

Basaloid squamous cell carcinoma of oral cavity: Report of two cases

R Heera, T Ayswarya, SK Padmakumar, P Ismayil

Department of Oral Pathology and Microbiology, Government Dental College, Trivandrum, Kerala, India

Abstract

Basaloid squamous cell carcinoma (BSCC) is an aggressive, high-grade, variant of squamous cell carcinoma (SCC), which is uncommon in the oral cavity but slightly more common in the oropharynx. We present two cases of BSCC, one arising in the floor of the mouth and the other arising on the lateral border of the tongue. The diagnosis of this subtype of SCC is important owing to its particular behavior, with an aggressive course, a high incidence of local recurrence, regional lymph node metastases and mortality rate.

Key Words: Basaloid squamous cell carcinoma, oral cavity, squamous cell carcinoma

Address for correspondence:

Dr. T Ayswarya, Department of Oral Pathology and Microbiology, Government Dental College, Trivandrum, Kerala, India. E-mail: aiswaryat86@gmail.com

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INTRODUCTION

Basaloid squamous cell carcinoma (BSCC) as defined by the World Health Organization is an aggressive, high-grade, variant of squamous cell carcinoma (SCC) composed of both basaloid and squamous components.^[1] The tumor arises most frequently in the head and neck region, the most common sites being epiglottis, piriform sinus and base of the tongue. Other less common sites of origin include the floor of the mouth, oral mucosa, palate, tonsils, sinonasal tract, nasopharynx and trachea.^[2] Head and neck BSCC tends to have an aggressive clinical course than stage-matched conventional SCC. We report two cases of BSCC, one in the floor of the mouth and the other arising on the lateral border of the tongue.

CASE REPORTS

Case 1

A 54-year-old male patient reported to the department with a complaint of burning sensation and diffuse pain under the tongue since last 8 months [Figure 1]. No increase in the size of

the lesion was reported. He gave a history of smoking for last 8 years. On examination, an ulceroproliferative growth of size 3 cm × 2 cm, with indurated margins, on the anterior floor of the mouth in relation to 31, 32, 41 and 42 regions was noticed. The lesion was tender on palpation. Left submandibular lymph nodes were palpable, nontender and mobile. Incisional biopsy was performed and histopathology revealed a moderately collagenous connective tissue stroma infiltrated with nests and islands of tumor epithelial cells. The tumor cells exhibited a basaloid appearance with hyperchromatic nuclei and scanty cytoplasm and were arranged in a lobular configuration. Occasional squamous differentiation was also noted superficially. Numerous mitotic figures were also noticed amidst the tumor cells [Figures 2 and 3]. Neither peripheral palisading nor comedo necrosis was present. A diagnosis of BSCC was given.

Case 2

A 57-year-old male patient reported with the complaint of ulcer of 1-month duration on the lateral aspect of the tongue. The

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patient had difficulty in performing tongue movements and mouth opening was also limited. He reported a habit of tobacco smoking for more than 15 years. On examination, an ulceroproliferative growth of size 2 cm × 2 cm on the left lateral border of the tongue, covered by necrotic slough was noticed [Figure 4]. The lesion was tender on palpation and had indurated margins. Submandibular lymph nodes were palpable bilaterally and were firm, nontender and mobile. Incisional biopsy was performed and histopathological examination revealed a dysplastic stratified squamous epithelium infiltrating into underlying moderately collagenous connective tissue [Figure 5]. The infiltrating tumor cells had a basaloid appearance. Nuclear atypia, pleomorphism and a large number of mitotic figures were also noted. Occasional areas also showed a peripheral palisading of cells and comedo necrosis [Figure 6]. Concurrent with above findings, a diagnosis of BSCC was given.

DISCUSSION

First described by Wain *et al.* in 1986 in the upper aerodigestive tract (UADT), BSCC is a rare, aggressive variant of SCC with varying proportions of basaloid and squamous components. It represents 2% of head and neck

cancers^[3] with an increased tendency to be multifocal, deeply invasive and metastatic even at the initial presentation. The tumor has slight male predominance. Tobacco, alcohol abuse and a previous history of radiation to the head and neck region are considered as strong risk factors.^[2] Although both of our patients failed to give a history of previous irradiation or alcohol consumption, they were chronic tobacco chewers (betel leaf, areca nut, slaked lime and tobacco) with occasional smoking. The role of viruses in the etiology of BSCC is still controversial, but many authors have reported a higher frequency of human papillomavirus and herpes simplex virus in basaloid tumors than in conventional SCC.^[4] The origin for BSCC has been suggested to be from a totipotent cell capable of divergent differentiation located in the basal zone of the surface epithelium or in the minor salivary glands of the submucosa.^[5] Some authors also believe that “basaloid” pattern occurring anywhere in the body represents an attempt at glandular differentiation.

