Basal cell carcinoma diagnosed on Fine-Needle Aspiration Cytology – A Pathological Case Report

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Abstract

Introduction: Basal cell carcinoma (BCC) is a locally invasive malignant epidermal tumor, making up more that 80% of the non-melanoma cancers. The diagnosis of BCC is made clinically, which can then be confirmed microscopically. Fine-needle aspiration cytology (FNAC) is an important tool in diagnosing BCC. **Case presentation:** We have reported a case of BCC, occurring on the right eyebrow of a 56-year old male, diagnosed on Fine-needle aspiration cytology (FNAC). This was also confirmed on histopathological examination. **Conclusion:** We recommend FNAC as a reliable, quick, inexpensive tool for accurate diagnosis of Cutaneous BCC.

Keywords: Basal cell carcinoma, Fine Needle Aspiration Cytology, histopathology.

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Introduction

Basal cell carcinoma (BCC) is a common type of skin cancer, making up more than 80% of the non-melanoma cancers. BCC is defined by the World Health Organization Committee on the skin tumors as "a locally invasive, slowly spreading tumor which rarely metastasize, arising in the epidermis".[1] It is usually observed in older patients, especially in those frequently and intensively exposed to ultraviolet radiation during their lives. Recent studies have shown that two thirds of the tumors are located in the head and neck region as these are the most sun exposed regions of the body. [2] The diagnosis of BCC is made clinically, which can then be confirmed microscopically.

Fine-needle aspiration cytology (FNAC) being a simpler, quick, non-invasive procedure can provide accurate

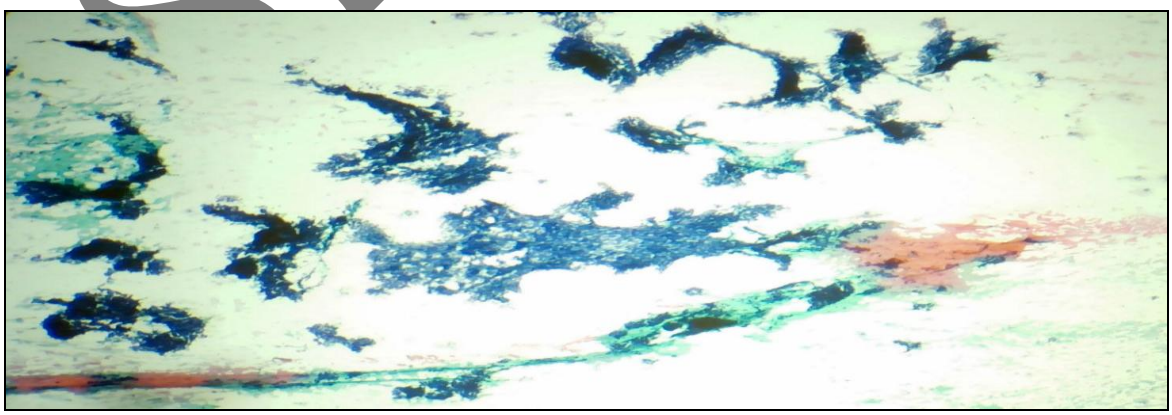
diagnosis to confirm or exclude the malignancy. Thus, FNAC is an important tool in diagnosing BCC. However, biopsy or surgical excision of the lesion provides the specimen for histopathological examination, which is the mainstay for diagnosis.

Case Report:

A 56-year old male presented with a painless, swelling over the right eyebrow which had progressively increased over a period of 5 years. Local examination revealed a firm, non-tender, nodular swelling measuring 2X1.5 cm (Figure 1). General physical examination and systemic examinations were normal. There was no regional lymphadenopathy.

