

# Basaloid squamous cell carcinoma – A rare and aggressive variant of squamous cell carcinoma: A case report and review of literature

### ABSTRACT

Basaloid squamous cell carcinoma (BSCC) is a rare and aggressive variant of oral squamous cell carcinoma with a predilection for the tongue and in other locations, such as floor of the mouth, palate, retromolar trigone, and gingival mucosa. Here, we present a case of BSCC of oropharynx in a 60-year-old male patient.

**Keywords:** Basaloid squamous cell carcinoma, oral cavity, oral squamous cell carcinoma, oropharynx

### INTRODUCTION

Basaloid Squamous Cell Carcinoma (BSCC) is a rare and aggressive variant of oral squamous cell carcinoma (OSCC) that was first identified as a separate histopathological entity by Wain *et al.* (1986).<sup>[1,2]</sup> It is regarded as a high-grade tumor with increased propensity for metastasis to distant sites. The histological hallmark of BSCC is its dimorphic pattern of presentation with a characteristic basal cell component associated with squamous component. It was included in the revised edition of the WHO classification in 1991.<sup>[3,4]</sup> In general, it has a predilection for head and neck region, particularly the upper aerodigestive tract, i.e., larynx and hypopharynx. In the oral cavity, BSCC has a predilection for the tongue though it has been described in other locations such as floor of the mouth, palate, retromolar trigone, and gingival mucosa.<sup>[5,6]</sup>

Herein, we report a case of BSCC arising in the oropharynx and the review the literature for establishing the clinicopathologic characteristics of oral BSCC.

### CASE REPORT

A 60-year-old male patient reported with a chief complaint of painful swelling over the left side of the neck region

since 2 months. The pain was dull and intermittent. The swelling was gradual n slow. There was no significant past medical, dental, and family history. He had a history of beedi smoking (smokeless tobacco) for 30 years, with a frequency of 10–12/day. He also had a history of gutkha chewing for the same period with a frequency of 3–5 packets/day.

Extraoral clinical examination revealed palpable and tender swelling extending from behind the ear lobe to the angle of the mouth on the left neck region [Figure 1].

The intraoral examination showed an ulceroproliferative lesion involving the left posterolateral part of the tongue extending onto the soft palate involving faucial pillars was seen. The ulcer was tender on palpation, exhibiting

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**Figure 1:** Extraoral clinical examination revealed palpable and tender swelling extending from behind the ear lobe to the angle of the mouth on the left neck region

irregular margins with ill-defined borders surrounded by erythematous area. Oral hygiene was poor with generalized stains and calculus. Generalized attrition was present. No limitation of mouth opening was seen. Tongue movements were within normal limits. Left submandibular lymph nodes were palpable, hard, tender, and were fixed to the underlying structures [Figure 2].

Based on the clinical features, a provisional clinical diagnosis of carcinoma of the base of the tongue was given. After obtaining written consent from the patient, an incisional biopsy from the lateral border of tongue was performed under local anesthesia and sent for histopathologic examination. The patient was advised to get a magnetic resonance imaging (MRI) done.

MRI showed the lesion extended into the posterior wall of the pharynx and to the base of the skull along with evidence of nodal metastasis and since invasive carcinoma could not be ruled out from the incisional specimen, treatment was planned accordingly [Figure 3].

All the accessible areas of the oral cavity were excised and debulking surgery over the pharyngeal mass was done. Radical neck dissection was done to removed the neck mass. Surgery was done under general anesthesia. Moreover, patient was referred for radiotherapy and chemotherapy.

The specimens were routinely fixed, processed, and stained with hematoxylin and eosin. The stained sections revealed dysplastic stratified epithelium is seen invading the connective tissue in the form of nests, islands, and lobules [Figure 4]. A few areas showed epithelial cells proliferating in the form of chords interconnecting with each other [Figure 5]. Islands



**Figure 2:** The intraoral examination showed, an ulcero-proliferative lesion involving the left postero-lateral part of the tongue extending onto the soft palate involving faucial pillars

of epithelium were made up of basaloid appearing cells with peripheral palisaded arrangement, showing large vesiculated nuclei with an increased nuclear-to-cytoplasmic ratio and scant amphophilic cytoplasm. Surface epithelium showed features of dysplasia.

Islands also displayed areas of comedo-necrosis and focal keratinization [Figure 6]. Mitotic figures were also abundant. Stroma around the tumor was composed of fibrous connective tissue infiltrate along with chronic inflammatory cells chiefly composed of lymphocytes. Lymph nodes also showed metastasized tumor cells proliferating in lymphoid tissue.

Based on the histopathological features, a diagnosis of BSCC of oropharynx was given.

