

Basal Cell Carcinoma and Squamous Cell Carcinoma in a Single Lesion on the Forehead: A Rare Case of Collision Tumor in a Patient with Albinism

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Abstract

A collision tumor is a combination of two types of distinct tumors in a single lesion. They are rare but well-documented. This diagnosis is often incidental and their behaviors remain widely unknown.

They rarely occur in the skin. This is a case of collision tumor of the skin in a female patient with albinism. The tumor consists of squamous cell carcinoma and basal cell carcinoma of the forehead. There are no known documented cases of collision tumors of the skin in a patient with albinism.

Introduction

A collision tumor is a neoplastic lesion comprised of two or more distinct cell populations that maintain distinct borders [1]. It is a combination of two types of tumors in a single lesion [2]. They are rare, but well documented and can be composed either of two benign tumors, a benign and malignant tumor, or two malignant tumors. Their diagnosis is often incidental, and their behavior remains widely unknown with several theories proposed regarding their pathogenesis [3]. Collision tumors rarely occur in the skin. We report the rare occurrence of squamous cell carcinoma (SCC) and basal cell carcinoma (BCC) [4] in a single tumor on the forehead of a 40 years-old albino female patient with a review of the literature.

Case Presentation

A 40 years-old female albino patient presented with recurrent forehead ulcer. It started about 10 years ago as a small lesion about 3x2cm in diameter. It was excised without any histopathologic diagnosis about a year ago. She presented with a spherical-shaped ulcer on the left side of the forehead with patchy necrotic tissues measuring 10x12cm with a sloppy edge. She had an excision done with scalp reconstructions at surgery and transfused with 2 units of parked red blood cells. She had a left forehead graft and was on alternate-day graft dressing with sufratule after then. At surgical pathology, the specimen consists of a markedly ulcerated skin tissue measuring 10x10cm. The edges of the ulcer were not well delineated.

The histopathologic examination (Fig,1,2,3,4) shows a malignant neoplastic lesion composed of proliferating squamous cells interposed by keratin pearls. Focal areas show basaloid cells with peripheral palisading and retraction artefacts invading and distorting the adjacent tissues, provoking inflammation reactions. The borders between these two distinct histology formations are distinct. Based on these histological findings a diagnosis of a collision tumor consisting of squamous cell carcinoma and based cell carcinoma was made.

