Pigmented Squamous Cell Carcinoma of the Nose - A Case Report from South-East Asia

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Abstract

The pigmented subtype of squamous cell carcinoma (pSCC) is characterized by an extremely low incidence rate, ranging from 0.01 to 7%.[1] Very few cases have been reported in sun-exposed skin, as most of the reported pSCC instances have originated in the oral and ocular mucosa. This disease variant typically presents as a pigmented, dome-like papulo-nodular lesion. Differentiating it from a melanoma is crucial, given the markedly poorer prognosis of the latter. This report discusses the case of an 84-year-old Pakistani male diagnosed with pigmented squamous cell carcinoma on the nose. The pigmented nodular lesion on the bridge of his nose rapidly increased in size over the preceding three months. A punch biopsy was conducted by his dermatologist, considering basal cell cancer and melanoma as the primary differential diagnoses. Microscopic examination revealed characteristic morphological features of squamous cell carcinoma, including keratin pearls. Notably, melanin pigment was observed within the cytoplasm of these malignant cells. An immunohistochemical panel confirmed the diagnosis of the pigmented subtype of squamous cell carcinoma. Following standard procedure, the entire lesion was surgically excised. The prognosis for this subtype is similar to that of the typical form of squamous cell carcinoma. Early detection and treatment are paramount for optimal outcomes in all cancer cases. This is the first documented case of pigmented squamous cell carcinoma of the skin in a patient from Pakistan.

Keywords: Pigmented, Carcinoma, Squamous Cell, Skin, Nose.

Introduction

Non-melanoma skin cancers, notably basal cell carcinoma (BCC) and cutaneous squamous cell carcinoma (cSCC) are increasingly contributing to the prevalence of malignant neoplasms of skin globally, rising from 2.4% to 5.7% annually.[2] Basal cell carcinoma is the most frequently occurring type of skin cancer, with squamous cell carcinoma (SCC) following as a close second.[3] Over 1 million SCC cases are diagnosed yearly in the United States. The role of UV radiation in the onset of squamous cell carcinoma is widely recognized. Nevertheless, various social, economic, cultural, geographical, genotypic, and phenotypic factors may potentially alter the risks associated with SCC.[4] Pigmentation is a particular feature found in a variety of skin lesions, including melanoma,

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nevus, acquired melanosis, basal cell carcinomas, pigmented solar keratosis, seborrheic keratosis, and Bowen's disease.[5] Contrarily, invasive SCC typically lacks pigmentation despite being a widespread cutaneous tumor. Literature has been scarce on infiltrating pigmented squamous cell carcinoma (IPSCC). Earlier instances of IPSCC have been documented in the cornea, conjunctiva, oral mucosa, and larynx, while few cases have been documented in the skin. Since the lesion was first recorded, only three cases have been reported in English literature.[3]

The usual treatment of IPSCC is surgical removal with a prognosis comparable to that of the normal variant of squamous cell carcinoma. As with any cancer, early detection and treatment are crucial for the best possible outcome. We report a case of pigmented squamous cell carcinoma located on the nose.

Case Report

An 82-year-old South Asian man presented with a recent change of color of a pigmented lesion that had been present on the bridge of his nose for the last 8 years. The lesion had grown larger and began to bleed unprovoked over the last 10 months, causing him to finally seek medical attention. Examination revealed a pigmented, raised, and slightly irregular lesion measuring 8 mm in greatest dimension with pigment incontinence and puckering. Vessel arborisation and telangiectasias were also noted, but no ulceration was observed. A punch biopsy was done to reach a conclusive diagnosis.

The punch biopsy yielded two small fragments of light tan soft tissue, each measuring 0.2 cm in the greatest dimension. Histological examination of the specimen revealed a lesion arising from the epidermis and infiltrating into the dermis in a nested pattern (Figure I).