## DISCUSSION

BSCC is a rare variant of squamous cell carcinoma with a frequency of >1% of all squamous cell carcinoma.<sup>[7]</sup> BSCC of the head and neck tends to have an aggressive clinical course than conventional OSCC (stage-matched), with frequent local recurrences with regional and distant metastases. This idea is now generally accepted.<sup>[8]</sup> Most BSCCs are usually diagnosed at advanced clinical stages, and because of the overall poor patient survival rates, its prognosis is unfavorable.<sup>[9]</sup>

In 1927, Quick and Culter although mentioned the existence of undifferentiated SCC of the nasopharynx, tonsil, and tongue base, where BSCC occurs more frequently, they provided no histological details other than suggesting that these were highly malignant and radiosensitive. They recommended the name "transitional cell epidermoid carcinoma."<sup>[10]</sup>



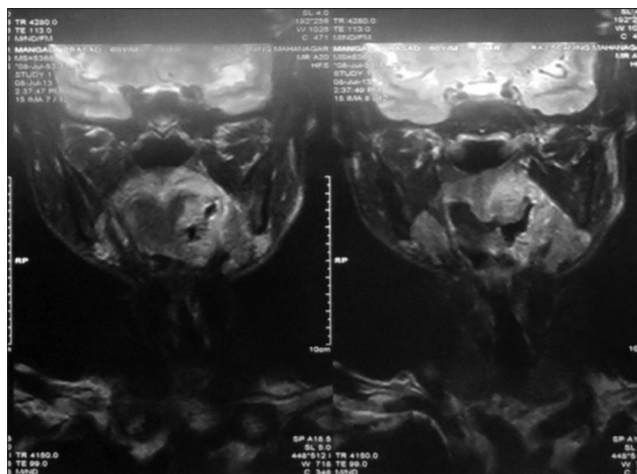


Figure 3: Magnetic resonance imaging showing the lesion extended into the posterior wall of the pharynx and to the base of the skull

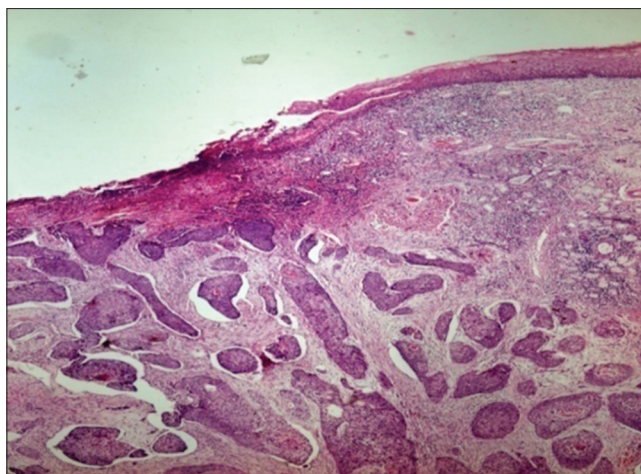


Figure 4: The photomicrograph shows dysplastic stratified squamous epithelium invading the connective tissue in the form of nests, islands, and lobules

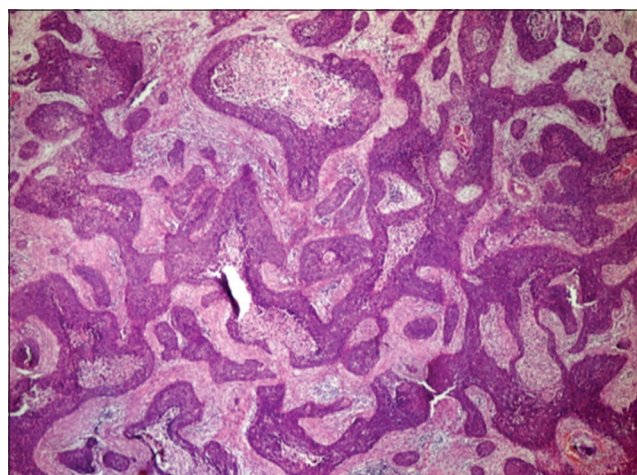


Figure 5: The photomicrograph shows areas where tumor cells are proliferating in the form of chords interconnecting with each other

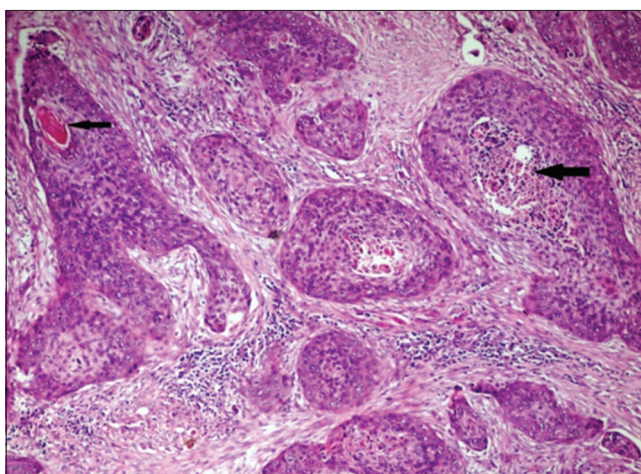


Figure 6: The photomicrograph shows tumor islands with areas of comedo-necrosis and focal keratinization