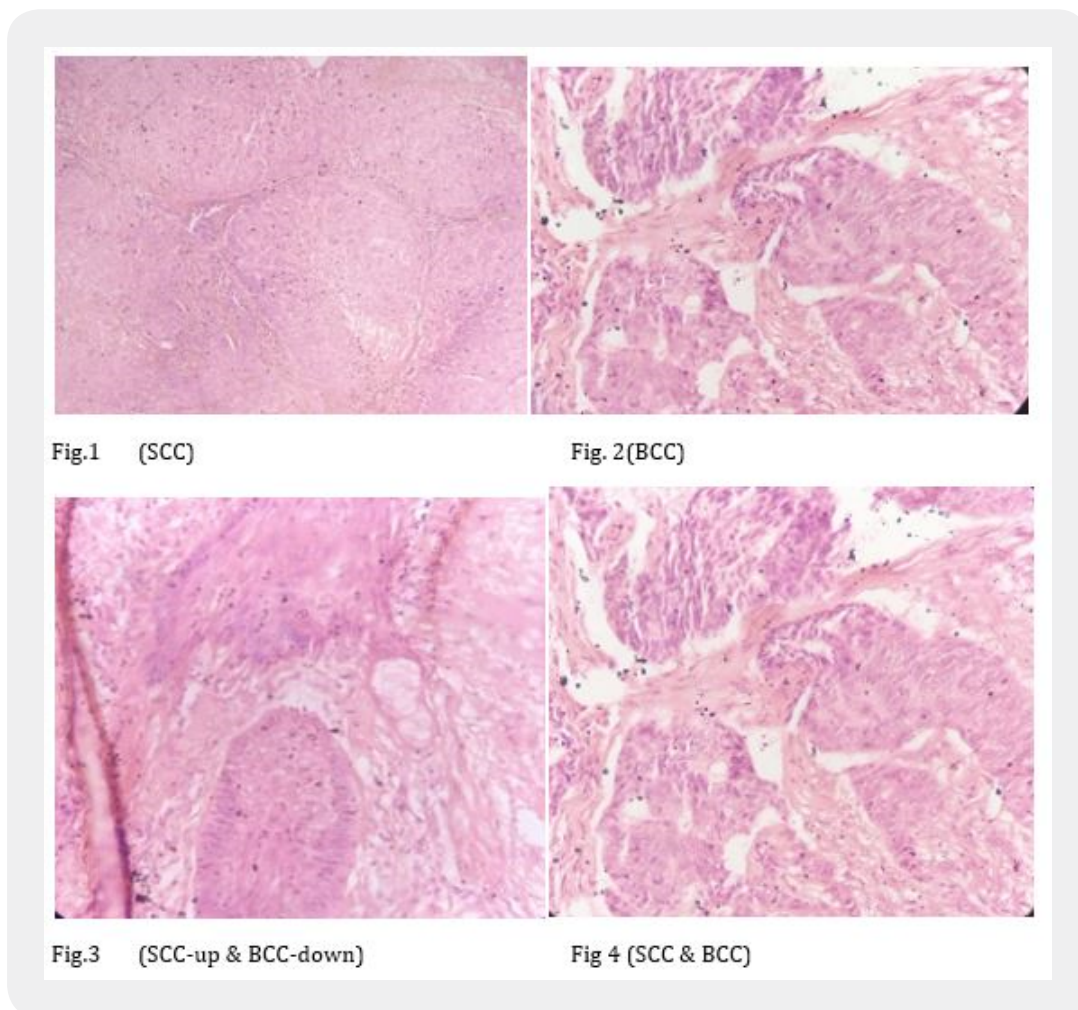


Figure 1: The histopathologic exam shows a malignant neoplastic lesion composed of proliferating squamous cells interposed by keratin pearls. Focal areas show basaloid cells with peripheral palisading and retraction artifacts invading and distorting the adjacent tissues, provoking inflammation reactions. The borders between these two distinct histology formations are distinct

Discussion

A collision tumor which represents a combination of two tumors in a single lesion has a pathogenesis that is still a matter of speculation. One of the hypotheses includes one tumor inducing epithelial or stromal changes to develop the second tumor [5]. They rarely occur in the skin and in particular, the combination of SCC and BCC occurs seldomly.

It is important to differentiate SCC and BSC as collision tumors from baso-squamous carcinoma (BSC). BSC is defined as a tumor containing the areas of both BSC and SCC with a transition zone linking the two [6]. On the other hand, there is a distinct demarcation between the two components of the collision tumor.

Albinism is an inherited disorder of hypopigmentation involving the skin, eyes, and hair because of the absence or defect in tyrosinase enzyme which converts tyrosine to dioxyphenylalanine, the precursors of melanin [7]. Because of the reduction or absence of melanin, albinos are very sensitive to the harmful effects of ultraviolet (UV) light and are at more risk of actinic lesions and dermatoses, the most worrying of which is precancerous and cancerous lesions [7,8]. African albinos are more prone to having cutaneous cancers because they live close to the equator where the exposure to ultraviolet radiation of the sun is much higher compared to Caucasian albinos (9). The most frequent cancer in these patients is SCC [9-12]. This is followed by BCC [9].

Basal cell carcinoma, non-melanocytic skin cancer is the most common skin cancer and constitutes about 80% worldwide [13]. They are rare in dark-skinned races. Squamous cell carcinoma is the second most common form of skin cancer worldwide. In Nigeria, malignant melanoma ranked highest as the most common skin cancer followed by SCC, dermato-fibrosarcoma, and BCC respectively [14]. These cancers, BCC and SCC are most often found in areas exposed to the sun, such as the head, neck, and arms, but can also occur elsewhere. The collision malignancy in our case was found on the forehead. Our search through the literature did not reveal the BCC SCC and BCC occurrence in any patient with albinism.

It is not entirely uncommon for a BCC to develop alongside another cutaneous neoplasm [15]. The most reported combination of skin tumors is that of BCC and a melanocytic nevus [16]. An individual presenting with a BCC and SCC of the palm at the same time was also reported [15], though a rare occurrence. Cutaneous collision tumors are defined as two independent tumors anatomically close yet separated by a well-defined boundary [17].