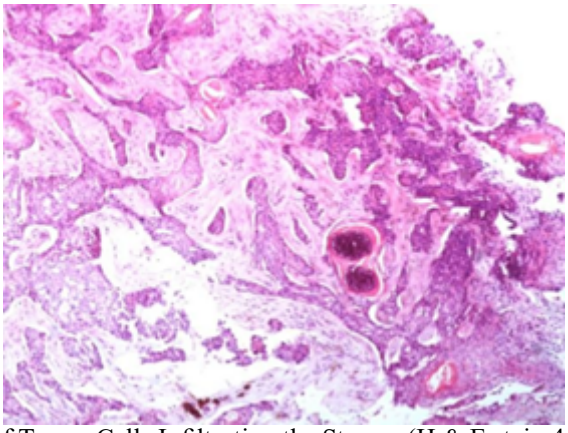

Figure 1: Nests of Tumor Cells Infiltrating the Stroma (H & E stain,4x magnification).

The lesional cells showed medium-sized keratinocytes with dense pink to basophilic cytoplasm, pleomorphic hyperchromatic nuclei, and scattered keratin pearls. The abundance of mitoses and pigment-laden cells was noteworthy (Figure II). These cells were interpreted as pigmented dendritic melanocytes/stromal melanophages, bringing pigmented melanocytic neoplasms into the differential diagnosis.

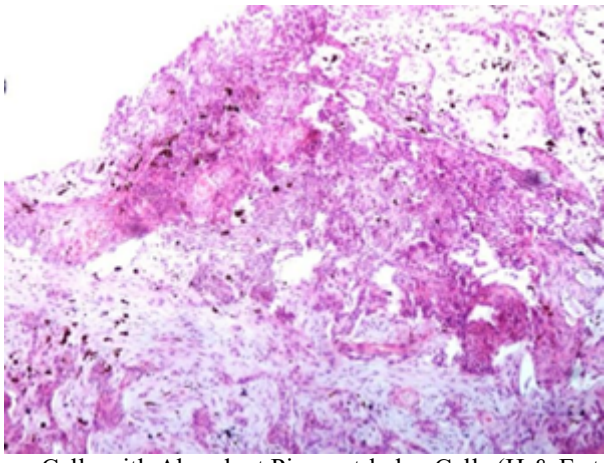

Figure 2: Nests of Tumor Cells with Abundant Pigment-laden Cells (H & E stain, 4x magnification).

Considering these histological findings, a possible list of differential diagnoses was drafted. This included pigmented squamous cell carcinoma as the most likely, followed by mixed squamous-melanocytic tumor, and

keratinizing pigmented basal cell carcinoma. A selective immunohistochemical panel of antibodies was utilized to reach a precise diagnosis. This panel consisted of cytokeratin AE1/AE3, P63, BerEp4, Melan A, and SOX10. SOX-10 was added to the list as it is a newer and more sensitive marker of cutaneous melanoma, which is known to be negative for melanocytic markers such as Melan A and HMB-45. Malignant keratinocytes tested positive for P-63 (Figure III-A), cytokeratin, AE1/AE3 while negative for BerEp4, SOX-10 & Melan-A (Figure III-B).

The results of this panel confirmed the H & E suspected diagnosis of pigmented squamous cell carcinoma and excluded all other speculated diagnoses. To determine the extent and depth of invasion, a complete excision of the lesion was recommended. Consequently, the tumor was surgically excised in its entirety without complication and the patient recovered completely.

