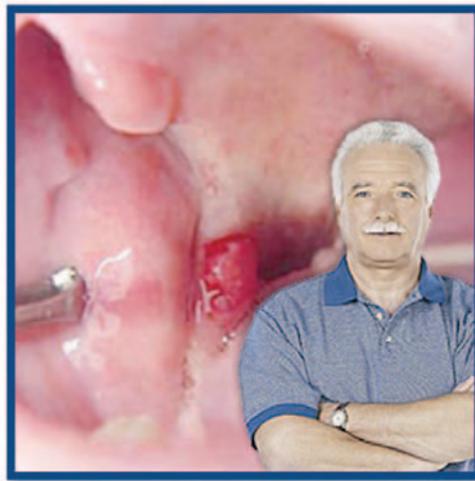


Atypical Presentation of Oral Basaloid Squamous Cell Carcinoma

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Abstract

Aim: The purpose of this report is to present the clinical and histological features of a basaloid squamous cell carcinoma (BSCC) occurring in the retromolar trigone of a 59-year-old man and to relate its immunohistochemical characteristics.

Background: BSCC is an aggressive distinct variant of squamous cell carcinoma (SCC) requiring recognition as a separate entity from SCC due to its peculiar behavior.

Case Report: A clinical examination revealed a 12x07x07 mm nodular mass with a rubbery consistency, defined borders, covered by reddish mucosa and an absence of bleeding upon palpation. Histologically, nests and cords of closely packed, moderately pleomorphic basaloid cells with nuclear palisading along the periphery of the neoplastic nests surrounded by a fibrous stroma were found.

Summary: Since this tumor can mimic other neoplasms such as adenoid cystic carcinoma, neuroendocrine carcinoma, and basal cell adenocarcinoma, histological features are essential to differentiate between them. Furthermore, immunohistochemical testing can provide valuable diagnostic information that can have a profound impact on treatment options and the prognosis.

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Clinical Significance: BSCC needs to be differentiated from other neoplasms as early as possible because of its adverse prognosis. Clinicians are advised to conduct a mucosal evaluation during oral examinations and take a thorough medical history which could ultimately save the life of a patient.

Keywords: Basaloid squamous cell carcinoma, BSCC, differential diagnosis, immunohistochemical profile

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Introduction

Basaloid squamous cell carcinoma (BSCC) was first characterized by Wain et al.¹ and was recognized as a separate variant of squamous cell carcinoma (SCC), due to its more aggressive clinical behavior and morphological features.^{1,2} Generally, it has a predilection for the head and neck region,³ particularly the upper aero-digestive tract.^{4,5,6} In the oral cavity BSCC occurs mostly in the tongue even though it has been described in the floor of the mouth, palate, retromolar trigone, buccal, and gingival mucosa.⁶

BSCC is commonly associated with early recurrences, cervical lymph nodes, and distant metastasis to the lungs and liver.^{5,6} It is believed to arise from a multi-potential primitive cell in the basal layer of the surface epithelium or from the salivary duct lining epithelium.⁷ The treatment for BSCC is surgery followed by radiotherapy and chemotherapy.⁸

Case Report

This case report was approved by the national Research Ethics Committee and followed all procedural guidelines.

The report presents a case of a 59-year-old man who was referred for evaluation of a symptomatic lesion in the retromolar trigone. A clinical examination revealed a 12x07x07 mm nodular mass, with a rubbery consistency, defined borders, covered by reddish mucosa and an absence of bleeding upon palpation (Figure 1A). According to the patient, the lesion was noted six months earlier and during the last month it had imposed severe pain. The patient related the consumption of tobacco until ten years before as well as convulsive episodes. There were no palpable cervical lymph nodes.

An incisional biopsy was performed and the specimen was referred for histological

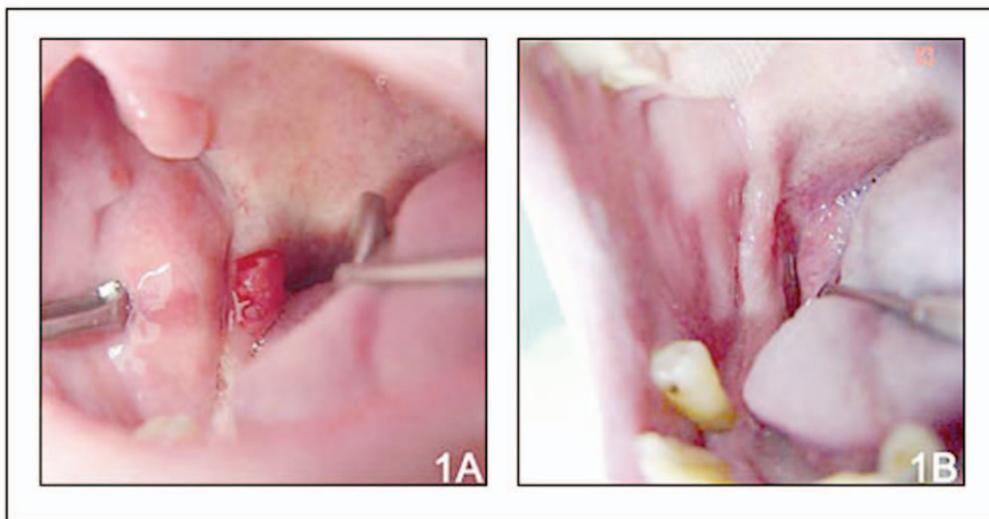


Figure 1. Clinical presentation of oral BSCC. **A.** Intraoral nodular mass in the retromolar trigone. **B.** Post-operative appearance after two months of follow-up.

