# Case Report

# Basaloid Squamous Cell Carcinoma of Palpebral Conjunctiva: A Rare Case Report

**Ankita Shende, Neha Sharma, Madhu Chaturvedi, Renuka Kulkarni*, Yogeshwari Mane**

Department of Pathology, Lokmanya Tilak Municipal Medical College and General Hospital, Sion

***DOI: 10.21276/APALM.3282***

***Corresponding Author**:
*Dr Renuka Kulkarni*
*kulkarnirenuka85@gmail.com*

*Submitted: 27-Oct-2023*
*Final Revision:* 23-*Dec-2023*
*Acceptance: 27-Dec-2023*
*Publication: 05-Feb-2024*



## Abstract

Basaloid squamous cell carcinoma (BSCC) is a rare variant of squamous cell carcinoma that commonly affects the upper aerodigestive tract. It is usually seen in elderly male patients. Clinically, BSCC is an aggressive tumour with high rates of nodal and distant metastasis. Palpebral conjunctiva is an unusual site for occurrence of BSCC and only three cases are published in literature till date to the best of our knowledge. BSCC can mimic various other tumours on histopathology and can pose as a diagnostic dilemma on histopathology reporting. Therefore, diagnosis of BSCC, though at a rarer site such as the palpebral conjunctiva is imperative. We report a case of BSCC of left palpebral conjunctiva in a 61-year-old female which was treated successfully after recurrence.

***Keywords:***

*Basaloid squamous cell carcinoma, conjunctiva, basal cell carcinoma, adenoid cystic carcinoma, squamous cell carcinoma*

## Introduction

Basaloid squamous cell carcinoma (BSCC) is a rare variant of squamous cell carcinoma (SCC) which was first described by Wain et al and was included in WHO classification in 1991 [1,2]. It has a predilection for the upper aerodigestive tract [3]. BSCC is an important subgroup of centrally occurring carcinomas characterized by an aggressive clinical course with high rates of nodal and distant metastasis [4,5]. BSCC can mimic other tumours such as Adenoid Cystic carcinoma(ACC), Basal cell carcinoma(BCC) & Small Cell Neuroendocrine Carcinoma(SCNC) on histopathology which makes its accurate diagnosis a challenge on histopathology reporting. Therefore, correct diagnosis of BSCC on histopathology and immunohistochemistry at rare sites is

necessary owing to its stringent treatment protocol and disease course. Only three cases of BSCC of the conjunctiva have been reported in the literature till date [5,6,7].

## Case Report

A 61-year-old female presented to the outpatient department with complaints of a recurrent nodular lesion on the medial quadrant of left eye. She presented with a similar lesion at the same site one and half years ago which was locally excised and diagnosed as squamous cell carcinoma on histopathological examination. There was no past history of any ocular trauma, any ocular complaints, any debility or family history. General and systemic examinations were within normal limits.

We received left eye exenteration specimen for histopathological examination. Grossly, on serial sectioning, a grey white, nodular, firm tumour measuring 2.5x1.5x1.2 cm was seen in the left lower medial quadrant of eye (Figure 1).

***Figure 1: Gross appearance on serial sectioning of left eye exenteration specimen shows a grey white, nodular, tumor measuring 2.5 x 1.5 x 1.2 cm in the left lower medial quadrant of the eye after serial sectioning.***

Clinically, the origin was mentioned as the medial caruncle. We suspected the tumour to originate from left lower medial quadrant of the eye on serial sectioning. Microscopic examination revealed a normal and dysplastic palpebral conjunctival epithelium. The tumour was arising from the dysplastic palpebral conjunctival epithelium and was invading the submucosa. The tumour was arranged in lobules, nests and trabeculae of varying sizes and was devoid of retraction spaces. Occasional cystic spaces were noted which were devoid of mucoid or hyaline material. Peripheral palisading was noted (Figure 2). The tumour showed central necrosis in few lobules and few rossette like structures (Figure 3).

Tumour was composed of two components, predominantly the basaloid tumour cells and squamous tumour cells seen focally. Both components demonstrated tumour cells with high N:C ratio. Basaloid tumour cells showed a dark hyperchromatic nucleus,

