

Leukoplakia of buccal mucosa with transformation into spindle cell carcinoma: A rare case report

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Abstract

Spindle cell carcinoma (SpCC), a variant of squamous cell carcinoma, is a biphasic malignant neoplasm that occurs mainly in the upper aerodigestive tract. It is uncommon in oral cavity, accounting for <1% of all tumors in oral cavity. Furthermore, it is uncommon for oral potentially malignant disorders such as leukoplakia to undergo transformation into SpCC. In this paper, we are reporting a case of SpCC of buccal mucosa in a 35-year-old female who was previously diagnosed with oral leukoplakia past 6 months.

Keywords: Carcinoma, cytokeratin, spindle, squamous

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INTRODUCTION

Squamous cell carcinoma (SCC) is the most common malignant mucosal neoplasm to affect the head and neck region. Occasionally, variants of SCC may be encountered, which includes verrucous, exophytic or papillary, spindle cell (sarcomatoid), basaloid and adenosquamous types that make up an aggregate of 10%–15% of all SCCs.^[1]

Spindle cell carcinoma (SpCC) is a relatively rare malignancy affecting the upper aerodigestive tract comprising up to 3% of SCC. The most common site of origin in the head and neck region is larynx and hypopharynx.^[2] SpCC, also called Lane tumor, pseudosarcoma, carcinosarcoma, sarcomatoid carcinoma, collision tumor and pleomorphic carcinoma, is an uncommon poorly differentiated type of SCC.^[1,3,4] It is a biphasic tumor with a carcinoma that has surface epithelial changes and an underlying spindle-shaped

neoplastic proliferation.^[5] There has been confusion over the basic nature of the sarcomatoid element, that is, whether it is benign or malignant and mesenchymal or epithelial in origin. The epithelial nature of the sarcomatoid component of SpCC is clearly revealed by a combination of immunohistochemical staining for keratins and electron microscopic demonstration of tonofilament-like filaments and/or desmosome-like structures.^[6,7] However, WHO classification of tumor has placed this entity under malignant epithelial tumors of SCC.^[5,8]

There is limited literature on SpCC arising in the buccal mucosa. Moreover, to the best of our knowledge, there is only one case report in literature documenting the malignant transformation of oral verrucous leukoplakia into SpCC. We report here a case of SpCC arising in the buccal mucosa in a patient who was previously diagnosed with oral leukoplakia and was under medical management for same.

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CASE REPORT

A 35-year-old female patient reported to the Outpatient Department of Oral Medicine and Radiology with the chief complaint of pain in the left cheek for past 8 days. According to history of presenting illness, the patient was provisionally diagnosed as homogenous leukoplakia with respect to left buccal mucosa 6 months back [Figure 1]. At that time, an incisional biopsy was done from left buccal mucosa which was suggestive of hyperkeratosis. The patient was then prescribed antioxidant once daily and was advised to report for regular follow-up. However, patient had lost the follow-up. After 6 months, she reported with the chief complaint of pain in the left buccal mucosa past 8 days. Past medical history revealed that she was under medication for hypertension. Personal history showed that she had history of areca nut chewing, 2–3 times in a day for 6–7 months and had quit the habit 4 years back. Extraoral examination showed the presence of left submandibular lymphadenopathy which was tender and fixed to the underlying soft tissues. Intraoral hard tissue examination showed grossly decayed 18, root stumps of 14, 46, 47 and 48, carious 13, 14, 23 and 35 and missing 27, 36 and 37. Intraoral soft-tissue examination revealed diffuse, thick, non-scrapable white patch on the left buccal mucosa extending from commissure region up to the retromolar region anteroposteriorly and from the level of the occlusal plane to buccal vestibule superoinferiorly [Figure 2]. A punched out ulcer was seen on the left buccal mucosa approximately 1 cm × 1 cm in size located 1 cm lateral to the commissure of mouth [Figure 2]. On palpation, it was well defined with indurated margins and covered with a yellowish base. Based on history and examination findings, provisional diagnosis of homogenous leukoplakia with malignancy in relation to left buccal mucosa was made. The patient was advised to get routine blood investigation and contrast-enhanced computed tomography (CECT) scan of the head and neck.