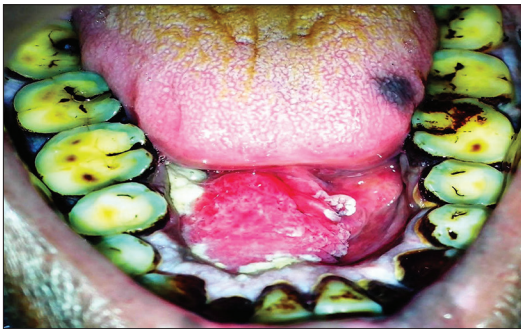


Figure 1: Photograph showing the ulceroproliferative lesion with indurated margins in the floor of mouth

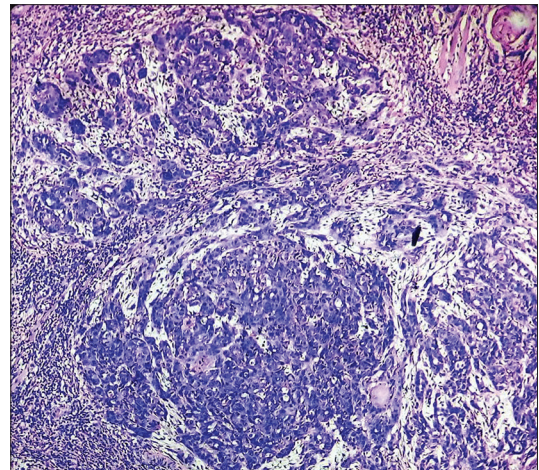


Figure 2: Photomicrograph showing nests and islands of infiltrating basaloid cells. Occasional squamous differentiation is also seen (H&E stain, ×40)

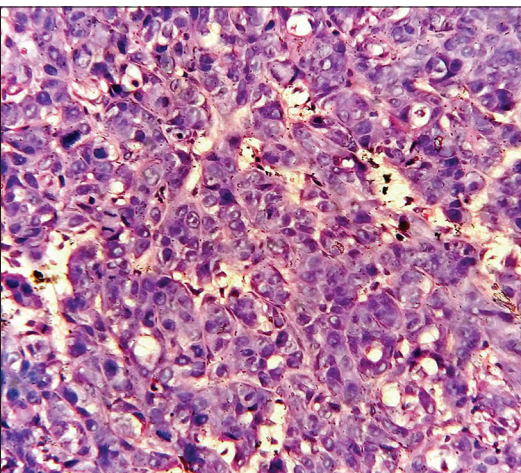


Figure 3: Photomicrograph showing basaloid cells with nuclear atypia. Large number of mitotic figures are also noted (H&E stain, ×400)



Figure 4: Photomicrograph showing an ulceroproliferative lesion on lateral border of tongue with necrotic slough and indurated margins

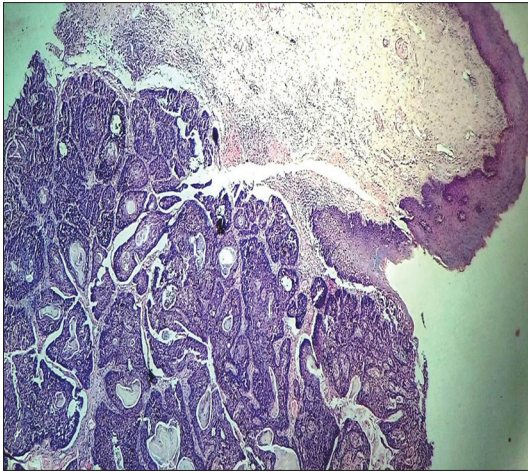


Figure 5: Photomicrograph showing dysplastic stratified squamous epithelium infiltrating into the connective tissue. Basaloid appearance of the tumor cells and comedo necrosis can also be appreciated (H&E stain, x40)

BSCC usually presents as a centrally ulcerated mass with extensive submucosal induration, often being confused with a minor salivary or soft tissue tumor. Histologically, it is considered to be a bimorphic variant of SCC, with basaloid cells and an SCC component which can be either *in situ* carcinoma or invasive keratinizing SCC. The closely packed basaloid cells growing in a solid pattern with a lobular configuration often exhibit prominent peripheral palisading and comedo-type necrosis. Frequent invasion of soft tissue structures and neurotropism is noted. This was not discernible in our cases, most probably due to small size of the specimen received. Distinctive features of BSCC, not found in SCC, are small cystic spaces containing periodic acid-Schiff and Alcian blue positive material and stromal hyalinization.^[1] Thariat *et al.* reported that Wain's criteria (peripheral palisading, association with SCC, high nuclear-cytoplasmic ratio, high mitotic rate and solid growth), anti-34BE12 and CK 5/6 staining and absence of neuroendocrine markers are mandatory for the diagnosis of BSCC.^[6] The immunoprofile of BSCC shows consistent positive staining to high molecular weight cytokeratin antibody 34βE12, KL1, P63 and MNF116, and focal staining for vimentin, EMA, CAM5.2, CK7, CEA, S100 and GFAP and negative immunostaining for CK20, chromogranin, synaptophysin, BCL2 and Ber-EP4.^[2]