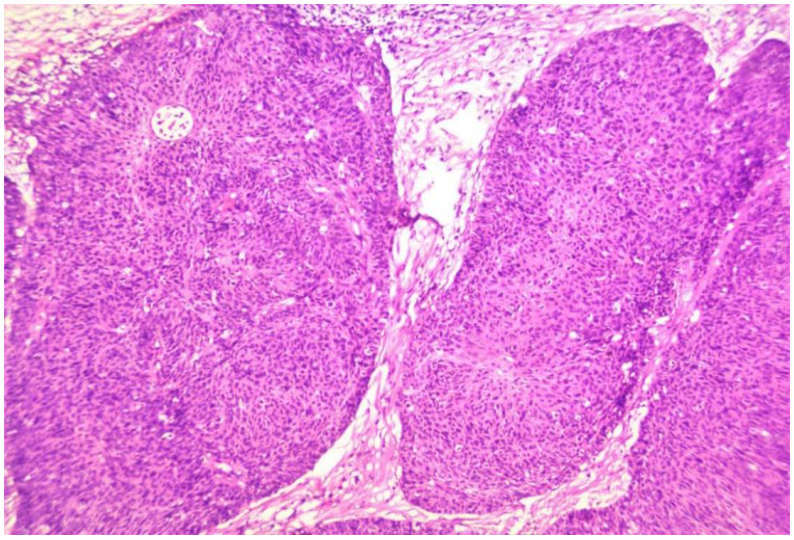

***Figure 2: H & E section 100X demonstrates tumor cells arranged in lobules with intervening fibrous septa & occasional punched out cystic spaces are also seen. Peripheral palisading of tumor cells in the lobules is noted (black arrow).***

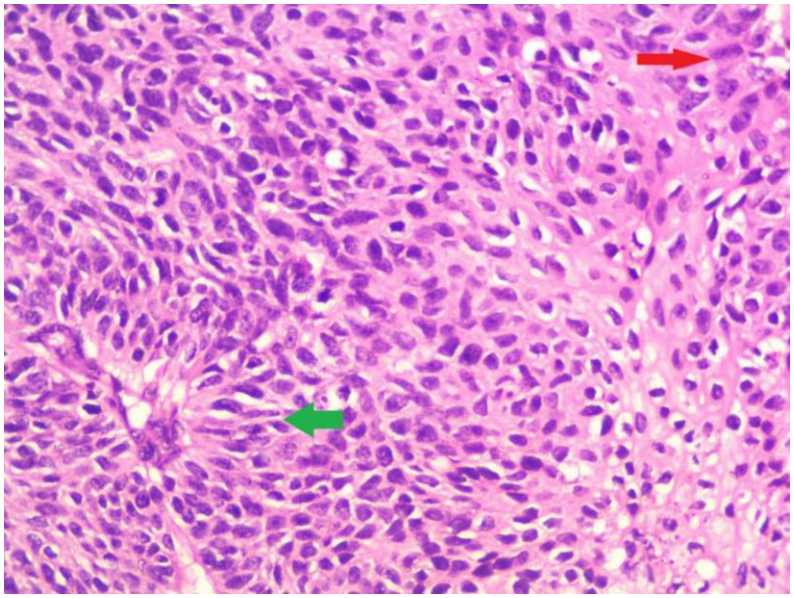

***Figure 3: H & E stained 400X view shows two components i.e basaloid tumor cells with increased N:C ratio, hyperchromatic nucei and occasional atypical mitosis with scant cytoplasm and squamous tumor cells with an irregular pleomorphic nucleus with 0-1 nucleolus and moderate amount of keratinized eosinophilic cytoplasm. Foci of squamous tumour cells with keratinisation seen in the right upper end (red arrow). Rosette like structure noted in left lower end (green arrow).***

scant cytoplasm and absence of nucleolus. The squamous tumour cells showed an irregular pleomorphic nucleus with 0-1 nucleoli, moderate amount of keratinized eosinophilic cytoplasm with mosaic and pavement pattern of squamous tumour cells. Atypical mitosis of two to three per high power field were noted (Figure 3). Immunohistochemitry(IHC) panel consisted of Epithelial membrane antigen (EMA) along with neuroendocrine markers S100 and Chromogranin. The results revealed diffuse cytoplasmic positivity for EMA (Figure 4) which supported the diagnosis of BSCC in contrast to Basal Cell carcinoma which is negative for