CECT revealed heterogeneously enhancing soft-tissue thickening in the left buccal space with cervical lymphadenopathy involving level Ib and bilateral upper jugular nodes [Figure 3]. Incisional biopsy was performed from the ulcer. Histopathological sections showed hyperparakeratinized stratified squamous dysplastic epithelium with a focal area of invasion in the underlying connective tissue [Figure 4]. The lesional tissue was composed of streaming fascicles of anaplastic spindle cells [Figure 5], which showed marked pleomorphism and strong resemblance to atypical mesenchymal cells. The tumor cells were largely present in a fascicular or a whorled pattern. The cells present in the fasciculated



Figure 1: Clinical photograph showing homogenous leukoplakia on the left buccal mucosa before appearance of ulcer



Figure 2: Clinical photograph of the patient showing homogenous leukoplakia with an ulcer after 6 months of initial lesion

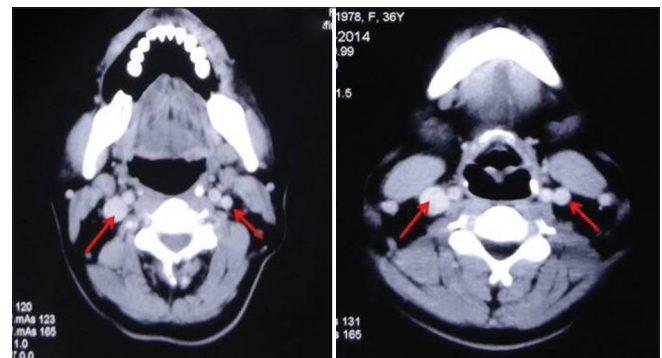


Figure 3: Contrast-enhanced computed tomography section showing enhanced and enlarged bilateral cervical lymph nodes (arrow)

pattern were elongated with elliptical nuclei and showed hyperchromatism and altered nuclear-cytoplasmic ratio [Figure 6]. Numerous mitotic figures and abnormal mitoses were seen throughout the lesional tissue. In the deeper layer, spindle cells had invaded the muscle tissue

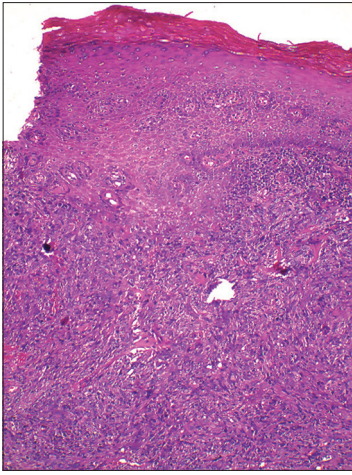


Figure 4: Photomicrograph (×10) showing dysplastic epithelium with focal area of invasion in underlying connective tissue

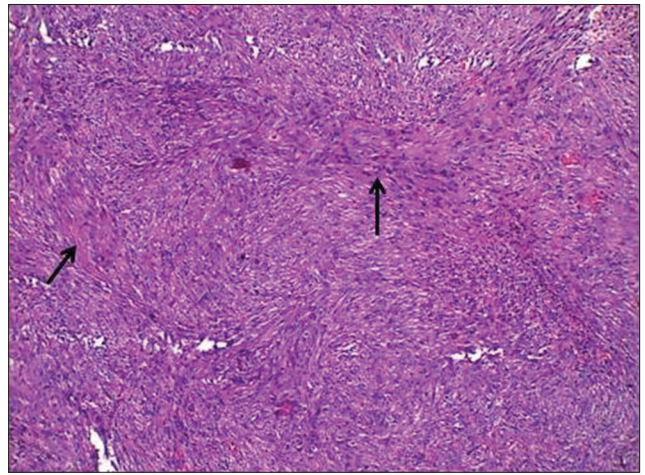


Figure 5: Photomicrograph (×10) showing streaming fascicles of anaplastic spindle cells (arrow)