Conclusion

An individual presenting with a BCC and SCC of the skin concurrently is rare, and to our knowledge, a collision tumor of both entities of the forehead in a patient with albinism has not been described in the literature. Various postulates exist for collision tumors, while others theorize it to be purely coincidental.

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Bibliography

1. Bulte, C. A., Hoegler, K. M. & Khachemoune, A. (2020). Collision tumors. A review of their types, pathogenesis, and diagnostic challenges. *Dermatol Ther.*, 33(6), e14236.

2. Inoshita, T., Laurian, A. R., Youngberg, G. A. & Musil, G. (1984). Metastasis of bronchogenic carcinoma to the skin involved by melanoma. *Arch Pathol Lab Med.*, 108(7), 595-598.
3. Schizas, D., Katsaros, I., Michalinos, A., Damaskos, C., Garmpis, N., Ntomi, V., et al. (2018). Collision tumors of the gastrointestinal tract: A systemic review of the literature. *Anticancer Res.*, 38(11), 6047-6057.
4. IL Seok Lee, In Pyo Hong & Hye Kyeong Lee (2020). Basal cell carcinoma and squamous cell carcinoma in a single tumor in the anterior auricular area. *Arch Craniofac Surg.*, 21(4), 257-265.
5. Brownstein, M. H. & Starink, T. M. (1987). Desmoplastic trichoepithelioma and intradermal nevus: a combined malformation. *JAM Acad Dermatol.*, 17(3), 489-492.
6. Tomoko Mitsuhashi, et al. (2006). Squamous cell carcinoma of the skin: dual differentiation to rare basosquamous and spindle cell variants. *J Cutan Pathol.*, 33(3), 246-252
7. Abas Mouhari-Torre, Sefako Abla Akakpo, Julienne Noude Teclessur, Piham Gnessike, Saliou Adam, Garba Mahamadou, et al. (2021). Factors associated with skin cancers in people with albino in Togo. *Journal of Skin Cancer.*, 2021(3433493), 1-5.
8. Gronskov, K., EK, J. & Brundom-Nielsen, K. (2007). Oculocutaneous albinism. *Orphanet Journal of Rare Diseases*, 2, 43.
9. Oluwafemi Olasupo Awe & Terence Akhator Azele (2018). Cutaneous cancers in Nigeria albinos: a review of 22 cases. *Niger J. Surg.*, 24(1), 34-38.
10. Luande, J., Henschke, C. I. & Mohammed, N. (1985). The Tanzanian human albino skin. *Natural history. Cancer*, 55(8), 1823-1828.
11. Opara, K. O. & Jiburum, B. C. (2010). Skin cancers in albinos in a teaching hospital in Eastern Nigeria- Presentation and challenges of care. *World J. Surg Oncol.*, 8, 73.
12. Mabula, J. B., Chalya, P. L., Mchembe, M. D., Jaka, H., Giiti, G., Rambau, P., et al. (2012). Skin cancers among albinos at a university teaching hospital in Northwestern Tanzania: A retrospective review of 64 cases. *BMC Dermatol.*, 12(5).
13. Vitalis Chukwuemeka Okwor (2019). Skin cancer in Nigeria and outcome treatment in patients seen at the radiotherapy department, University College Hospital, Ibadan. Dissertation submitted for the award of Fellowship of the National Postgraduate Medical College of Nigeria (NPMCN).
14. Ganiyu Oyediran Oseni, et al. (2015). Malignant skin lesions in Oshogbo. *Nigeria Pan Afr Med J.*, 20, 253.

15. Charlene Lam, Castlyn Fuller, Alexandra Flamm & Elizabeth M, Billingley (2019). Collision tumor of basal and squamous cell carcinoma of the palm. *J. Clin Aesthet Dermatol.*, 12(4), 28-30.
16. Medeiros, P. M., da Silva, C. C., Barcavi, C. B., *et al.* (2015). Collision of malignant neoplasms of the skin: basosquamous cell carcinoma associated with melanoma. *An Bras Dermatol.*, 90(3 Suppl 1), 39-42.
17. Ayva, S. K., Tepeoglu, M., Gunduz, O., *et al.* (2017). A case of two synchronous cutaneous collision tumors. *Gazi Med. J.*, 28(2), 127-128.