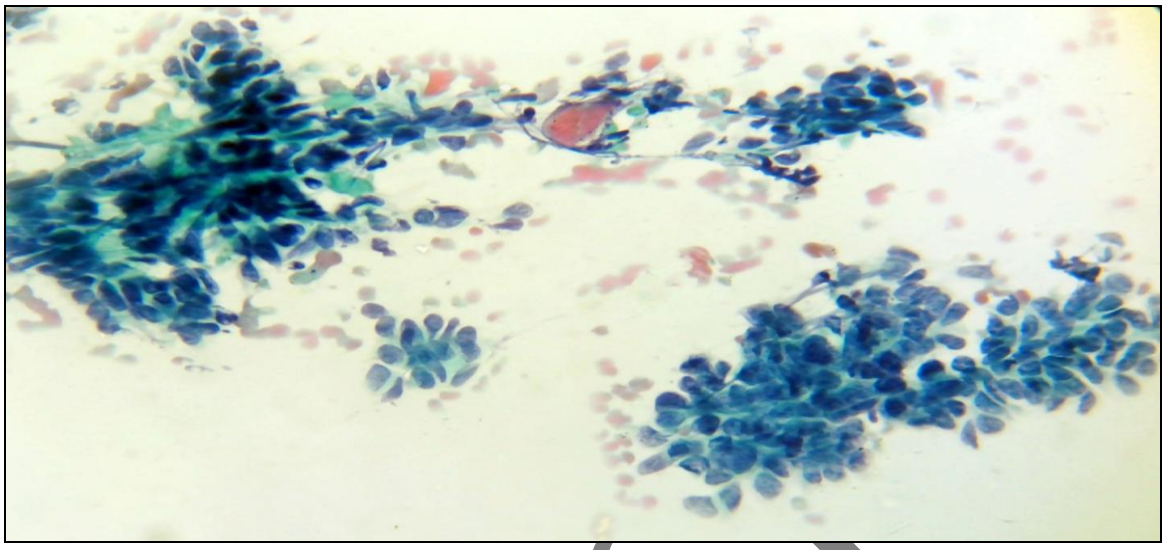
FNAC from the swelling yielded a brownish-tinged hemorrhagic aspirate. The smears were then stained with May-Grunwald-Giemsa and Papaniculou stains. Smears prepared were highly cellular showing many syncytial branching epithelial fragments against a clean background (Figures 1 and 2). At places the fragments showed smooth external contours with peripheral palisading of the nuclei. The tumor cells were uniform, small basaloid, with indistinct cell borders. Tumor cells had high nucleo-cytoplasmic ratio with a very narrow basophilic rim of cytoplasm around the nucleus. Nuclei were round to ovoid, hyperchromatic showing mild anisonucleosis, coarse granular chromatin and inconspicuous nucleoli. A cytological diagnosis of BCC was offered and excision was advised.

Figure 1: Cytology showed syncytial sheets and clusters of small closely packed cohesive cells showing peripheral pallisading.



(Papaniculou staining, Low power view (10X))

Figure 2: Cytology showed tumor cells which were uniform, small basaloid, having high nucleo-cytoplasmic ratio with round, hyperchromatic nuclei and scant cytoplasm.



Papaniculou staining, high power view (400X)

We received a skin covered polypoidal tissue mass measuring 2 x 2 x 1.5 cm, with focal ulceration measuring 0.2cm. The cut surface was solid, firm, grey white. Margins were 1cm and base 0.8cm away from the lesion. We stained the sections with hematoxylin and eosin stains. Histopathological examination revealed an infiltrating dermal tumor, arising from the base of the epidermis; consisting of small basaloid cells (Figures 3 and 4). Tumor had typical solid, nodular appearance with cells showing peripheral palisading. The cells showed features similar to those seen in cytology. The final diagnosis of BCC (nodular type) was given.

Figure 3: On Histopathology, infiltrating dermal tumor was seen, arising from the base of the epidermis. Hematoxylin and eosin stain (10X)

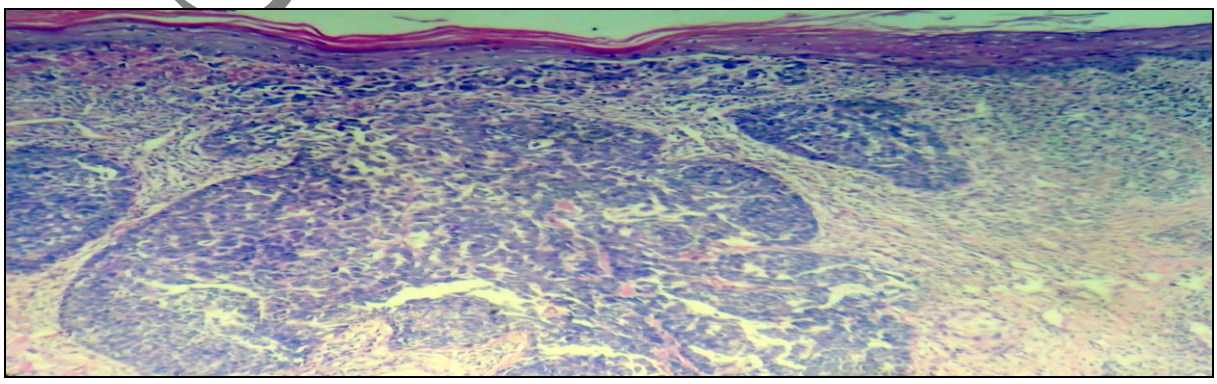
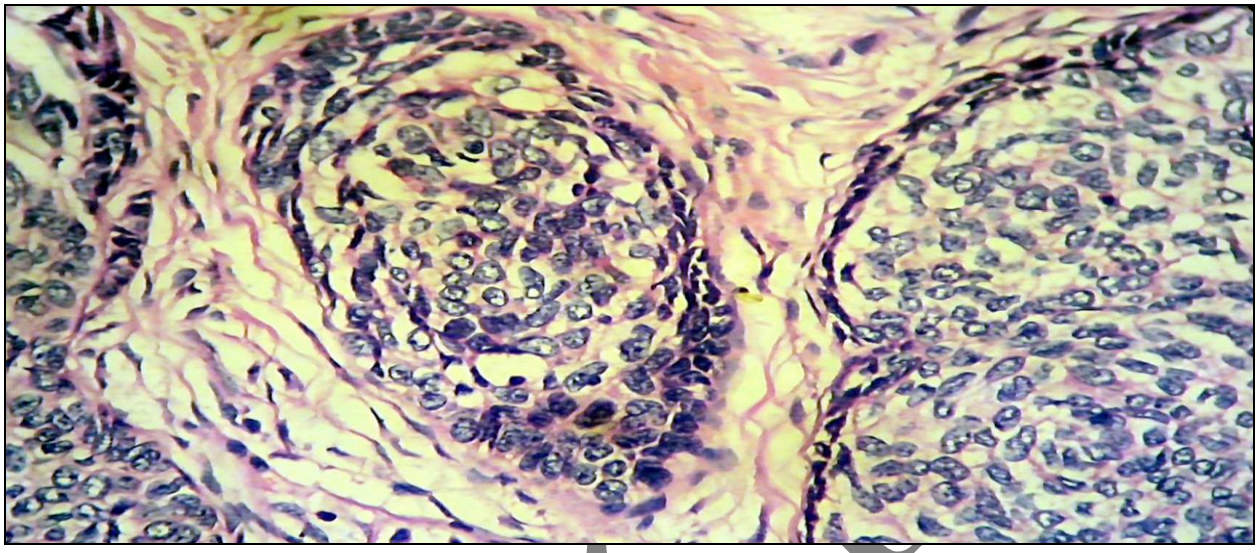