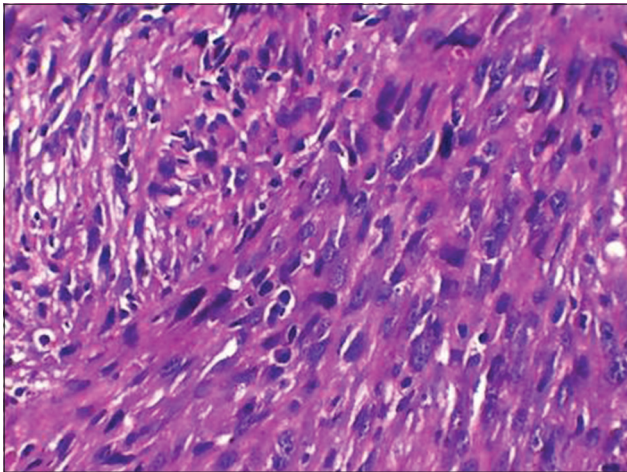


Figure 6: Photomicrograph (×40) showing marked pleomorphism and strong resemblance to atypical mesenchymal cells with hyperchromatism and altered nuclear-cytoplasmic ratio

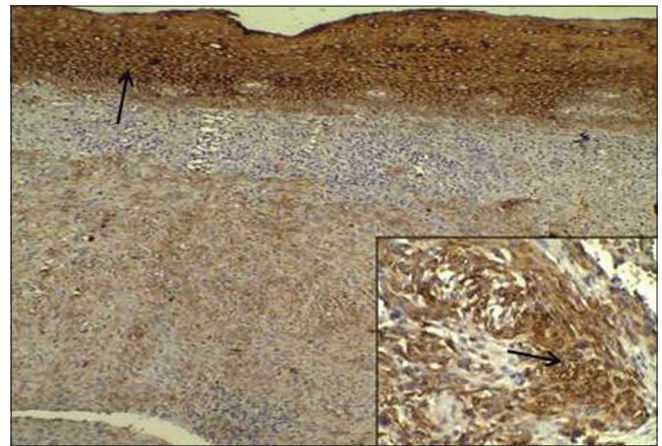


Figure 7: Photomicrograph (×10) showing positive immunohistochemical expression for pancytokeratin in majority of tumor cells and inset (×40) showing cytoplasmic positivity for pancytokeratin (arrow)

and had caused degenerative changes in the muscle fibers. Immunohistochemistry was done to rule out other sarcomatous lesions. Sections showed that 90% of the tumor cells were positive for pancytokeratin [Figure 7] and 5% of the tumor cells were positive for vimentin [Figure 8]. The overall features were suggestive of “SpCC.” The patient was referred to the Department of Oral and Maxillofacial Surgery where it was planned to carry out surgical excision with wide margins along with neck dissection. There was no evidence of distant metastasis. No recurrences have been reported in follow-up appointments.

DISCUSSION

Spindle cell neoplasms comprise a diverse collection of benign and malignant tumors. They are relatively uncommon in the oral cavity accounting for <1% of all tumors in this region.^[7,9] SpCC is a rare variant of SCC

with both malignant squamous cells and spindle cells of epithelial origin. Spindle cell component is responsible for the mesenchymal appearance. Moreover, the diagnosis can be challenging, especially when SCC component is not obvious.^[8] Thus, to establish a correct diagnosis, any clue of epithelial component should be carefully sought in suspected lesions.

Four factors are considered as predisposing factors, namely, tobacco, alcohol, poor oral hygiene and previous irradiation to area of tumor.^[7] It commonly affects men than women, usually in the middle or later decades of life with a mean age of 57 years.^[10] In the present case, the patient is a female in the third decade of life. Although the patient did not have any previous history of irradiation, there was known history of areca nut chewing. Clinical presentation of oral SpCC can vary from an exophytic polypoid mass with an ulcerated surface to a frankly infiltrative ulcer, frequently



Figure 8: Photomicrograph (×10) showing positive immunohistochemical expression for vimentin in very few tumor cells and inset (×40) showing cytoplasmic positivity for vimentin

affecting lower lip, tongue and alveolar ridge.^[11] In the present case, the patient presented with leukoplakia which had transformed into ulcer over a period of 6 months on buccal mucosa, rare site of presentation.

