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Fine Needle Aspiration Cytology of Basal Cell Carcinoma: A Case Series

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Abstract
Basal cell carcinoma (BCC) is the most common type of skin cancer, characterized by its local invasiveness and low metastatic potential. Fine needle aspiration (FNA) is a minimally invasive diagnostic technique that can be used to obtain cytological samples from suspected BCC lesions. This study aims to evaluate the efficacy and diagnostic accuracy of FNA in the diagnosis of BCC of the skin.

Keywords: FNA (Fine needle aspiration), BCC (Basal cell carcinoma)

Introduction

Basal cell carcinoma (BCC) is the most prevalent form of skin cancer, accounting for approximately 80% of all non-melanoma skin cancers. It primarily arises from the basal cells of the epidermis and is characterized by its slow growth and low metastatic potential. Despite its relatively benign behaviour, BCC can cause significant local tissue destruction if not diagnosed and treated promptly.[1] Early and accurate diagnosis of BCC is crucial for effective management and to prevent extensive surgical procedures. Traditional diagnostic methods include clinical examination and histopathological evaluation of biopsy specimens. However, these methods can be invasive, time consuming and may cause significant patient discomfort.[2] Fine needle aspiration (FNA) cytology offers a minimally invasive alternative for the initial evaluation of suspected BCC lesions. FNA involves the use of a thin, hollow needle to extract cellular material from the lesion, which is then examined under a microscope. This technique is advantageous die to its simplicity, rapid turnaround time and minimal patient discomfort.[3] The present study aims to assess the diagnostic accuracy of FNA in the diagnosis of BCC of skin.

Case Presentation

In our study a total of 10 patients of BCC of skin were studied. The patients were in the age group of 54 to 76 years. The patients presented with a nodular skin swelling ranging 1 to 6cm in diameter. All the cases presented with swelling in head and neck region. In some of the cases the lesion was ulcerated. All the patients underwent FNA. Aspirate yielded was stained with Giemsa and PAP stain. On cytologic examination the smears were cellular revealing tumor cells in branches with few having club-shaped edges. The cells were small basaloid, hyperchromatic nuclei and scant basophilic cytoplasm. Few of the epithelial fragments showed smooth external contours with peripheral palisading of the nuclei. Some of the epithelial fragments showed abundant pink basement membrane like material. Cytological diagnosis of basal cell carcinoma was offered in all the cases. Patients then underwent biopsy. Histopathological analysis revealed a basaloid epithelial tumor arising from the epidermis. Predominant pattern was adenoid

basal. Some of the cells were showing peripheral palisading at places. A diagnosis of basal cell carcinoma was offered in all the cases.

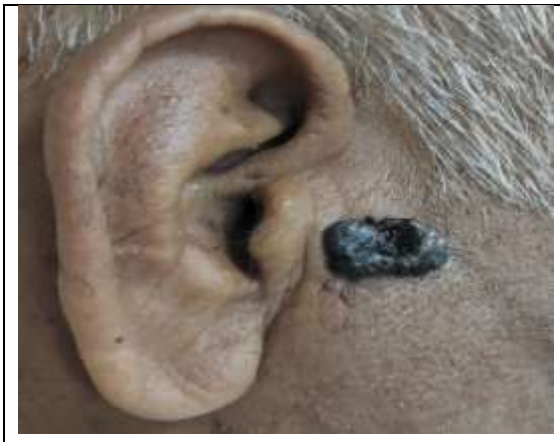

Figure 1 Clinical Photograph: Greyish black nodular lesion seen in the preauricular region.

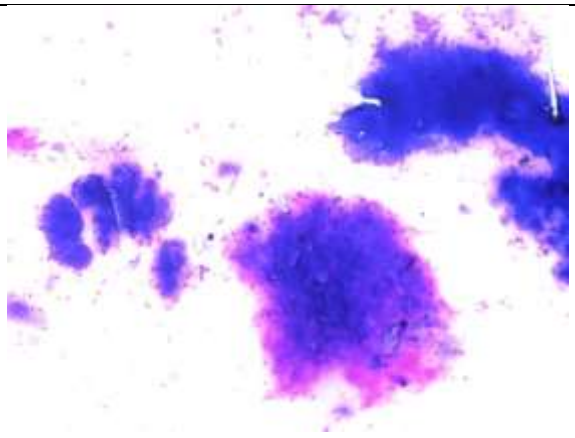

Figure 2 Giemsa stain 100X: Basaloid cells are seen with attached stromal substance.

