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Histopathology

DIAGNOSTIC DILEMMA IN PIGMENTED BASAL CELL CARCINOMA: A CASE REPORT

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ABSTRACT Basal cell carcinoma (BCC) is the most common malignant skin tumor, constituting 80% of non- melanocytic skin tumors. Intermittent exposure to UV radiation is considered a major risk factor for BCC. Pigmented BCC is a rare entity, a histopathological and clinical variant of BCC. This entity belongs to the category of nonmelanocytic skin tumors but exhibits increased pigmentation. Increased pigmentation also creates suspicion of melanocytic tumors, seborrheic keratosis, and DLE. However, this diagnostic dilemma can be elicited with histopathological analysis and clinical correlation.

KEYWORDS :

INTRODUCTION

Basal cell carcinoma (BCC) is a form of malignant skin neoplasm known as a nonmelanocytic skin tumor [1]. It has low mortality and intensely low metastatic rates (even though, when present, it signifies a poor patient prognosis); it also has an extensive morbidity rate through local devastation and recurrence, specifically when perineural involvement is noticed clinically or histopathologically[2]. A main risk factor for this entity is frequent exposure to UV radiation. A clinical and pathological variant of BCC is pigmented BCC, which exhibits increased pigmentation. Non pigmented BCC is the universal type of skin tumor, whereas pigmented BCC is a rare entity. Pigmented BCC is a fairly exceptional variant, even though it accounts for 5% of all BCCs in Hispanics [3]. In the current study, we found one instance of pigmentary BCC with abnormal growth in a geriatric patient.

Case Report

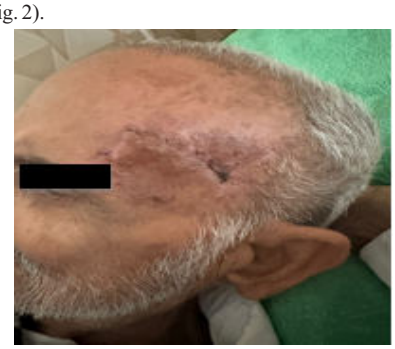
Case History

An 85-year-old man presented with a complaint of a pigmented lesion on the left temporal region for approximately two years. It also featured an itching and burning sensation, possibly due to photosensitivity. The lesion gradually developed and deteriorated over a year, finally growing up to the present size of 5 × 6 cm.

On examination, the patient had a single, well-defined, brown-black colored pigmented lesion with rolled-up margins measuring 5 × 6 cm over the left lateral area of the forehead (Fig. 1). Initially, the lesion seemed crimson and elevated and had curled-up borders.

Telangiectasias and thicker pigmented papular islands of growth were seen on the surface. No evidence of local lymphadenopathy was present.

The systemic evaluation's findings were within normal limits. After clinical evaluation, the patient underwent radiological investigations regarding the margins and adjacent and distant tissue involvement. Following clinical-radiological correlation, surgical excision was planned (Fig. 2).



Following biopsy and histopathological analysis, the following findings were evident: the tumor contained basaloid cells arranged in nests, sheets, clusters and cribriform pattern. (Fig. 3).

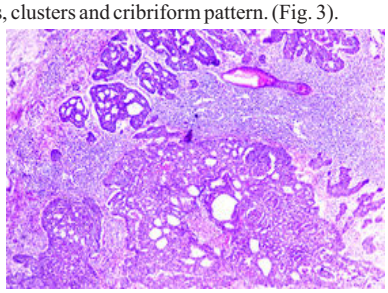


Figure 3: Tumor arranged in sheets, clusters, and cribriform pattern (100×, H&E Stain)

Distinguishable basaloid cells, retraction clefts, and pigmented patches were visualized (Fig. 4).

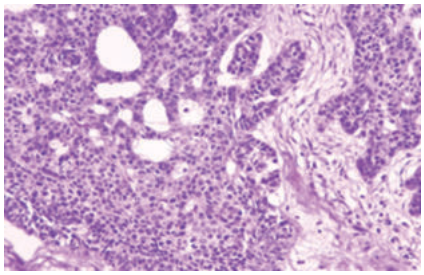


Figure 4: Basaloid cells, peripheral palisading, and retraction clefting artifacts (400×, H&E stain)

In addition, pigment-loaded macrophages were visualized (Fig. 5).