Histologically, it is characterized by the presence of two distinct epithelial-derived components: a carcinomatous or SCC component and a sarcomatoid or dysplastic spindle cell component. The carcinomatous component comprises a minor portion of the tumor mass and is represented by dysplasia, carcinoma *in situ* or frankly invasive carcinoma. Areas of squamous differentiation are most consistently identified at the base of polypoid lesion at advancing margin or within invaginations at the surface where epithelium is not ulcerated or denuded. The spindle cell component comprises major portion of this tumor and imitates a number of different mesenchymal processes.^[5] It can be arranged in diverse array of appearance: storiform, cartwheel or whorled: resembling a malignant fibrous histiocytoma; interlacing bundles or fascicles similar to leiomyosarcoma or malignant peripheral nerve sheath tumor; chevron or herringbone similar to fibrosarcoma. In the present case, tumor cells are arranged in a fasciculated or whorled pattern. At times, areas of elongation and spindling seem to arise from basal epithelial cells, making demarcation between surface epithelial cells and underlying tumor indistinct.^[1] The epithelial and spindle components share a common pathway of tumorigenesis despite their divergence at the phenotypic level. Hence, histological studies alone cannot explain the spindle cell components.^[1] However, through positive keratin immunostaining and demonstration of desmosomes and tonofilaments in the cells, it has been proven that spindle cell elements are epithelial in origin.^[12] Immunohistochemically, the most

sensitive and reliable epithelial markers to be used are keratin and epithelial membrane antigen. These are useful in differential diagnosis of SpCC with other sarcomatous lesions. Vimentin positivity is suggestive of mesenchymal metaplasia in fibroblast-like carcinoma cells. These findings suggest that these cells have acquired mesenchymal properties both morphologically and functionally through metaplastic changes. Double labeling with keratin and vimentin reflects the versatility of intermediate filament phenotype.^[8,10] In the present case, there was positivity for both vimentin and cytokeratin.

SpCC in the oral cavity and oropharynx is potentially aggressive and seems to recur easily and tends to metastasize. Although it is difficult to predict biologic behavior, those with deeply invasive tumors tend to have a poor prognosis, whereas those with early stage tumors usually have an excellent prognosis.

CONCLUSION

It is common for potentially malignant disorders such as leukoplakia to undergo malignant transformation into SCC but is rare to transform into SpCC, a variant of SCC. SpCC is a biphasic malignant tumor which is aggressive in nature, tends to recur easily and metastasize. Interesting part of this tumor is that it mimics other connective tissue sarcoma and malignancy at microscopic level, so its histopathologic differentiation is a must for timely diagnosis and management.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Thompson LD. Squamous cell carcinoma variants of the head and neck. *Curr Diagn Pathol* 2003;9:384-96.
2. Oktay M, Kokenek-Unal TD, Ocal B, Saylam G, Korkmaz MH, Alper M. Spindle cell carcinoma of the tongue: A rare tumor in an unusual location. *Patholog Res Int* 2011;2011:572381.
3. Lane N. Pseudosarcoma (polypoid sarcoma-like masses) associated with squamous-cell carcinoma of the mouth, fauces, and larynx; report of ten cases. *Cancer* 1957;10:19-41.
4. Minckler DS, Meligro CH, Norris HT. Carcinosarcoma of the larynx. Case report with metastases of epidermoid and sarcomatous elements. *Cancer* 1970;26:195-200.
5. Cardesa A, Zidar N. World Health Organization Classification of Tumors. Head and Neck Tumours: Oral Cavity and Oropharynx. Lyon: IARC Press; 2005. p. 127-8.
6. Leventon GS, Evans HL. Sarcomatoid squamous cell carcinoma of the mucous membranes of the head and neck: A clinicopathologic study of 20 cases. *Cancer* 1981;48:994-1003.

7. Parikh N, Desai N. Spindle cell carcinoma of the oral cavity: A case report of a rare entity & review of literature. J Acad Adv Dent Res 2011;2:31-6.
8. Ravindran R, Mohan V, Saji AM. Spindle cell carcinoma of maxilla: A case report of a rare entity & review of literature. Oral Max Path J 2013;4:379-84.
9. Jordan RC, Regezi JA. Oral spindle cell neoplasms: A review of 307 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;95:717-24.
10. Ramamurti A, Venkataraman M, Narasimhan M, Rao SR. Spindle cell carcinoma of the gingiva: A rare occurrence. Contemp Clin Dent 2013;4:500-3.
11. Romañach MJ, Azevedo RS, Carlos R, de Almeida OP, Pires FR. Clinicopathological and immunohistochemical features of oral spindle cell carcinoma. J Oral Pathol Med 2010;39:335-41.
12. Ansari-Lari MA, Hoque MO, Califano J, Westra WH. Immunohistochemical p53 expression patterns in sarcomatoid carcinomas of the upper respiratory tract. Am J Surg Pathol 2002;26:1024-31.