Basaloid squamous cell carcinoma: Report of two cases with review of literature

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ABSTRACT

Basaloid squamous cell carcinoma is a rare distinct histologic variant of squamous cell carcinoma of the head and neck region. Majority of them can be differentiated from squamous cell carcinoma by their aggressive clinical course and their histological features: the usual site of occurrence of basaloid squamous cell carcinoma is the upper aerodigestive tract, floor of mouth and base of tongue. We hereby present two cases of a rare but aggressive basaloid squamous cell carcinoma, both affecting mandible.

Keywords: Carcinoma; squamous cell of head and neck; head and neck neoplasms; histology, comparative

INTRODUCTION

Basaloid squamous cell carcinoma (BSCC) is an uncommon variant of squamous cell carcinoma.¹ It tends to have an aggressive clinical course as compared to age, sex and stage-matched conventional squamous cell carcinoma with frequent local recurrence, regional, and distant metastases.¹⁻⁴ Most BSCCs are diagnosed at advanced clinical stage and have an unfavorable prognosis because of poor overall patient survival rate.

Clinically, patients with BSCC present feature similar to those of the patient with squamous cell carcinoma and same etiological risk factors, for example, tobacco. The treatment for BSCC is surgery followed by radiotherapy and chemotherapy.⁵

It was initially introduced by Wain et al. in 1986⁶ and was included in the revised edition of the WHO classification in 1997.⁷ Since then, the reporting of this tumor is constantly increasing. Out of <50 cases reported occurring in the oral mucosa, only 4 cases involving the retromolar area/gingival have been documented so far in literature. Here, we are reporting two cases of BSCC involving the mandibular region.

CASE REPORTS

Case Report 1

A 65-year-old male patient reported with a chief complaint of ulcer in the right lower back tooth region of 3½ months duration and gave a history of difficulty in mouth opening and swallowing. He had a history of bidi smoking 12/day for a period of 50 years and also gave the history of tuberculosis which was treated last year.

Intraorally, an ulceroproliferative growth was present in the right posterior mandibular region distal to molar which was non-tender, well defined with irregular surface showing white projection [Figure 1a]. On examination, right
submandibular lymph node was palpable. On radiographic examination, orthopantomograph (OPG) showed slight erosion of the underlying bone in the right posterior mandibular region [Figure 2a].

On the basis of clinical and radiographic features, a provisional diagnosis of tuberculous ulcer was given.

An incisional biopsy was done and sent for histopathological examination, which showed top to bottom features of dysplasia such as altered nuclear-cytoplasmic ratio, pleomorphism, hyperchromatism and few aberrant mitotic figures in the overlying epithelium without any invasion into the underlying stroma. Hence, the diagnosis of carcinoma \textit{in situ} was given [Figure 3].

Then, the complete excision of the lesion was done, and hematoxylin and eosin-stained sections revealed overlying parakeratinized dysplastic stratified squamous epithelium invading the underlying connective tissue. The underlying connective tissue stroma comprised of numerous nests, cords and gland-like lobules of closely packed pleomorphic, hyperchromatic basaloid cells with nuclear palisading. The periphery of the neoplastic nests is surrounded by a fibrous stroma with prominent areas of comedo necrosis [Figure 4]. Few islands showed squamous cells surrounded by basaloid cells. Keratin pearls, increased and abnormal mitotic figures within squamous islands were evident [Figure 5]. The mixed composition of basaloid and squamous cells was striking. Surrounding stroma showed chronic inflammatory cells and blood vessels. Based on histopathological report, the diagnosis of BSCC of retromolar area was given.

\textbf{Case Report 2}

A 56-year-old male patient reported to the Department of Oral and Maxillofacial Pathology with the chief complaint
of painful ulcerated growth in the lower anterior region since 1½ months. The patient was apparently alright 2 months ago, underwent multiple extractions in the lesional area. After extraction, he noticed a small ulcer in the mandibular anterior region, which gradually increased in size and extended on the right side posteriorly. He experienced dull, continuous and nonradiating pain and burning sensation on eating hot food. The patient had poor oral hygiene and had the deleterious habit of bidi smoking, 1 packet daily since 30 years. On extraoral examination, right submandibular lymph nodes were palpable. Intraoral examination revealed an irregular ulcer approximately 2.5 cm × 3.5 cm in size in the lower right jaw region extending anteroposteriorly from mandibular right lateral incisor to the right retromolar area [Figure 1b]. The surface of the ulcer was covered with a yellowish-white slough. On palpation, it was soft and tender. On radiographic examination, OPG showed erosion of the underlying bone in the anterior mandibular region [Figure 2b]. Based on clinical findings, differential diagnosis of squamous cell carcinoma/tubercular ulcer was made. Routine hematological investigations were advised. All values were within normal limits. Histopathological findings suggested the diagnosis of BSCC.

