Case Report

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Dentistry Section

Cannibalistic Cell as a Marker for Relapse in Oral Cancer: A Case Report with Brief Review on Potential Risk Factors for Relapse

DEEPA JOSE[1], SOMA SUSAN VARGHESE[2], PRAMOD P MATHEWS[3], C JOSEPH SEBASTIAN[4]

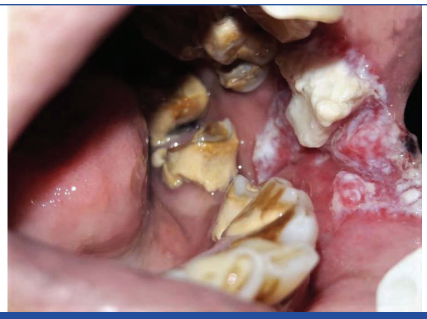
ABSTRACT

Oral Squamous Cell Carcinoma (OSCC), a grave debilitating disease besides causing structural abnormalities, it harms patient's quality of life as well. Several pathological parameters can predict the survival and prognosis of OSCC. Cell Cannibalism (CC), a distinctive morphological feature have already been explored and proved in various malignancies. However, cannibalistic cells are often ignored during routine histopathological assessment of head and neck OSCC and have not been extensively studied. The authors present a case report of a 64-year-old, female, OSCC patient with uncontrolled diabetes, in which many cannibalistic cells was observed on slide evaluation. On further examination a Histologic Tumour Thickness (HTT) of 8 mm and a depth of invasion of 6 mm was noted, which again can foretell an adverse prognosis. Subsequently, patient was referred and managed at a cancer centre but a regular postoperative evaluation was scheduled in the institute for better patient care. Interpreting and understanding these risk factors and being more empathetic towards the patient, will not only help in postoperative evaluation but also ensure a better quality of life thereafter.

Keywords: Cell cannibalism, Prognosis, Squamous cell carcinoma

CASE REPORT

A 64-year-old female patient reported to Mar Baselios Dental College, with a chief complaint of pain and growth on left side of cheek for two months [Table/Fig-1]. Pain was intermittent in nature and was relieved on medication. Patient had noticed an ulcer in that region two years back, for which she consulted a private dentist under whom the diagnosis was not confirmed. Then, this patient was referred to the present dental institute where further evaluation was done. The medical history revealed, the patient had diabetes for the past 15 years. Even though the patient was under medication, fasting blood sugar level of 303 g/dL was noted on evaluation. Personal history revealed tobacco chewing habit for 30-40 years.

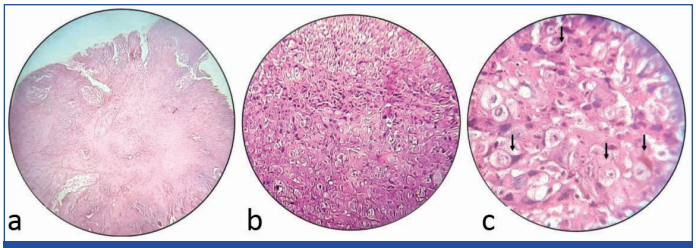


[Table/Fig-1]: Clinical presentation of the case. An ulceroproliferative lesion on the left cheek extending posteriorly from corner of mouth.

On intraoral examination, an ulceroproliferative growth of size 4×2 cm over left buccal side was seen extending posteriorly from left commissures. Limited mouth opening i.e., interincisal distance around 32 mm, induration of the base of the lesion, tenderness and bleeding on palpation was also present. Lymph nodes were not palpable. By considering the characteristics of the lesion differential diagnosis of verrucous carcinoma, traumatic ulcer and minor salivary gland carcinoma were suspected. A provisional diagnosis of malignancy of buccal mucosa was given.

Two bits of formalin fixed brownish white soft tissue specimen, firm in consistency were submitted for histopathological examination following an incisional biopsy in the institute. Histopathological examination of H&E-stained tissue section revealed irregular proliferation of neoplastic squamous cells, stroma infiltrated with dysplastic epithelial islands, nests, and individual squamous cells. Few areas comprised of tumour giant cells, highly pleomorphic, hyperchromatic cells, along with many cannibalistic cells [Table/Fig-2a,b].

An incisional biopsy report of squamous cell carcinoma was given. The patient was further referred to a cancer centre where a definitive diagnosis of moderately differentiated SCC was reconfirmed and a HTT of 8 mm and depth of invasion of 6 mm were noted. A pathological staging report of pT3N0 was given. Wide excision of the tumour along with selective lymph node removal was done. For a better postoperative care, a regular follow-up was scheduled in the institute and after one and a half years signs of local recurrence were evident and the patient was referred back to cancer centre for further management.



[Table/Fig-2]: a) Photomicrograph showing picture of proliferating surface epithelium in OSCC H&E stain (X40 under scanner view); b) showing dysplastic squamous cells in the connective tissue stroma H&E stain (X100 under low power); c) cannibalistic cells H&E stain (X1000 under high power view).