examination. Under light microscopic examination, the tumor was observed to be composed predominantly of nests and cords of closely packed, moderately pleomorphic basaloid cells with nuclear palisading along the periphery of the neoplastic nests, surrounded by a fibrous stroma (Figure 2A). Comedo-type central necrosis (Figure 2B) and atypical mitotic figures were seen frequently. Focal areas showed a continuum of the BSCC with the oral mucosa (Figure 2C) and the prevalence of a basaloid cellular component.

Immunohistochemical examination revealed positivity for laminin in the microcystic spaces between basaloid tumor cells as well as in the basement membranes of vascular spaces (Figure 2D). Basaloid components showed poor or patchy staining with CK7. Vimentin was detected only in the fibrous stroma of the lesion. Strong nuclear p53 immunoreactivity was found in most of the neoplastic cells (Figure 2E). Furthermore, strong nuclear expression in the peripheral cells of the neoplastic nests was observed for Ki-67 (Figure 2F). Positivity for high molecular weight cytokeratin was detected in the BSCC around the tumoral nests.

Following the histological diagnosis, the lesion was totally removed. During the excision the lesion did not adhere to the deep tissue planes (muscular plane), which provided a favorable cleavage plane for dissection. The patient was followed for a post-operative period of 7, 14, 30 and 60 days (Figure 1B, follow-up, 60 days) with a normal process of repair without edema, pain, or fever. The patient underwent radiation therapy following surgery, and after eight months he died due to a mesenteric thrombosis.

Discussion

BSCC is an uncommon aggressive variant of SCC with a preference for the upper aerodigestive tract, including the esophagus, hypopharynx, and larynx.^{6,9-11} Approximately 100 cases of BSCC in the head and neck region and 40 cases in the oral cavity have been reported.¹¹ Since most BSCC's are diagnosed at advanced clinical stages, they have an unfavorable prognosis.^{5,6,12} BSCC of the head and neck occurs most commonly in older men⁴ and is often associated with early and high rates of local recurrences and regional and distant metastases.^{5,6} Due to its biological

and morphological features, it is distinct from SCC¹ and may be confused with adenoid cystic carcinoma of the solid subtype (ACC), small cell neuroendocrine carcinoma, undifferentiated carcinoma, basal cell adenocarcinoma, and squamous/adenosquamous carcinoma.^{9,13,14} In the present case, immunohistochemical reactions were helpful in distinguishing between these neoplasms. This distinction is mandatory since differences in treatment and prognosis are profound¹¹ and serves as an alert for general dentists that look for these mucosal changes.

In this context, glandular carcinomas were excluded from the diagnosis, since glandular lesions, such as adenoid cysts, present immunoreactivity for CK7, in contrast to the present case. Additionally, the negativity to vimentin observed in the present case may be explained by the absence of glandular arrangement, since the literature suggests a differentiation of BSCC towards the salivary gland tissue, based on immunoreactivity of the basaloid cells to vimentin.¹⁵

In summary, the immunoprofile shown in this case demonstrates the predominant morphological aspect of undifferentiated cells without differentiation towards glandular tissue. Moreover, the positivity detected for high molecular weight cytokeratin confirms the epithelial phenotype in this case.

The diagnosis of BSCC was established due to the prevalence of a basaloid cellular component and based particularly on the remarkable basaloid pattern in intimate association with an SCC, as described in some reports.^{2,5,6,9} In addition, the association of the basaloid component with the enhanced aggressiveness of BSCC and increased tumoral invasiveness capacity^{5,16} was confirmed in the present case by the high expression of both Ki67 and p53 which has also been shown by others.^{3,11}

Clinicians are advised to pay additional attention to the medical history of patients in daily practice. In this case, the intra-oral examination also revealed precarious hygiene habits due to compromised motor function as a result of a cerebral vascular accident (CVA) ten years before. Furthermore, the medical history revealed the patient was hypertensive and used several