**DISCUSSION**

Squamous cell carcinoma (SCC) is the most common malignant tumor of the oral mucosa. Most oral SCC is of the “typical” morphological types, i.e., well-differentiated SCC with keratin pearl, while variant histologic subtype is found to a lesser degree. These variants include verrucous, adenosquamous and spindle cell carcinoma. In addition to these variants, Wain et al. described BSCC which is a tumor with clearly distinct morphologic features and possibly with a distinct histogenesis, which is reported to occur predominantly in men between 60 and 70 years of age. It is reported in individuals with a history of tobacco and alcohol abuse. Our cases also support these findings as it was in 65 and 56-year-old patients, respectively, with a history of bidi smoking.

The most frequent site to be affected by BSCC is the upper aerodigestive tract with strong predilection for the base of tongue, supraglottic larynx and hypopharynx; however, it is also found in the anus, thymus and uterine cervix.

Our cases involved the mandible and alveolar mucosa which is an atypical location for BSCC. However, Campos et al. and Rachel et al. had also reported atypical presentation of oral BSCC in the retromolar trigone in a 30- and 65-year-old man, respectively, but till now only few case reports have been reported in this region.

One of our cases mimicked squamous cell carcinoma/verrucous lesion clinically and was reported on incisional biopsy as carcinoma in situ. On examining the deeper section of the excisional biopsy, the histologic picture showed features of BSCCs.

Wain et al. and recently Barnes et al. put down the following criteria to diagnose cases of BSCC. The features included:

- Predilection for head and neck region in men in their 60s and 70s
- An ulcerated or exophytic mass with submucosal soft‑tissue infiltration
- Solid basaloid appearing dysplastic islands with biphasic pattern showing comedo-type necrosis and pseudoglandular pattern
- Abrupt foci of squamous differentiation with or without keratin pearls and surface mucosal epithelium showing dysplastic features.

Our cases of BSCC satisfied these criteria. Out of these features, solid growth of basaloid cells with periodic acid–Schiff-positive microcystic spaces is considered the most important in differentiating BSCC from SCC, which was seen in our cases.

Despite the reported characteristic histopathologic pattern, BSCC can be confused with adenoid cystic carcinoma (ACC), adenosquamous carcinoma, neuroendocrine carcinoma, small cell undifferentiated carcinoma and basal cell adenocarcinoma. The presence of squamous differentiation and surface epithelium with dysplastic change rules out the basaloid pattern of ACC. The lack of carcinomatous change in the surface epithelium, in association with adenocarcinoma affecting
the ducts of minor salivary glands, differentiates BSCC from adenosquamous carcinoma. Another rare tumor that might confuse the initial diagnosis of BSCC is the malignant peripheral ameloblastoma. The presence of a palisading arrangement in some of the neoplastic nests and central areas of the tumor islands resembling stellate reticulum is the key element of a correct diagnosis of malignant ameloblastoma. The tumor nests in both of the BSCCs described in this report showed peripheral palisading without central stellate reticulum, which argued against the diagnosis of peripheral malignant ameloblastoma. Moreover, malignant peripheral ameloblastoma typically occurs in gingival or alveolar mucosa.\cite{10}

The biological behavior of BSCC has been reported to be worse than that of conventional SCC and patients with these tumors have an unfavorable prognosis.\cite{8} Altavilla et al.\cite{11} observed in a series of 5 cases of BSCC affecting the oral cavity and oropharynx an aggressive behavior characterized by perineural invasion, cervical lymph node metastases and distant spread to lungs, liver, bones, brain and skin.

Coletta et al.\cite{9} have shown significant higher AgNoR and proliferating cell nuclear antigen positivity in BSCC when compared with SCC. Immunostaining for p53 also showed a higher percentage of positive cells. Expression of matrix metalloproteinase (MMP-1), MMP-2 and MMP-9 was reported higher in cells of BSCC than in cells of SCC, suggesting an aggressive behavior.

However, because of the limited number of cases of BSCC affecting oral mucosa, few data about the biological properties influencing the prognosis of BSCC have been published. Though in a comparative study of oral BSCC and squamous cell carcinoma done by various authors,\cite{5,8,9} they concluded that the prognosis of BSCC does not differ from that of conventional squamous cell carcinoma of the oral cavity when matched for clinical classification.

Nodal metastasis is quite common in laryngeal, hypolaryngeal and tracheal BSCC. Patient with BSCC is said to be associated with a high incidence of the second primary neoplasms (synchronously/metachronously) of the upper aerodigestive tract.

The recommended treatment for this tumor is surgery followed by radiotherapy and chemotherapy.

CONCLUSION

BSCC, a distinct clinicopathological entity with aggressive clinical behavior, which usually is reported to occur in the upper aerodigestive tract, has been reported by us occurring in the mandibular area which is an uncommon site for an uncommon lesion such as BSCC. They are very often misdiagnosed because of clinical and etiological similarity with conventional squamous cell carcinoma. The characteristic histopathological features help in achieving an accurate diagnosis for proper treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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