Case Report

Basaloid squamous cell carcinoma of the tonsil: A rare case report

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ABSTRACT

Basaloid squamous cell carcinoma (BSCC) is an unusual aggressive type of squamous cell carcinoma with a preference toward the head and neck area with the upper aerodigestive tract being more frequent than other sites. It contains both squamous and basaloid elements intricately woven to each other. Its origin is believed to be from multipotent cells located at the base of the squamous epithelium or salivary ductal lining. Distant spread to cervical lymph nodes and lungs is frequent and is one of the determinants of survival. Adenoid cystic carcinoma and neuroendocrine carcinoma are among the differentials and can be differentiated from BSCC by histological features and immunohistochemical features, respectively. Herein, we present an unusual case of BSCC in a 38-year-old man and discuss its differentials to emphasis on the importance of early diagnosis due to its aggressive nature.

Keywords: Basaloid, differential diagnosis, immunohistochemistry, squamous cell carcinoma.

Basaloid squamous cell carcinoma (BSCC) is a rare type of squamous cell carcinoma (SCC) known for its aggressive behavior.[1,2] Wain et al.[3] first described BSCC in 1986. The most common location of BSCC is the upper aerodigestive system with tongue, hypopharynx, and supraglottic area. Tonsil is one of the rarer sites involved by this tumor with very few cases reported so far in the literature.[4]

In this article, we present an unusual case of BSCC in a male patient and discuss its differentials to emphasis on the importance of early diagnosis due to its aggressive nature.

CASE REPORTS

A 38-year-old male developed a fungating mass in his right tonsil with right cervical lymphadenopathy, highly suspicious of malignancy. Tonsillectomy was done. Microscopic examination of the right tonsil showed a severe degree of erosion of the surface with dense inflammation, along with prominent atypical basaloid element arising from the stratified squamous epithelium. Focally, marked hyperplasia was seen throughout with individual basaloid cells mimicking lymphomatous element, with relatively enlarged nuclei, dense

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in nature without prominent nucleoli within them (Figure 1). Underlying lymphoid tissue showed evidence of lymphoid hyperplasia with the formation of germinal centers in many foci. Scattered mitotic figures a few abnormal in nature were seen within the basaloid population, focally forming small nests. Strips of normal-appearing stratified squamous epithelium were also observed. Focal areas of keratinous element trapped within the atypical basaloid cells were also detected.

Further sections of the tonsil biopsy were subjected to an immunohistochemical (IHC) panel comprising cluster of differentiation 3 (CD3), cluster of differentiation 20 (CD20), B-cell lymphoma 2 (BCL-2), multiple myeloma oncogene 1 (MUM1), Ki-67, high molecular weight cytokeratin (HMWCK), p63, p16, and cytokeratin 5 (CK5). Strong intense positivity was noted for HMWCK and CK5 throughout the atypical basaloid cells and focally involving the subepithelial tissue (Figures 2 and 3). Nuclear positivity was noticed for p63 for the basaloid cells along with a strong expression for p16 (Figures 4 and 5). The CD20

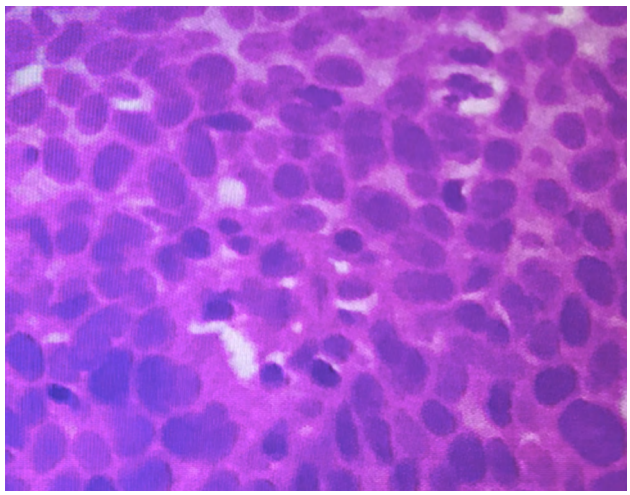

Figure 1. *Microscopic examination of tonsillar mass showing basaloid cells (H-E, ×20).*