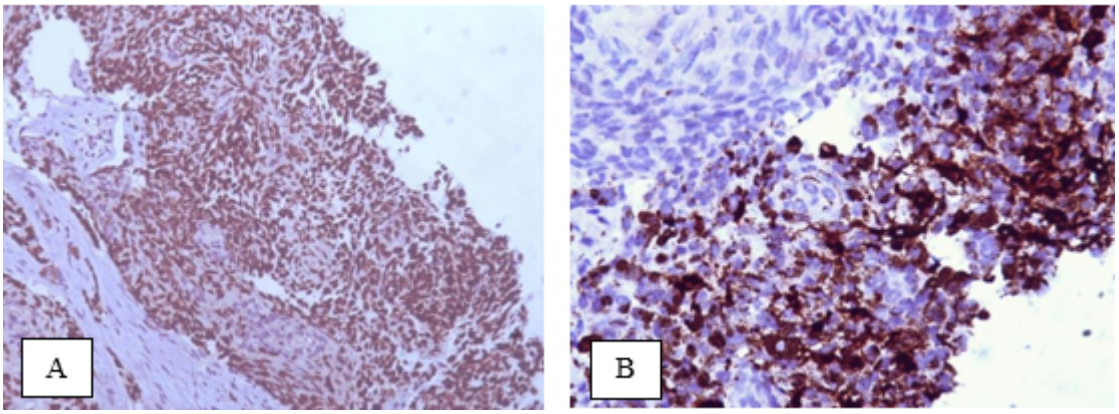

Figure 3: A - Immunohistochemical Nuclear Expression of p63 in Malignant Keratinocytes. B - Immunohistochemical Expression of Melan-A in Melanophages Within the Stroma of the Tumor.

Discussion

Pigmented squamous cell carcinoma is an extremely rare subtype of commonly occurring SCC. An English journal highlights the infrequency of the condition by reporting that out of 899 histopathologically diagnosed cases of SCC, only 3 were of the pigmented variety.[6] To date, most reported cases of PSCC have originated in the oral and ocular mucosa with even fewer reported cases of its development in sun-exposed skin. Hence, there is a large room for the documentation of instances of pSCCs originating from the skin. Our patient, an 84-year-old man and resident of a metropolitan city of Pakistan presented with a PSCC on the nose. The uniqueness of reporting this pSCC is underscored by the scarcity of reported cases in South Asia and the total absence in Pakistan.

Epithelial cells and melanocytes commonly coexist in the skin and are found in a substantial number of both malignant and benign tumors. This coexistence can pose a challenge when attempting to differentiate between various pigmented lesions that are included in the differential diagnosis, such as melanoacanthoma, pigmented pilomatrixoma, pigmented actinic keratosis, basal cell carcinoma, and melanoma.[7] In our case, histology revealed the highly atypical infiltrative keratinocytes, scattered keratin pearls, abundance of mitoses, and pigment-laden dendritic melanocytes within the neoplastic cells. These histological features excluded a benign lesion from the differential and strongly raised the suspicion of a malignant pigmented neoplasm. Now we were posed with the challenge of narrowing down the list of malignant differentials. Thus, immunohistochemical stains were utilized to arrive at a conclusive diagnosis.

Malignant keratinocytes expressed strong and diffuse cytoplasmic positivity for cytokeratin AE1/AE3 and P63. The negativity of BerEp4 in the atypical keratinocytes excluded basal cell carcinoma from the list of differentials, while Melan A and SOX10 negativity not only ruled out melanoma but also highlighted intratumoral melanophages & pigmented dendritic cells. These highlighted melanophages within the stroma of the tumor mass along with pigmentation noted in occasional tumor cells are the histologic hallmark of pigmented squamous cell carcinoma.

It is important to foreground that it is not uncommon to misdiagnose such cases because of cost restraints, lack of time, and the inexperience of the physician with respect to such cases. Hence, it is advised that any pigmented mass or lesion be thoroughly evaluated, and immunohistochemistry should be applied to reach a definitive diagnosis, enabling prompt initiation of treatment.

Conclusion

Squamous cell carcinoma with pigmentation is a rare variant of SCC and should be included in the list of potential diagnoses when assessing pigmented skin lesions. Due to overlapping histological features, clinicians and pathologists face challenges differentiating pSCC from other melanocytic neoplasms. Therefore, carefully evaluating clinical, histological, and immunohistochemical findings is crucial for accurate diagnosis and appropriate management.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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