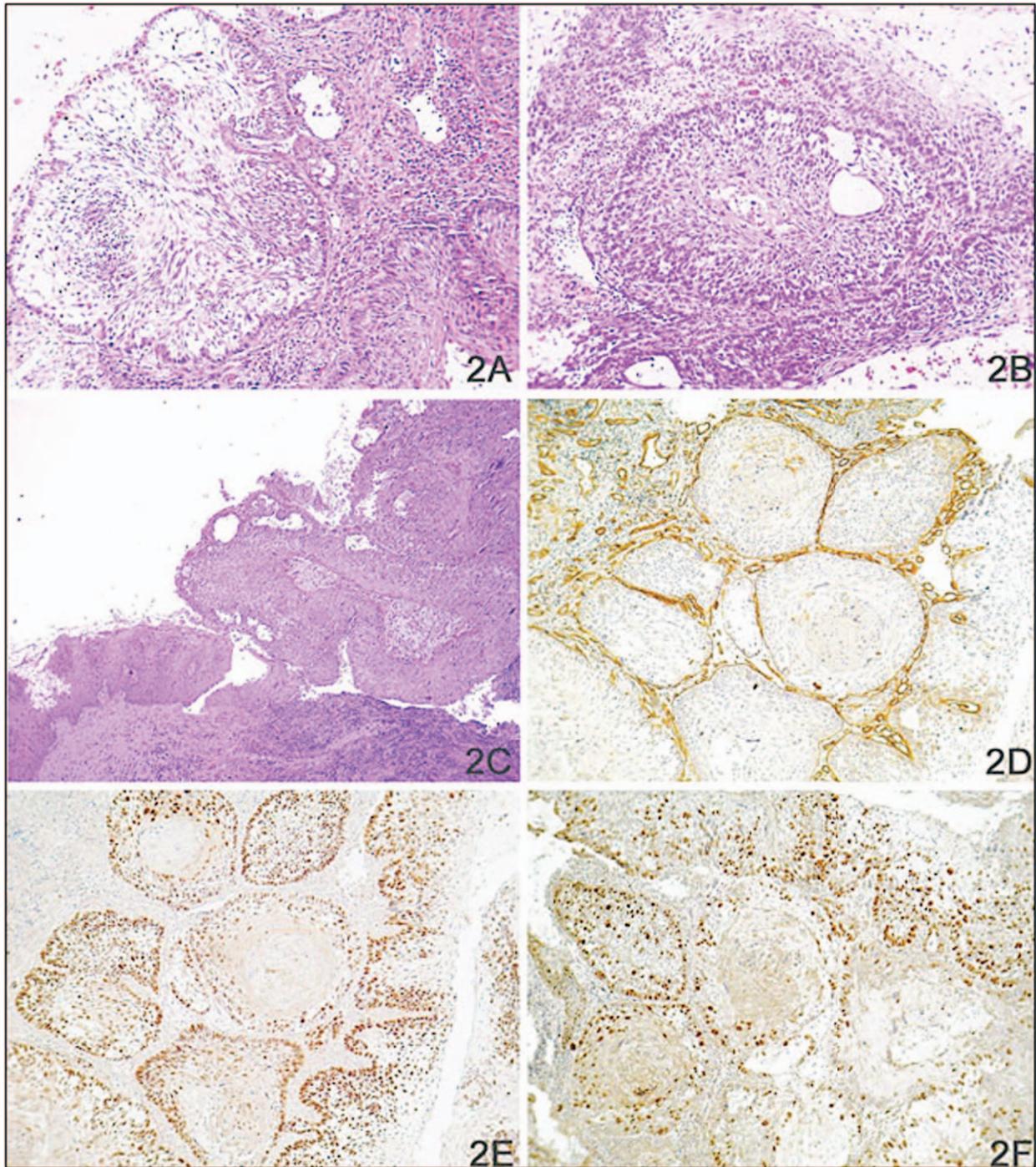


Figure 2. Histopathologic and immunohistochemical aspects. **A.** Lobular pattern showing pleomorphic basaloid cells with hyperchromatic nuclei surrounded by a fibrous stroma. **B.** Comedo-type central necrosis. **C.** Focal areas showing continuity of the BSCC with the oral mucosa. **D.** Immunopositivity for laminin in the microcystic spaces between basaloid tumor cells. **E.** Strong nuclear immunopositivity for p53 in most of the neoplastic cells. **F.** Strong nuclear immunopositivity for Ki-67 in the peripheral cells of the neoplastic nests.

systemic medications (Digoxin, Ancoron, Acetyl Salicylic Acid, and Gardenal). With such a history the appearance of BSCC could be neglected by the patient and by other general clinicians. Such a delay in making a diagnosis could have been lethal to this patient. Unfortunately this individual eventually died due to a mesenteric thrombosis.

Summary

Since some histopathological features of oral BSCC are shared with other tumors composed predominantly by basaloid cells,

immunohistochemistry may be helpful for its differential diagnosis. Additional attention should be paid to patients that request special care to avoid the neglecting of their health.

Clinical Significance

BSCC needs to be differentiated from other neoplasms as early as possible because of its adverse prognosis. Clinicians are advised to conduct a mucosal evaluation during oral examinations and take a thorough medical history, which could ultimately save the life of a patient.

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