The histopathological differential diagnosis for BSCC includes solid variant of adenoid cystic carcinoma (ACC), small cell neuroendocrine carcinoma (SCNC), adenosquamous carcinoma, basal cell adenocarcinoma, salivary duct carcinoma and basal cell ameloblastoma.^[7] BSCC can be differentiated from ACC by the absence of myoepithelial cells, the presence of basement membrane – such as material positive for laminin

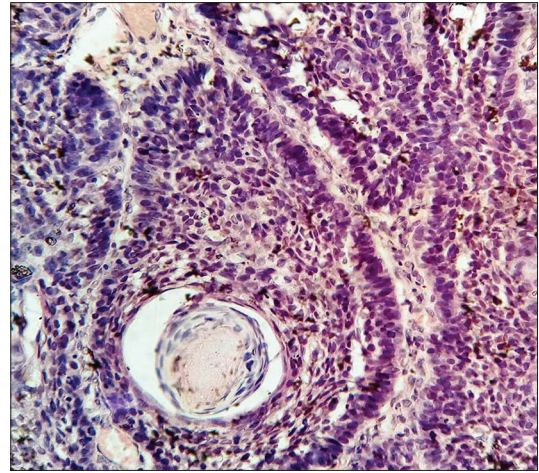


Figure 6: Photomicrograph showing tumor cells with high nuclear-cytoplasmic ratio and peripheral palisading (H&E stain, x100)

and Type IV collagen in the microcystic spaces, dot-like vimentin expression and negative CK7 staining.^[1,7] Moreover, ACC shows no dysplasia or continuity with the surface epithelium and often shows less pleomorphism, mitosis and necrosis than BSCC. Emanuel *et al.* reported that p63 immunostaining constitutes a specific and accurate means of distinguishing BSCC from ACC with diffuse p63 positivity and staining of nearly 100% of tumor cells in the former and a consistently compartmentalized pattern within tumor nests in the latter.^[8] To differentiate BSCC from SCNC, it is important to note that SCNC shows characteristic nuclear molding, crushing artifact, lack of stromal mucinous-myxoid changes and hyalinosis and is rarely connected to the surface mucosa. Furthermore, BSCC is negative for chromogranin, synaptophysin and glial-fibrillary acid protein. The recognition of mucin positivity and true ductul-acinar differentiation in adenosquamous carcinoma differentiates it from BSCC.^[3] Focal necrosis and squamous differentiation usually seen in BSCC are not seen in basal cell adenocarcinoma. Eosinophilic cytoplasm and irregular-shaped cystic spaces lined by papillary projections seen in salivary duct carcinomas help to distinguish them from BSCC.^[5]

Since the tumor shows a propensity for early metastases to regional lymph nodes and visceral locations, a multimodality treatment approach including radical surgical excision, neck dissection, radiotherapy and often chemotherapy is preferred. Approximately, 64%^[9] of patients with BSCC develop cervical lymph node metastasis. Distant metastasis involving the lung, bone, skin and brain develops in up to 44%^[9] of cases and is six times^[4] higher in cases of BSCC compared to SCC. Ereno *et al.* suggests that since lungs is the most frequent site of BSCC metastasis, all patients diagnosed with BSCC of the UADT systematically should undergo a chest computed

tomography scan to rule out the lung metastasis and a 2-deoxy-2-fluoro-D-glucose – positron emission tomography to detect the presence of extrapulmonary asymptomatic metastatic lesions.^[4] Despite more aggressive therapy, BSCC is associated with poor outcome with an overall 3-year survival rate of 28.5%.^[10]

Our cases presented with the typical histologic picture of BSCC. The parts of dysplastic squamous epithelium infiltrating into connective tissue were evident and the tumor cells showed a basaloid appearance with peripheral palisading, comedo necrosis and occasional squamous differentiation, which prompted us to give a final diagnosis of BSCC. Although the clinical diagnosis is simply that of an oral SCC (OSCC), it should be a routine to diagnose the case histologically as any of its variants. The diagnosis of these cases as BSCC is essential as the lesion has a different clinical course, prognosis and treatment aspects when compared to the conventional OSCC.

CONCLUSION

The diagnosis and management of BSCC should be done with caution. Since the tumor is almost always associated with an aggressive course and poor prognosis, once diagnosed with BSCC, the patient should be extensively worked up to rule out the occurrence of subclinical metastatic lesions. The possibility of finding a second primary tumor in any site should also be kept in mind.

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Conflicts of interest

There are no conflicts of interest.

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