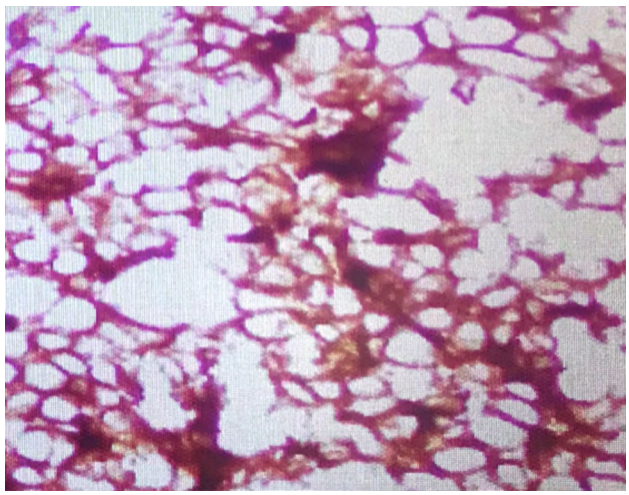

Figure 2. *Immunohistochemical examination of the tonsillar mass showing high molecular weight cytokeratin positivity in tumor cells (H-E, ×20).*

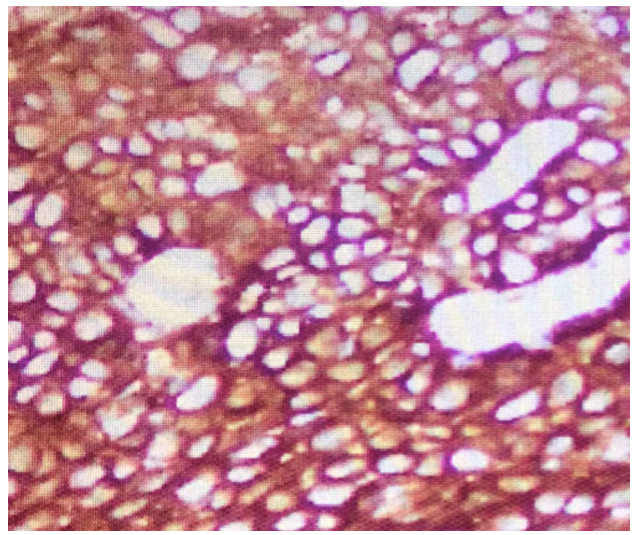

Figure 3. *Immunohistochemical examination of tonsillar mass showing CK5 positivity in tumor cells (H-E, ×20).*

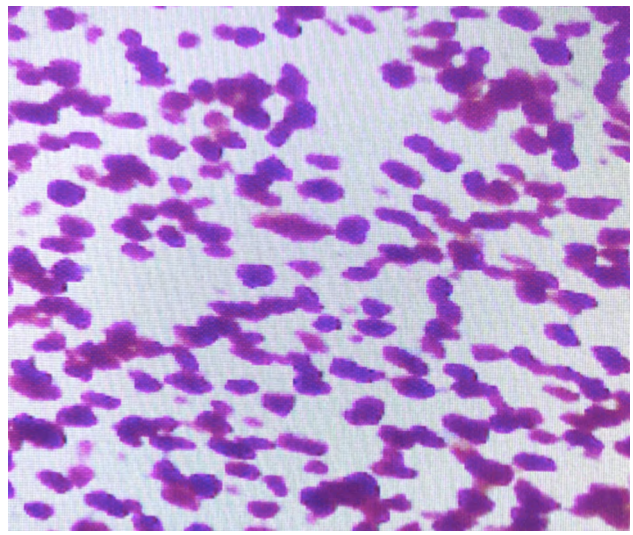

Figure 4. *Immunohistochemical examination of tonsillar mass showing p63 positivity in tumor cells (H-E, ×20).*

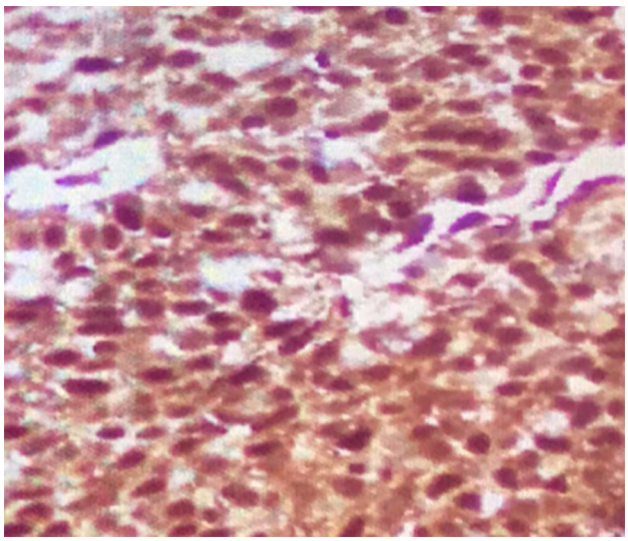

Figure 5. *Immunohistochemical examination of tonsillar mass showing p16 positivity in tumor cells (H-E, ×20).*

revealed the retained follicles and germinal centers and was negative for the basaloid cells. The CD3 showed an interfollicular positivity and MUM1 showed a scattered positivity for the reactive T cells. The Ki-67 showed a high proliferative index of more than 50% in the stratified epithelium and more intensely in the atypical basaloid areas. The Bcl-2 demonstrated a strong expression for stratified epithelium and more intensely for the malignant basaloid cells.