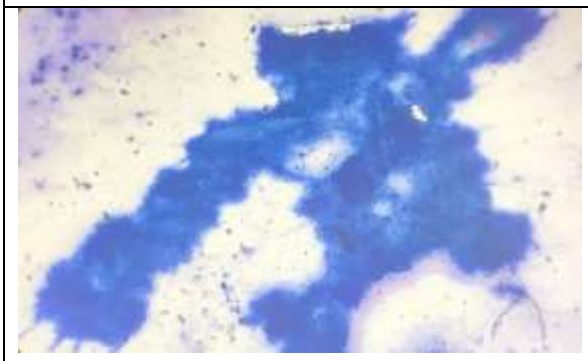

Figure 3 Giemsa stain 100X: Tumor epithelial cells showing peripheral palisading and attached stroma.

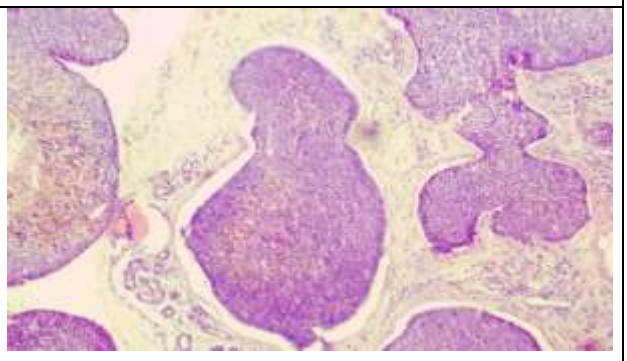

Figure 4 H&E stain 100X: Basaloid cells are seen revealing peripheral palisading and retraction artefact.

Discussion

Skin cytology is a rapid and straightforward technique in the hands of experienced professionals. It can provide valuable insights, especially in specific conditions. Additionally, in areas like the face, where scarring is a concern, cytology may be preferred over biopsy. The cytological diagnosis of basal cell carcinoma (BCC) is dependable when an adequate amount of material is obtained. Cytology smears typically reveal cellular patterns, including cohesive sheets, syncytial branching fragments, and club-shaped forms of small basaloid cells with focal peripheral palisading. These cells appear small, uniform, hyperchromatic, and are embedded within the basement membrane matrix.[4] The cytological differential diagnoses included tumors with small basaloid cells, such as basaloid squamous cell carcinoma, adenoid cystic carcinoma, small cell neuroendocrine carcinoma, and pilomatricoma.[4] Adenoid cystic carcinoma presents as 3-dimensional clusters, finger-like tissue fragments, single cells, and cribriform sheets enclosing hyaline globules. These fragments demonstrate intense crowding and overlapping of small, hyperchromatic, irregular nuclei. Small cell neuroendocrine carcinoma displays more dispersed atypical cells (without club-shaped fragments) and exhibits nuclear molding, along with increased pleomorphism,

mitoses, and necrosis. The basaloid component of pilomatricoma may resemble BCC but differs in clinical presentation. It contains "ghost cells," multinucleate giant cells, and calcific debris.

Conclusion

FNA is a valuable tool for assessing BCC lesions. Adequate material yields reliable cytological information, including characteristic features such as cohesive sheets, syncytial branching fragments, and small basaloid cells with focal peripheral palisading. Correlating FNA findings with histopathology ensures accurate diagnosis and guides clinical management.

References

1. Curling M, Oomen R. *Skin In : Diagnostic cytopathology. Gray W., Mc Kec GT., Editors.* 2nd ed. Edinburg: Churchill Livingstone; 2003.
2. Agarwal J, Gupta JK. Role of FNAC in diagnosis of cutaneous malignancies. *Journal of Cytology.* 1999;16(1):15–20.
3. Patel S, Mahadevappa A, Manjunath GV. Fine Needle Aspiration Cytology of Papulonodular Lesions of Skin: A Study of 50 Cases. J Clin Diagn Res. 2016 Dec;10(12):EC09-EC13.
4. Jain M, Madan NK, Agarwal S, Singh S. Pigmented basal cell carcinoma: Cytological diagnosis and differential diagnoses. J Cytol. 2012 Oct;29(4):273-5.