Similar to our case, BSCC has been shown to be predominantly reported in older age group,<sup>[11]</sup> but some studies have reported equal gender predilection which is in contrast to conventional squamous cell carcinoma.<sup>[8]</sup>

Clinically, patients have similar presentation to conventional squamous cell carcinoma such as painless irregular mass (verrucous or smooth), firm, and may or may not be ulcerative.<sup>[2,11-13]</sup>

Etiology and pathogenesis of basaloid cell carcinoma is similar to conventional squamous carcinoma. Most patients have a long history of smoking and alcohol drinking. Histologically, BSCC shows a biphasic pattern of basaloid and squamous components, with a predominating basaloid component (80%–90%).<sup>[11]</sup>

The basaloid cells displayed an increased nuclear/cytoplasmic ratio, scant amphophilic cytoplasm, and oval

and hyperchromatic nuclei without prominent nucleoli. Mitotic figures and nuclear pleomorphism were frequently observed in all cases. The basaloid components are arranged in cords, nests, islands, and lobules.<sup>[2,14]</sup> Tumor islands exhibit basaloid cells with areas of comedo necrosis and focal keratinization.<sup>[15]</sup>

The presence spindle cells with elongated nuclei and scant eosinophilic cytoplasm at the periphery of the nest of basaloid cells.<sup>[16]</sup>

The possible relationship of BSCC with human papilloma virus, and herpes simplex virus was demonstrated by Kleist *et al.* 2004. They reported a higher frequency of viral presence than conventional squamous cell carcinoma.<sup>[11]</sup>

Although histologically distinct, it can be confused with other malignant neoplasm such as adenoid cystic carcinoma,

adenosquamous carcinoma, basal cell adenocarcinoma, and salivary duct carcinoma.<sup>[17]</sup>

Among these, adenoid cystic carcinoma has a strong resemblance to BSCC. Kljanienco *et al.* indicated that distinguishing between BSCC and ACC may be difficult or impossible, especially when only a small diagnostic biopsy sample is available.

The BSCC is supposed to be more clinically aggressive than conventional SCC.<sup>[18]</sup> When compared to conventional SCC, prognosis and survival rate is poorer. Survival rate of BSCC is less than half of conventional SCC.<sup>[19]</sup>

BSCC has been reported with worse biological behavior than that of conventional SCC and hence an unfavorable prognosis. Studies done by Coletta *et al.* have shown that AgNOR and PCNA indices were significantly higher BSCC than in the cases of SCC. Immunostaining for p53 protein showed a higher percentage of positive cells and more intense staining in the BSC tissues than in the SCC tissues. In addition, the expression of MMP-1, MMP-2, and MMP-9 was higher in cells from BSCs than in cells from SCCs.<sup>[2]</sup>

Lymph node metastasis is frequently reported in BSCC of head and neck. Chaidas *et al.* 2012 reported a high rate of nodal involvement (64%).<sup>[9]</sup>

Local recurrences of BSCC is less, but distant metastasis is about six times higher than conventional SCC.<sup>[6]</sup> Winzenburg *et al.* 1998 reported 52% distant metastasis of BSCC compared to only 13% in conventional SCC.<sup>[19]</sup>

Despite reported characteristic histopathologic pattern, BSCC can be misdiagnosed as adenoid cystic carcinoma (solid-type), adenosquamous carcinoma, polymorphous low-grade adenocarcinoma, small-cell undifferentiated carcinoma, basal cell adenosquamous carcinoma, salivary duct carcinoma, and neuroendocrine carcinoma.<sup>[20]</sup>

Treatment is controversial. No standard protocol universally. In resectable lesions with no evidence of metastasis, complete surgical excision, supplemented by postoperative radiotherapy is considered most accepted.<sup>[21]</sup>

Combining systemic chemotherapy with locoregional radiation is a logical approach to treatment, especially for the BSCC, given its tendency to metastasize early after definitive therapy.<sup>[22]</sup>

## CONCLUSION

In summary, BSCC is an uncommon, high-grade bimorphic variant of squamous cell carcinoma with a predilection for

head and neck region. Histopathologically, it needs to be differentiated from other tumors having basaloid component. Once the diagnosis is being made of BSCC, the treatment should be appropriately planned considering its aggressive clinical course and high rate of metastasis.

## 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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