

## Cytodiagnosis of Pigmented Basal Cell Carcinoma - A Case Report with Brief Review of Literature

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### ABSTRACT

*Basal cell carcinoma (BCC) is locally invasive, slowly spreading rarely metastasizing tumor, arising from the epidermis". BCC are usually diagnosed on histopathology. There are very limited data on role of fine needle aspiration cytology (FNAC) in diagnosing pigmented BCC. The diagnosis of pigmented BCC on cytology is as accurate as histopathology. Herein, we report a case of pigmented BCC successfully diagnosed on FNAC. A 57 year old male patient with pigmented nodule on right side of the face. Cytological diagnosis of pigmented BCC was offered and subsequently confirmed on histopathology. Hence FNAC is rapid, simple and noninvasive and an outpatient procedure can be used in diagnosis of suspicious pigmented BCC and can lead to accurate diagnosis and proper management of the patient.*

**Keywords:** Cytology, Pigmented basal cell carcinoma, Histopathology.

### INTRODUCTION

Basal cell carcinoma (BCC) is a slow growing malignant tumor which is locally aggressive but rarely metastasizes.<sup>[1]</sup> BCC was first described by Jacob in 1827, as "ulcusrodens". The current nomenclature was given by Krompecher in 1903.<sup>[2]</sup> The cell of origin of BCC is still in controversy.<sup>[3]</sup> But there is evidence that, the cells are derived from immature pluripotent cells of interfollicular epidermis and those present in the outer sheath of the hair follicle.<sup>[4]</sup> Nodular neoplasm of skin continue to pose a diagnostic challenge, as it of critical importance in view of consequences and serious morbidity of an undiagnosed tumour even to the most experienced practitioner.<sup>[5]</sup> Recent day's fine needle aspiration cytology(FNAC) is increasingly being used as a first line of investigation for cutaneous neoplasms. Basal cell carcinoma is the one which is infrequently subjected to fine needle biopsy procedure. Among BCC, pigmented BCC is a rare variant.<sup>[6]</sup> There are very few case reports of pigmented BCC diagnosed primarily on FNAC in the literature.<sup>[7,8]</sup>

Hence here we report a case of pigmented BCC on right lower part of the face in a 57-years- old male, successfully diagnosed on FNAC and highlighting its cytological features.

### CASE REPORT

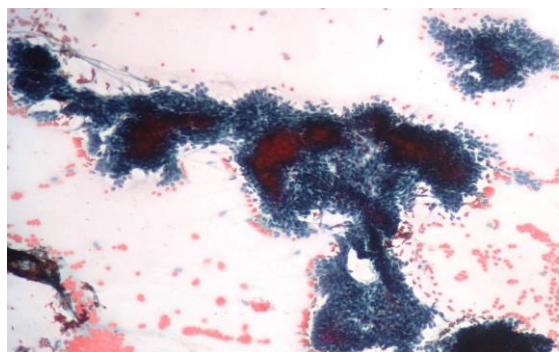
A 57 years old male patient presented to surgical outpatient department with painless pigmented ulcerative nodule over right side of the face. There was history of gradual increase in size over the period of ten years. History of ulceration since one year present. Local examination revealed pigmented ulcerative nodular lesion located in right lower part of the face measuring 3x2x0.5cm (Figure

1). General, physical examination and systemic examination were within normal limits. There were no palpable lymphnodes. Clinical differential diagnosis of pigmented. BCC, malignant melanoma and pigmented seborrhic keratosis was made and the patient was advised for FNAC. FNAC was performed under all aseptic precautions with 23G needle and 10 ml syringe. FNA from the pigmented ulcerative nodule yielded a brownish tinged hemorrhagic aspirate. FNAC smear studied reveal highly cellular with cohesive sheets, clusters and anastomosing cords having sharp outline with smooth borders (Figure 2). Tumour cells are monomorphic small basaloid cells with round to oval hyperchromatic nucleus having coarse chromatin with inconspicuous nucleoli, having thin rim of basophilic cytoplasm. At places epithelial fragments show peripheral palisading was noted (Figure 3). Background shows basement membrane like matrix admixed with blood. Fair amount of brown-black pigment was seen in the cellular fragments as well as in the macrophages scattered in the background (Figure 4). FNAC of pigmented BCC was offered and excision was advised.

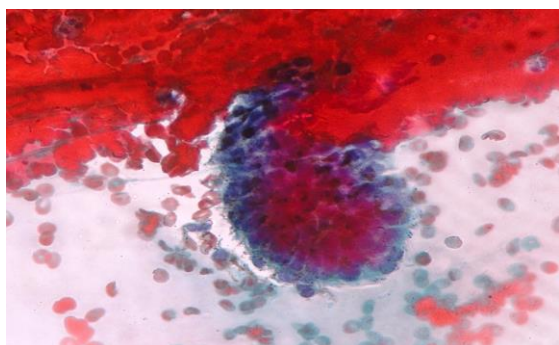
We received pigmented nodule measuring 3.2x2.5x1cm covered with skin showing patchy areas of ulcerations. The cut section showed solid, firm, greyish white in colour. Peripheral and deep surgical margins were 0.5cm and 0.8cm away from the lesion. Sections were stained with haematoxylin and eosin stain. Histopathological examination revealed an infiltrating dermal tumour arising from the base of the epidermis and showed features compatible of pigmented BCC (Figure 5 and 6). Hence the cytodiagnosis of pigmented BCC was subsequently confirmed on histopathological examination.



