Case Report

Pigmented basal cell carcinoma: An uncommon lesion with special emphasis on cytological features

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ABSTRACT

Pigmented basal cell carcinoma (PBCC) is a rare cutaneous neoplasm with only a few cases described in the literature so far. We report a case of PBCC that developed on the right lower eyelid with an elucidation of cytomorphological features of this rare variant of basal cell carcinoma to make a cytopathologist aware of the characteristic cytological features of this tumor. These cytological features of PBBC aid in the identification of these tumors on cytology. We also briefly discuss the possible differential diagnoses.

Key words: Basal cell carcinoma, Cytology, Tumors

Although pigmented basal cell carcinoma (PBCC) accounts for 6% of conventional basal cell carcinoma (BCC), it is important for the pathologist to recognize its cytomorphological features on fine-needle aspiration (FNA), which usually happens to be the first line of investigation in clinical practice [1,2]. However, the mainstay of diagnosis still remains histopathology [3]. We report a case of PBCC that developed on the right lower eyelid with an elucidation of cytomorphological features of this rare variant of BCC to make a cytopathologist aware of the characteristic cytological features of this tumor.

CASE REPORT

A 35-year-old female presented to the Department of Surgery of Sharda Hospital, Greater Noida, with complaints of single, well-demarcated nodulo-ulcerative lesion below the right lower eyelid for 3 years. The patient's medical and family history was unremarkable.

On examination, all vitals were stable and within normal limits. No regional lymphadenopathy was noted. Local examination revealed a 3×2×1.5 cm lesion which was brown-black in color, non-mobile, and firm with mild surface ulceration.

FNA cytology (FNAC) from the swelling yielded a brownish tinged hemorrhagic aspirate. Smears showed moderate cellularity with branching epithelial fragments and tight cohesive clusters. Few fragments showed palisading of nuclei. The individual cells were small basaloid, having scant basophilic cytoplasm, indistinct borders, and hyperchromatic nuclei showing moderate anisonucleosis, coarse granular chromatin, and inconspicuous nucleoli. Occasional pink basement membrane-like matrix dominated epithelial fragments are seen (Fig. 1a and b). The black-brown pigment was seen in cellular fragments, tingible body macrophages, as well as scattered in the background (Fig. 2a and b). The cytological diagnoses ranging from trichoblastoma, trichoepithelioma, nevus, BCC, and melanoma were considered. Excision biopsy was performed.

Microscopic sections revealed well-defined intradermal nests of basaloid epithelial cells with the peripheral cell layer exhibiting palisading arrangement. The individual cells were monomorphic and elongated with fibrillary material at places. At places, there were brown pigment laden macrophages (Fig. 3a and b). No lymphovascular/perineural invasion was seen. The final diagnosis of pigmented PBCC was given. One year after surgery, the period was eventful, after which the patient was lost to follow-up.

DISCUSSION

BCC is a non-melanocytic skin cancer (i.e., an epithelial tumor) that arises from the basal cells (i.e., small round cells found in the lower layer of the epidermis) [4]. A rare variant PBCC is characterized by phagocytosized melanin pigment [5]. However, the basic structure remains the same [6].

In most cases, the clinical diagnosis is not difficult for an experienced clinician. However, in our case, the site of swelling, that is, below the right lower eyelid and the presence of hyperpigmentation in the swelling leads to clinical differential

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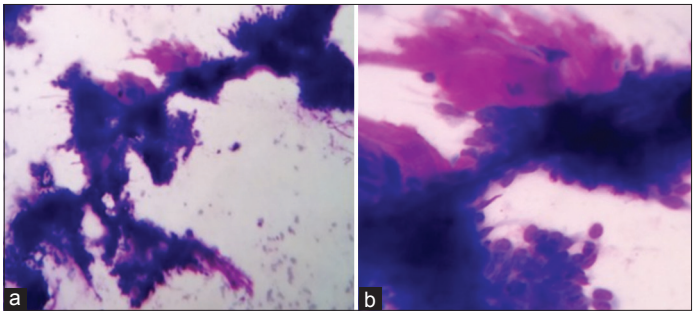

Figure 1: (a) Smears showing tightly cohesive clusters of basaloid malignant epithelial cells. The fragments have well defined borders of cells with a tendency to palisading. (MGG, ×10); (b) Epithelial fragment showing cells embedded in pink fibrillar basement membrane-like matrix. (MGG, ×40)

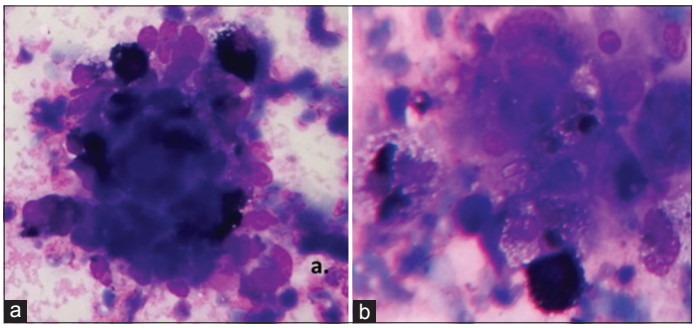

Figure 2: (a) Smears showing black-brown pigment seen in cellular fragments (MGG, ×40); (b) Black-brown pigment in tingible body macrophages. (MGG, ×40)