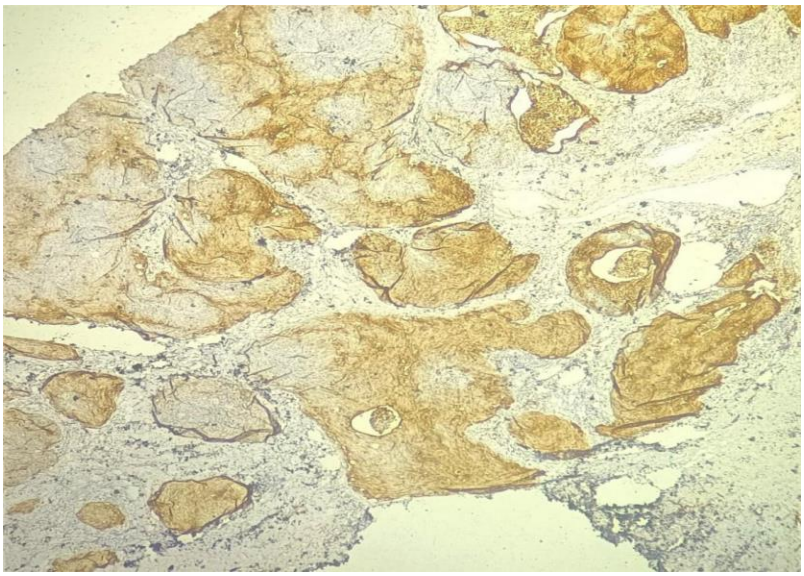

***Figure 4: 40X view shows diffuse cytoplasmic positivity for Epithelial Membrane Antigen (EMA) in the tumor cells.***

the same. The tumour was negative for S100 and chromogranin which helped us rule out Small Cell Neuroendocrine Carcinoma. These results favored our diagnosis of BSCC. Immunohistochemistry for 34βE12, p63 & BCL2 was not available at our institute.

Based on characteristic morphological features and limited immunohistochemistry results, we gave a final diagnosis of Basaloid squamous cell carcinoma. The patient received radiotherapy post-surgery and has not exhibited evidence of recurrence in last 6 months and is healthy till date.

## Discussion

Basaloid Squamous Cell Carcinoma is an uncommon variant of Squamous Cell Carcinoma. The most common sites to be affected are larynx, hypopharynx, tonsils and the base of tongue. Other less frequently affected sites include nose, paranasal sinuses, external ear, submandibular region, oesophagus, lung, anus, vulva, vagina and the uterine cervix [1]. Conjunctival BSCC is extremely rare and only three cases have been reported till date [5,6,7].

Vasudev et al, in 2009 first reported a case of 64-year-old caucasian male presenting with a mass arising from the palpebral conjunctiva. Histomorphological appearance and adjunctive immunohistochemistry including positivity for 34βE12 and EMA in tumour cells aided of final diagnosis as BSCC[5]. In a case report by Liu YC et al, a 77-year-old Taiwanese female patient presented with soft pedunculated mass arising from the limbal conjunctiva along with corneal involvement. On histopathologic examination, classic morphologic pattern & supportive immunohistochemistry confirmed the diagnosis of BSCC[7]. Mathur SK et al described BSCC arising from the bulbar conjunctiva near the limbus in a 60-year-old male patient from its characteristic patterns[6].

In our case, a 61-year-old Indian female presented with a recurrent nodular lesion in left inner quadrant of the eye. Further, the lesion was localised and tumour was found to be arising from the palpebral conjuctiva amidst a background of dysplastic conjuctival epithelium with classic morphological pattern and supportive immunohistochemistry.

BSCC at common sites affects the elderly (60 to 70 years) with a male predilection. It is associated with tobacco addiction [8]. Clinically, BSCC is a highly aggressive tumour with high rates of nodal (64%) and distant metastasis (44%). A case-control study

done by Soriano et al [9] found a six times higher risk of distant metastasis compared to usual type of SCC. A chest CT and FDG–PET to rule out early distant metastasis is recommended[9]. Histopathological diagnosis with necessary immunohistochemistry forms the gold-standard diagnostic modality. Complete surgical excision supplemented by radiotherapy or adjuvant chemotherapy is recommended treatment of choice.

BSCC has characteristic morphological features on histopathology, enlisted by Wain SL et al [1]. They include the basaloid component of the tumour which is defined by the following four features: 1) solid growth of cells in a lobular configuration, closely opposed to the surface mucosa; 2) small, crowded cells with scant cytoplasm; 3) dark, hyperchromatic nuclei without nucleoli; 4) small cystic spaces containing material resembling mucin. Accessory findings can include small and large foci of coagulative necrosis within the central areas of the tumour lobules. The second major histopathologic feature of this tumour is the intimate association of squamous cell carcinoma, dysplasia or focal squamous differentiation. The criterion used to identify squamous epithelium is the presence of two or more of the following histopathologic features: 1) individual cell keratinization 2) intercellular bridging 3) keratin pearl formation 4) cells arranged in a pavement or mosaic pattern.