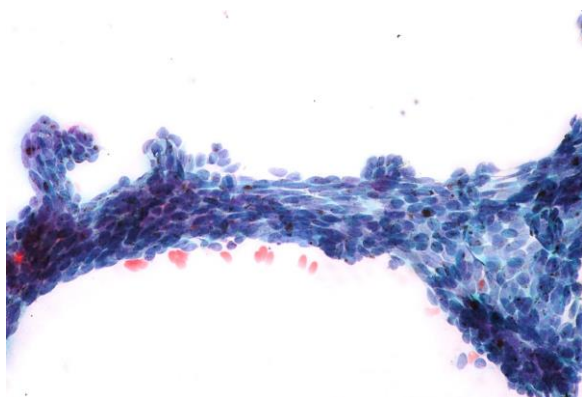
**Figure 1:** Clinical photograph of the patient showing an ulcerative nodular lesion on the right side of the face.



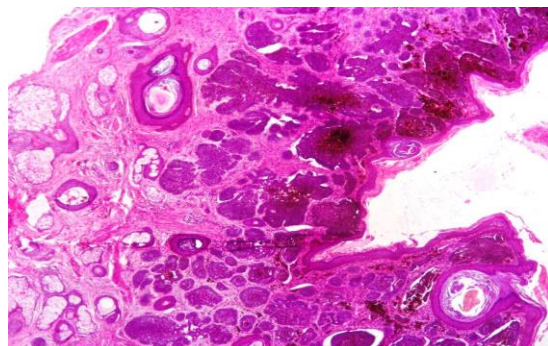
**Figure 2:** Cellular smear showing cohesive clusters of cells with sharp outlines (Pap, 100X)



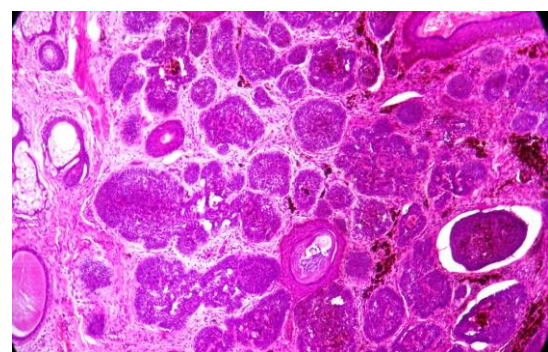
**Figure 3:** Showing peripheral palisading of basaloid cells (Pap, 400X).



**Figure 4:** Showing a cluster of basaloid cells with smooth border and many pigment laden macrophages (Pap, 400X)



**Figure 5:** Section showing features consistent with pigmented basal cell carcinoma (H and E, 100X).



**Figure 6:** Section shows nests of basaloid cells along with scattered pigment laden cells (H and E, 400X).

## DISCUSSION

BCC is a common type of skin cancer, making up more than 80% of the non-melanoma cancers and is defined by the World Health Organization Committee on the skin tumors as “a locally invasive, slowly spreading rarely metastasizing tumor, arising in the epidermis”.<sup>[9]</sup> Commonly biopsy or surgical resection of the lesions is employed for the diagnosis of BCC. However, FNAC can be successfully used in the diagnosis of pigmented BCC provided the yield is adequate and cytopathologist is expert in interpreting skin lesions. FNAC being first line of investigation of cutaneous neoplasms having various advantages like rapid, simple, noninvasive and inexpensive requires minimum instruments and leaves no scar, in view of its site and cosmetic reason.

The cytological features of pigmented BCC include 1) tightly cohesive cellular fragments, 2) small size of the tumor cells, 3) morphologically uniform tumor cells, 4) oval or fusiform and sometimes round nuclei with blurred chromatin structures, 5) high nuclear-cytoplasmic ratio with a narrow basophilic rim of cytoplasm, 6) nucleoli usually not evident and 7) some fragments with distinct sharp borders<sup>[10]</sup> 8) Presence of numerous dispersed macrophages having granules of deep black pigment in the cytoplasm.<sup>[11]</sup> All the features were observed in our case.

The other differential diagnosis of malignant melanoma on cytology was ruled out by the absence of a dispersed cell population, pleomorphism, intranuclear inclusions and prominence of nucleoli.<sup>11</sup> Pigmented seborrheic keratosis was ruled out due to absence of anucleate squames along with sheets of squamous cells and basaloid cells. There is no palisading of nuclei and no basement membrane matrix.<sup>[12]</sup> The other differential diagnosis of small basaloid cells includes basaloid squamous cell carcinoma (SCC), pilomatric carcinoma and merkel cell carcinoma. Cytology of basaloid SCC shows squamous cells with clumped chromatin, parachromatin clearing, prominent nucleoli, mitosis and necrosis which were not seen in the present case. Absence of atypical basaloid cells, ghost cells, multinucleate giant cells and calcific debris ruled out pilomatric carcinoma. Cytology of merkel cell carcinoma shows molding and rosette like grouping of small cells with stippled chromatin along with many stripped nuclei. However, none of these differential diagnostic entities reveal melanin containing cells. Hence one should rule out the differential diagnosis before interpreting tumours with basaloid morphology.

The high diagnostic accuracy of the cytology for BCC was first reported by Ruocco, in a study comprising of 500 cases.<sup>[13]</sup> In a study done by Naraghiet al., the sensitivity and specificity of the cytology in identifying BCC variants were 87.3% and 95.3%, respectively.<sup>[10]</sup> In our case, the diagnosis of pigmented BCC was successfully made on FNAC and later confirmed on histopathological study highlighting the importance of cytodiagnosis in differentiate various pigmented lesions of skin.

## CONCLUSION

Pigmented BCC though rare variant can be accurately diagnosed on FNAC. This helps in early diagnosis and guide the surgeon for appropriate treatment. Hence FNAC is rapid, simple and noninvasive and an outpatient procedure that can be used in diagnosis of suspicious pigmented skin tumours. Knowledge of the cytological features of pigmented BCC and its differentials can lead to accurate diagnosis and management of the patient.

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