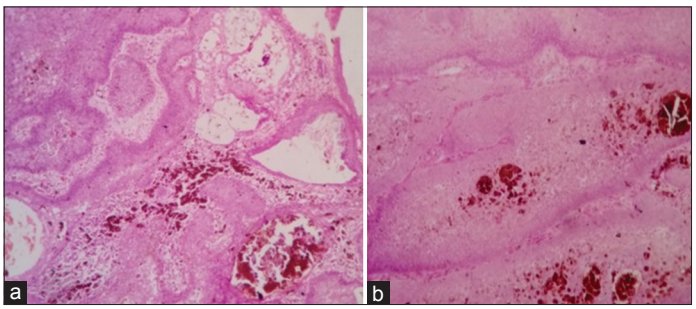

Figure 3: (a and b) Sections showing well-defined intradermal nests of basaloid epithelial cells with peripheral cell layer showing palisading arrangement. Brown pigment is seen in tingible body macrophages (hematoxylin and eosin; ×40)

diagnoses of BCC, melanoma, and seborrheic keratosis [7]. However, the case reported by Jain *et al*. [8] had the lesion over the dorsal aspect of the left thigh.

In view of these clinical differentials, the patient was subjected to FNAC, and a brownish tinged hemorrhagic aspirate was obtained. Microscopic examination revealed highly cellular smears exhibiting branching epithelial fragments and tight cohesive clusters of basaloid cells. The cytological differentials in our case ranged from trichoblastoma, trichoepithelioma, dysplastic nevus, seborrheic keratosis BCC, and melanoma. The tumors of piliary apparatus are dermal and not visible on the surface of the epidermis, unless ulcerated [8]. Since our patient presented with ulcerated swelling, trichoblastoma, and trichoepithelioma, as differentials were justifiably kept. The presence of a tightly cohesive frond-like pattern of basaloid cells was seen, which was consistent with trichoblastoma and trichoepithelioma.

Unlike trichoblastoma and trichoepithelioma, the mesenchymal component was not evident in our case. The individual cells were small basaloid, having scant basophilic cytoplasm, indistinct borders, and hyperchromatic nuclei showing moderate anisonucleosis, coarse granular chromatin, and inconspicuous nucleoli. However, in a study by Jain *et al.* [8], the differential diagnoses were melanoma and seborrheic keratosis, whereas trichoblastoma and trichoepithelioma were not considered. Similar to a study by Jain *et al*. [8], dysplastic nevus shows cohesive clusters of epithelial cells without nuclear abnormalities. No palisading of nuclei and basement membrane matrix is evident. In our case, the presence of palisading of nuclei, basement membrane matrix, and inconspicuous nucleoli ruled out dysplastic nevus.

There were no anucleate or nucleated squamous cell clusters which ruled out seborrheic keratitis. Malignant melanoma was ruled out on cytology by the absence of a dispersed cell population, pleomorphism, intranuclear inclusions, and prominence of nucleoli. The absence of dispersed cells, marked pleomorphism, prominent nucleoli, and atypical mitosis ruled out malignant melanoma. The presence of pink basement membrane-like matrix and black-brown pigment was seen in cellular smears, along with numerous dispersed macrophages having granules of deep black pigment within the cytoplasm suggesting the possibility of PBBC on cytology [3,6-8]. The diagnosis was later confirmed on histopathology.

Naraghi *et al.* [9] performed an extensive study on 102 cases of BCC to examine the sensitivity and specificity of cytology in the diagnosis of BCC. Of the 102 histopathologically proven cases of BCC, the cytological study showed BCC in 89 (87.3%); however, PBCC was not reported by them.

CONCLUSION

The knowledge of the cytological characteristics is essential to demand precision as well as accuracy in recognition of such skin adnexal or malignant epithelial tumors and, if possible, to allow their correct subtyping.

REFERENCES

1. Deepadarshan K, Mallikarjun M, Abdu NN. Pigmented basal cell carcinoma: A clinical variant, report of two cases. J Clin Diagn Res 2013;7:3010-11.
2. Guarino MF, Gonzalez ML, Garde J, Adrada AS, Ugia SP. Cytology as a diagnosis test for basal cell carcinoma. Glob Dermatol. 2016;3. Doi: 10.15761/god.1000182.
3. Mehta V, Balachandran C. Pigmented basal cell carcinoma successfully treated with 5% imiquimod cream. Indian J Dermatol 2008;53:140-1.
4. Stanoszek LM, Wang GY, Harms PW. Histologic mimics of basal cell carcinoma. Arch Pathol Lab Med 2017;141:1490-502.
5. Kanitakis J, Arbona-Vidal E, Faure M. Extensive pigmented vulvar basal-cell carcinoma presenting as pruritus in an elderly woman. Dermatol Online J 2011;17:8.
6. Vega-Memije E, De Larios NM, Waxtein LM, Dominguez-Soto L. Cytodiagnosis of cutaneous basal and squamous cell carcinoma. Int J

Dermatol 2000;39:116-20.
7. Calder CJ, Reynolds GM, Young FI, Marsden JR, Young JA. Cytological features of pigmented basal cell carcinoma-a potential diagnostic pitfall. Cytopathology 1996;7:132-5.
8. Jain M, Madan NK, Agarwal S, Singh S. Pigmented basal cell carcinoma: Cytological diagnosis and differential diagnoses. J Cytol 2012;29:273-5.
9. Naraghi Z, Ghaninejad H, Akhyani M, Akbari D. Cytological diagnosis of cutaneous basal cell carcinoma. Acta Med Iran 2005;43:50-4.

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