Figure 4: On Histopathology, tumor had typical solid, nodular appearance, consisting of small basaloid cells showing peripheral palisading.



[Hematoxylin and eosin stain (400X)]

Discussion: BCC is a common type of skin cancer, making up more that 80% of the non-melanoma cancers. [1] It is generally diagnosed on histopathological examination, however studies have suggested that cytology can be a useful and quick method of diagnosis. Patients with a clinical suspicion of BCC are referred by a dermatologist for microscopic confirmation. Criteria for the cytological diagnosis of BCC are 1) tight intercellular cohesion in tissue 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 of tumor cells with the cytoplasm forming a very narrow basophilic rim around the nucleus, 6) nucleoli usually not evident and 7) some fragments with distinct sharp borders'. [3] There was a good cytological correlation in this case with histopathological findings. BCC can be classified as nodular, superficial, morpheaform, infiltrating, metatyphic, and fibroepithelioma of Pinkus. [1] Histopathological types of BCC have been associated with different results and prognoses. Nodular BCC is the most frequent form of BCC, accounting for 75% of all cases, being superficial or ulcerated and often visualized on actinic damaged

skin. [3] This lesion often shows slow growth. Further, around 90% of nodular BCC lesions are found on the head and neck.[2]

FNAC is a quick and easy procedure to perform which needs minimum special equipments and requires little training. The high diagnostic accuracy of the cytological examination in the diagnosis of BCC was first reported by Ruocco, in a study comprising 500 cases.[4] Powell *et al.* performed a study on 82 skin tumors, and reported that the sensitivity and specificity of cytological examination in the diagnosis of BCC were 91% and 87%, respectively[5]. They concluded that cytology could be considered reliable in the diagnosis of BCC. In study done by Naraghi *et al.*, the sensitivity and specificity of the cytology in identifying all of the BCC types were 87.3% and 95.3%, respectively [3]. Thus, studies have confirmed that cytological examination of the skin smears from the suspected BCC lesions can be a useful alternative method of diagnosis.

The differential diagnosis of basal cell carcinoma on FNAC included tumors containing small basaloid cells i.e., basaloid squamous cell carcinoma, adenoid cystic carcinoma, small cell neuroendocrine carcinoma, pilomatricoma, seborrheic keratosis and eccrine gland carcinoma of the skin[3].

The diagnosis of BCC on FNAC can guide the dermatologist for confirmation by histopathology, thus expediating the treatment of the patient. BCC can be treated by cryotherapy, radiotherapy, curettage, electrodessication, 5-fluorouracil (5-FU) ointment, laser treatment and systemic chemotherapy apart from surgery. [1]

Conclusion: In conclusion, cytological examination of BCC is highly accurate, reliable, simple and very useful. This case report highlights the efficacy of FNAC in diagnosing BCC which can eventually be confirmed by histopathology. FNAC can be performed in outpatient's clinics, thus saving both the time and cost in clinics and laboratory. Hence, we recommend this technique for the initial evaluation of a patient with suspected BCC or in cases of recurrence.

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