DISCUSSION

Weinberg and Hanahan's proposal on hallmarks of cancer has immensely helped us understanding the core traits of cancer, more than that it can be applied to OSCC prognostication as well [1]. Specific elucidation of prognostic markers in routine histopathology of OSCC has only been partially recognised, which has a noteworthy role in assessing patient prognosis especially in developing nations [1]. Pathological parameters like degree of differentiation, depth of invasion, neural and vascular invasion, lymph node metastasis have displayed strong association with prognosis of OSCC [2-4].

Several authors consequent to their studies on CC and advanced tumour grade emphasised CC as a valuable prognostic marker which can foretell biological behaviour [5-8]. In CC a large cell is

seen enclosing a slightly smaller adjacent tumour cell within its cytoplasm for its survival. Illustration of CC and its association with aggressiveness have already been explored and proved in various malignancies [7]. This vital marker of aggressive biological behaviour has not been extensively studied and is often unnoticed during routine histopathological assessment of head and neck OSCC.

Sarode GS et al., in their research on quantification of CC in OSCC cases have concluded that CC are an easily identifiable and vital marker of aggressive biological behaviour [5]. The study found poorly differentiated OSCC had a greater number of CC as compared to moderately differentiated OSCC cases. In another study, Sarode SC et al., reaffirmed that neutrophil tumour CC in OSCC could serve as valuable prognostic marker [7]. Siddique S et al., on identifying CCs in 65 various histological grades of OSCC confirmed that CCs were seen more in sections with patchy lymphocytic response, increased mitotic figures, and grade IV pattern of invasion [8]. Jose D et al., on retrospective analysis of 20 neck dissection cases of OSCC, noted a statistically significant correlation between advanced grade of CC and positive lymph node metastasis [5,6,9-11] [Table/Fig-3].

S. No.	Authors name and year	Prognostic marker	Conclusion
1.	Sarode GS et al., 2012 [5] Jose D et al., 2014 [6]	Cannibalistic cell	Neutrophil cell cannibalism in OSCC could serve as a useful prognostic marker. Cellular cannibalism is an important and valid prognosticator in OSCC.
2	Melchers LJ et al., 2012 [9] Almangush A et al., 2010 [11]	Histologic Tumour Thickness (HTT)/ Tumour infiltration depth/depth of invasion	An infiltration depth of P 4 mm to be used as an absolute indication for elective neck dissection in p T1N0 OSCC. Depth of invasion as prognostic indicator in early-stage oral tongue cancer.
3.	Jose D et al., [6]	Lymph node metastasis	OSCC with positive lymph node metastasis demonstrated more CC.
4.	Wu CH et al., 2010 [10]	Diabetes	Patients with DM tend to have a lower overall survival and cancer specific survival compared with non diabetics.

[Table/Fig-3]: Prognostic markers of OSCC [5,6,9-11].

In this case, many CC along with other highly dysplastic cells were noted on slide evaluation and would like to emphasise the significance of assessing CC in routine histopathology. On detailed microscopic examination at the cancer centre, a HTT of 8 mm and depth of invasion 6 mm were noted. An extensive study by Melchers LJ et al., in 212 cases of OSCC concluded that tumour infiltration depth P 4 mm is an indication for an elective neck dissection in pT1cN0 OSCC [9]. In the present case a pathological staging report of pT3N0 was obtained, and selective lymph nodes were removed.

In this case along with these adverse histopathogical indicators, patient was a known diabetic with high blood sugar level. Diabetes has also got a significant impact on the prognosis of OSCC. Wu CH et al., suggested that patients with DM tend to have a lower overall survival and cancer specific survival compared with non diabetics even in less aggressive tumour stages [10]. As diabetic condition impairs the treatment modality and forecast an unfavourable prognostic outcome adjuvant therapies may be essential for DM patients to improve their survival [10].

Owing to stringent evaluation, adverse prognosticators like CC, tumour thickness of 8 mm, depth of invasion of 6 mm and a diabetic medical history were elucidated and because of which the clinician's could be alerted by the pathologists regarding the prognosis. Following management at cancer centre, a regular postoperative follow-up every six months was scheduled to ensure proper quality of life and to focus on disease free survival. As expected, signs of local recurrence were evident after one and a half years and the patient was referred to cancer centre without much delay. However, to comment further on prognosticators effect on outcome, a greater number of OSCC cases with these potential risk factors and postoperative evaluation must be done.

CONCLUSION(S)

The OSCC consists of heterogeneous group of tumour cells and prognosis entails multiple factors, hence a single factor alone cannot predict the outcome or survival. Therefore to conclude, the present case of OSCC with cluster of predictive factors like CC, more histological tumour thickness, Depth of invasion and diabetes could be considered as promising prognostic markers for poor post treatment clinical outcome.

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PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Oral Pathology, Mar Baselios Dental College, Ernakulam, Kerala, India.
2. Professor, Department of Oral Pathology, Mar Baselios Dental College, Chelad, Kothamangalam, Ernakulam, Kerala, India.
3. Professor, Department of Oral Pathology, Mar Baselios Dental College, Ernakulam, Kerala, India.
4. Associate Professor, Department of Oral Pathology, Mar Baselios Dental College, Ernakulam, Kerala, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Deepa Jose,
Associate Professor, Department of Oral Pathology, Mar Baselios Dental College, Kothamangalom, Ernakulam, Kerala, India.
E-mail: dr.deepajose00@gmail.com

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