Differential diagnosis for BSCC includes Basal Cell Carcinoma(BCC), solid variant of Adenoid Cystic Carcinoma(ACC) and Small Cell Neuroendocrine Carcinoma(SCNC). BSCC can resemble ACC due to presence of punched out microcystic spaces containing mucoid/hyaline material. However, ACC shows discontinuity of tumour with the surface epithelium and absence of dysplastic epithelium unlike BSCC. These tumours must be distinguished as BSCC is an aggressive tumour with different treatment protocol[5]. The SCNCs and BSCC both may show presence of small blue cells along with rosette like structures. The SCNCs additionally show presence of nuclear moulding/crushing artefacts [10]. Basal cell carcinoma is an uncommon tumour of the conjunctiva[11]. However, if a BCC arises from the eyelid skin and directly spreads to the conjunctiva, BCC should be considered as a differential diagnosis. The BCCs are made up of nests of basaloid cells with characteristic peripheral palisading. Individual tumour cells have hyperchromatic nuclei, scant cytoplasm and presence of retraction spaces in between nests of cells[12]. Absence of retraction spaces helps rule out BCC. Typically, histopathological features of BCC aids us to differentiate the two tumours. However, immunohistochemistry can aid to accurately diagnose the former. BSCC's are positive for 34βE12 and EMA while BCC are negative for the same and show positivity for BCL2. Absence of nuclear moulding/ crushing artefact helps rule out SCNC. Adenoid cystic carcinoma often has less pleomorphism, mitosis and necrosis than BSCC. In our case, IHC negativity for neuroendocrine markers like chromogranin additionally helped us to rule out SCNC. However, characteristic morphological features with few supportive IHCs can direct a pathologist to the right diagnosis.

The BSCC is a biphasic tumour showing presence of two characteristic histological components namely squamous and basaloid components. In our case, tumour histopathology showed basaloid cells with peripheral palisading with no surface epithelial dysplasia in initial sections, which had us inclined towards a diagnosis of basal cell carcinoma. However, minimal squamous foci in few sections were noted. Extensive sectioning of the tumour revealed the surface epithelial dysplasia of palpebral conjunctiva and tumour arising from the dysplastic epithelium.

The diagnosis of BSCC can be missed if a minor squamous component is overlooked in resection specimens as well. Our patient was misdiagnosed as squamous cell carcinoma previously after first wide local excision of tumour at the same site. Presence of surface epithelial dysplasia & identification of two tumour components (basaloid & squamous) along with immunohistochemistry helped us to make a diagnosis of BSCC of the palpebral conjunctiva.

## Conclusion

It is a challenge to diagnose BSCC at a rare site. Histopathological striking features like presence of basaloid and squamous components with dysplastic epithelium is useful to accurately diagnose BSCC even with limited immunohistochemistry. Owing to the characteristic histopathological morphological pattern BSCC should be kept in mind even at rare sites as it has a poorer prognosis, higher probability of early distant metastasis and a different management regime.

***Acknowledgements: None***

***Funding: None***

***Competing Interests: None***

## References

1. Wain SL, Kier R, Vollmer RT, Bossen EH. Basaloid-squamous carcinoma of the tongue, hypopharynx, and larynx: report of 10 cases. Human Pathol. 1986 Nov;17(11):1158-66.
2. Shanmugaratnam K, Sobin LH. The World Health Organization histological classification of tumours of the upper respiratory tract and ear. A commentary on the second edition. Cancer. 1993 Apr 15;71(8):2689-97.
3. McHugh BJ. Rosai And Ackermann's Surgical Pathology. 11th ed. China; 2018. Chapter 4, Upper Aerodigestive tract; p. 156.
4. Myers LJ. Rosai And Ackermann's Surgical Pathology. 11th ed. China; 2018. Chapter 10, Lung; p. 406.
5. Vasudev P, Boutross-Tadross O, Radhi J. Basaloid squamous cell carcinoma: two case reports. Cases J. 2009 Dec;2:1-4.
6. Mathur SK, Jain P, Batra A, Sen R. Basaloid squamous cell carcinoma of conjunctiva: A rare entity. Indian J Cancer. 2014 Oct 1;51(4):469.
7. Liu YC, Chen N, Hsu YH, Sheu MM, Tsai RK. Basaloid squamous cell carcinoma of the conjunctiva. Ophthalmic Plast Reconstr Surg. 2015 Mar 1;31(2):e28-30.
8. Oikawa K, Tabuchi K, Nomura M, Okubo H, Wada T, Iijima T, Hara A. Basaloid squamous cell carcinoma of the maxillary sinus: a report of two cases. Auris Nasus Larynx. 2007 Mar 1;34(1):119-23.
9. Soriano E, Faure C, Lantuejoul S, Reyt E, Bolla M, Brambilla E, Righini CA. Course and prognosis of basaloid squamous cell carcinoma of the head and neck: a case–control study of 62 patients. Eur J Cancer. 2008 Jan 1;44(2):244-50.
10. Myers LJ. Rosai And Ackermann's Surgical Pathology. 11th ed. China; 2018. Chapter 10, Lung; p. 407-409.
11. Husain SE, Patrinely JR, Zimmerman LE, Font RL. Primary basal cell carcinoma of the limbal conjunctiva. Ophthalmology. 1993 Nov 1;100(11):1720-2.
12. Kirkham N. Lever's Histopathology Of The Skin. 10th ed. India; 2013. Chapter 29, Tumors and Cysts of the Epidermis; p. 823-835.