

Globally, oral cancer is the sixth most common type of cancer with India contributing to almost one-third of the total burden and the second country having the highest number of oral cancer cases. Oral squamous cell carcinoma (OSCC) dominates all the oral cancer cases with potentially malignant disorders, which is also recognized as a detectable pre-clinical phase of oral cancer. Tobacco consumption including smokeless tobacco, betel-quid chewing, excessive alcohol consumption, unhygienic oral condition, and sustained viral infections that include the human papillomavirus are some of the risk aspects for the incidence of oral cancer. Lack of knowledge, variations in exposure to the environment, and behavioral risk factors indicate a wide variation in the global incidence and increase the mortality rate. There are many imaging techniques that can be used for the diagnosis of cancers in the oral cavity. The most commonly used modalities used for both diagnosis and the planning of treatment include magnetic resonance imaging (MRI), computed tomography (CT) and positron emission tomography (PET). Moreover, oftentimes a biopsy sample is also taken.<sup>6-9</sup> Hence; the present study was conducted for assessing radiographic findings in oral cancer patients.

In the present study, a total of 20 patients were analyzed. Mean age of the patients was 49.6 years. Out of 20 patients, 16 were males while the remaining 4 were females. Ill-defined radiolucency with ragged borders was seen in 70 percent of the patients while Ill-defined radiolucency with smooth borders was seen in 15 percent of the patients. Shah PH et al analyzed the radiographic features of oral malignancy involving jaw bone and to compare it with the available literature. Materials and Methods: The clinical and radiographic records of 20 cases of oral malignancy showing bone involvement in panoramic radiographs were analyzed from the archives of the department in the present hospital-based retrospective study. Descriptive statistics were used to compare the findings. Results: We observed that the age of the patients presenting with oral malignancy with jaw bone involvement ranged from 35 to 82 years, with a male:female ratio of 1:1. Mandible was involved in 19 cases with preference to the right side (63.2%). In the mandible, the body of the mandible was most commonly involved (89.5%), with ragged margins (80%) and irregular pattern of involvement (75%) being the most common. Pathologic fracture was evident in 6 (30%) cases and floating tooth appearance was present in 10 (50%) cases. Only 3 (15%) cases demonstrated root resorption. Conclusion: Panoramic radiographs are valuable aids in diagnosing the involvement of jaw bones in oral malignancy, and thereby help in devising the treatment plan.

In the present study, Ill-defined Radiolucency with flecks of calcification was seen in 1 patient only. 2 patients didn't demonstrate any radiographic change. Kawai N et al investigated the frequency and shape of root resorption in malignant tumors and considered the relation between tumor extension and root resorption. The subjects were 72 patients with pathologically diagnosed malignant tumors. Radiography showed that the roots of their teeth were in contact or involved with the tumors. They observed the radiographs and classified the findings into 2 types as follows: (1) resorption of alveolar bone (site of tumor invasion): 1. alveolar-margin type 2. root-apex type; (2) resorption of tooth root: 1. spike type 2. knife-edge type. The root resorption rate for all cases was 43% (31/72). (There were 19 squamous cell carcinomas, 2 adenoid cystic carcinomas, 3 malignant lymphomas, 2 metastatic tumors, 1 poorly differentiated carcinoma, 3 undifferentiated carcinomas and 1 fibrosarcoma.) Root resorption rate of alveolar-margin-type tumors was 37% (19/51), and that of the root-apex-type tumors was 57% (12/21). All alveolar-margin-type tumors showed spike-type root resorption, and all root-apex-type tumors were of the knife-edge type except 1 case. Their study suggested that root resorption associated with malignant tumors is not rare and that the shape of root

resorption may be related to the site of tumor invasion.<sup>11</sup>

## CONCLUSION

Oral squamous cell carcinoma mostly presents ill-defined radiolucency lesion on radiographic examination.

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