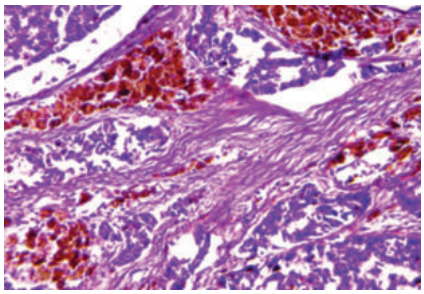


Figure 5: Tumor cells and pigment-laden macrophages (400×, H&E stain)

The histopathological findings indicated pigmented BCC. Tumor cells were not visualized in any of the borders (medial, lateral, superior, inferior, and resection). Melanoma, squamous cell carcinoma, and discoid lupus erythematous were kept as differential diagnoses. Nevertheless, using clinical equating and histological analysis, the differential diagnoses were ignored with the aid of histology. A correlation between clinical and histological findings confirmed the diagnosis of pigmented BCC.

DISCUSSION

BCC growth is a type of skin cancer caused by nonfilament keratinizing cells in the epidermal layer. It has various subclassifications, including pigmented BCC [4]. Less than 5% of all BCCs are pigmented BCCs. They are distinguishable by their brown- or black-pigmented look, a histologically and clinically different feature from BCC [5]. Our case was one of pigmented BCC. Pigmentation is one of the rarest morphological manifestations of basal cell malignancy. Its incidence is higher in people with darker skin tones, including Asian, Black, and Hispanic people. Caucasians experience it less frequently.

The most important variables of etiology are environmental conditions, phenotypes, and genetic predisposition. The development of BCCs can be seriously threatened by short exposure to UV radiation [6]. Certain genes, such as the patched (PTCH1) gene for BCC and the p53 gene for squamous cell carcinoma, are altered by UV light within the cells. Many bases will be replaced at pyrimidine sites. This inflammation is caused by activating the cyclooxygenase-2 pathway [7]. Patients with red hair, blue eyes, or a propensity to freckle are more at risk. Other risk factors are ionizing radiation, arsenic exposure, and coal tar derivatives.

Pigmented BCC usually appears on sun-exposed skin, commonly on the head and neck, as a transparent, slowly spreading lesion. It is most common in fair men older than 50 years of age. It has several distinguishing features, such as local virulence, and is below 0.01% of incidences of metastasis [8]. It is common to see nodular, superficial spreading and penetrating BCCs. Pigmented BCCs are rare and occur in just 5% of all cases.

Basal cells are the most common, and palisading of lesional nuclei on the periphery, customized stroma, and artifacts of clefting between the stroma and the epithelium are also common. The most common species is a nodal variety in which the neoplastic aggregation sees basaloid cells spread to the dermis in combination with a particularly narrow and specific tumor stroma. Cells have small cytoplasms and larger, round, or extended nuclei. BCCs may be distinguished from squamous cell carcinoma by peritumoral lacunae or retraction clefts. An increase in melanin pigment, which is produced by benign melanocytes that colonize tumors, is characteristic of the pigmented BCC subtype. The most likely differential diagnoses for this condition are BCC, seborrheic keratosis, pigment naevi, and melanoma.

Management

Excision is the most commonly used treatment option for skin malignancies other than melanoma. The acceptable tumor clearance rate is 84.9%, with a median margin of 3–6 mm for small, well-defined BCCs. The tumor site, such as the mid-face and trunk, is connected to incomplete excision [9]. Surgery can correct surgical errors using flaws, flaps, grafts, and secondary intent healing. According to the investigations conducted by Ro KW et al., pigmented BCCs showed only minor clinical invasion compared with unpigmented BCCs [8]. A multidisciplinary tumor board should discuss the management of difficult-to-treat BCCs. Hedgehog inhibitors (HHIs), vismodegib or sonidegib, should be offered to patients with locally advanced and metastatic BCC. Immunotherapy with anti-PD1 antibodies (cemiplimab) is a second-line treatment in patients with a progression of disease, contraindication, or intolerance to HHI therapy. Radiotherapy represents other treatment modalities for BCCs, including cryosurgery, laser surgery, radiotherapy, Mohs micrographic surgery (which has the highest cure rates and greater tissue conservation), curettage and electrodesiccation, and photodynamic therapy [10].

CONCLUSION

The most prevalent kind of malignant nonmelanoma skin cancer worldwide is BCC. Although pigmented BCC is uncommon, its prevalence is rising among Asian populations. UV exposure is the most significant risk factor that can be reduced. The doctor is responsible for informing and reassuring the patient that this malignancy has been identified, necessary precautions are being taken, and a set of efficient treatment modalities is being implemented. Improved education for patients and the introduction of novel treatments are expected to lead to improved survival and more effective results. In our case, the patient lost their follow-up.

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