Tonsillar biopsies along with the IHC studies were indicative of a basaloid variant of SCC of the tonsil. The abnormal-looking basaloid cells almost mimicking lymphoid infiltration showed a strong expression for HMWCK, CK5, p63, and p16, compatible with an epithelial origin of the tumor. Due to p16 expression, an HPV etiology was investigated. Lymphoid markers, CD20 and CD3, expressed a polyclonal expression of the lymphoid cells. The Ki-67 with a high proliferative index was also indicative of the aggressive nature of the basaloid carcinoma. A written informed consent was obtained from the patient.

DISCUSSION

Basaloid type of SCC is an unusual aggressive type of SCC with a preference for the head and neck area with the upper aerodigestive tract being more frequent than the other sites, followed by hypopharynx, epiglottis, and base of the tongue. The mouth floor, palate, oral mucosa, trachea, sinonasal area, nasopharynx, and tonsils are some of the less common sites of occurrence. Other than head and neck, BSCC has been also found in the lung, esophagus, penis, cervix, anus, and urinary bladder.[2] Our case was presented due to its rare involvement in an unusually younger age.

For the first time, BSCC was announced as a high-grade type of SCC by the World Health Organization (WHO) in 2005. It contains both squamous and basaloid elements intricately woven to each other. The histogenesis of BSCC as described by the WHO implicates its origin to be from multipotent cells located at the base of the covering squamous epithelium or salivary duct lining.[3,5] This tumor is commonly seen in males between the sixth and eighth decades of life, but it can also affect females. It is known to be associated with alcohol consumption and smoking. Our case was unusual, as it occurred in the tonsil at a younger age.

It is an aggressive carcinoma with an increased potential for spreading to the cervical lymph nodes and lungs.[6] The mortality rate of BSCC is around 38%, and the median survival rate is around 17%. The possibility of association of basaloid SCC with viruses is debatable and, if seen, it is common in some sites such as nasopharynx and penis. Some studies have reported an increased frequency of human papillomavirus and human simplex virus infection in BSCC, while the other studies show controversial results.[2]

Macroscopically, many of the reported cases of BSCCs are seen to be flat lesions or raised mass lesions mostly with ulcer formation.[3] Some patients showed polypoid growths and these patients were seen to have proliferation of spindle-shaped cells as an additional component of BSCC.[2] The usual histological picture is solid lobules of blue cells with the basaloid nature toward the periphery and differentiated squamous cells with keratin synthesis. A similar pattern was also seen in our case.

Since the main histological element of BSCCs is basaloid, the closest differential of BSCC is the adenoid cystic carcinoma (ACC), particularly the solid variant. The ACC

shows proliferation of myoepithelial cells, but devoid of keratin production, pleomorphism, increased mitotic figures, and central necrosis.[7] Another differential component is small-cell neuroendocrine carcinoma (NEC) which may have some histological similarities. It may pose a diagnostic challenge, particularly in small endoscopic biopsy specimens. Expression of neuroendocrine IHC markers and the "dot-like" staining pattern of keratins aids in its distinction. In some cases, BSCCs may have cystic or pseudo-gland-like structures mimicking adenosquamous carcinomas. Glandular formations and mucin production are helpful for the diagnosis of an adenosquamous carcinoma.[2]

Worse clinical outcome of BSCC with regards to conventional SCC is debatable.[8] Some authors have shown no great variation in the prognosis of both the cancers at different sites, whereas the others advocated some variations.[2] Pure basaloid histology, central necrosis, or hyalinization of the stroma are other features that seem to heighten metastatic tendency of the tumor, leading to a worse prognosis. Lymph node involvement serves as an important factor to determine survival of BSCC patients.[9] Our case had also a predominant basaloid component with central necrosis.

In conclusion, we present this case due to the unusual location of BSCC in the tonsil and to emphasize the clinical importance of distinguishing it from ACCs and NECs which are the closest differentials, but have different treatment modalities.

Declaration of conflicting interests

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