Basal cell carcinoma (BCC) which is also known as rodent ulcer is the most common type of skin cancer. Prolonged exposure to high-intensity ultraviolet radiation is regarded as the most common risk factor of BCC. This ionizing radiation can induce DNA damage such as point mutations, and single stranded DNA breaks. Other possible pathogenic mechanism includes the involvement of the tumor suppressor gene, and the members of sonic hedgehog signal transduction pathway. Pigmented BCC (PBCC) is a rare variant of BCC, of which only very few cases have been reported in literature. This is a case report of such a case of PBCC.

**Keywords:** Ala of nose, Basal cell carcinoma, Carcinoma, Melanoma, Pigmented lesions

## INTRODUCTION

Basal cell carcinomas (BCC) are the most common carcinoma of the skin in the western world and are locally destructive malignancies. It’s otherwise called rodent ulcer, the term coined by Jacob Arthur in 1827. Rather than this being a carcinoma, pathologic description can be basal cell epithelioma. This is locally invasive, slowly spreading, primary epithelial malignancy, and the most common of all cancers. The most common cause can be chronic exposure to ultraviolet radiation. Frequent sunburns and the tendency for freckling in childhood are associated with an increased risk. Occurrence of BCC at an early age is a characteristic feature of xeroderma pigmentosum and nevoid BCC syndrome.

BCC arise from the layer stratum basale. In advanced stages, it gets ulcerated and extensively invade local tissues if left neglected. It is a slow growing malignant tumor, locally aggressive but rarely metastasize. Fine-needle aspiration cytology is an important tool in diagnosing various cutaneous and subcutaneous tumors, however, review of literature revealed only an occasional case report of cytology of pigmented BCC (PBCC). Recent molecular genetic studies have shown that dysregulation of the hedgehog signaling pathway is a critical early event in development of BCC. An inactivating mutation in “patched ‘gene and P53 mutations also contributes to the development of BCC.

About 80% are found in the skin of head and neck. The worldwide incidence is increasing by about 10% per year. Incidence generally increases with age, although recent studies suggest a disproportionate increase among young adults particularly women as well. Among all variants of PBCC variety is about 6% of all BCC’s and histopathologically similar to nodular BCC with increased melanization. Pigmented BCC exhibits increased melanization. PBCC is seen occasionally and represents a noduloulcerative lesion colonized by benign melanocytes. The melanin production imparts a tan, brown, black, or even bluish to the lesion and usually the pigment is not distributed uniformly, as it would be in a melanocytic nevus. About 80% of all basal cell carcinoma in Chinese are pigmented while this subtype is uncommon in white people. Recurrence of a properly treated BCC is uncommon in white people. Recurrence of a properly treated BCC is uncommon, and metastasis is exceptionally rare. In patients with uncontrollable disease, death usually results from local invasion into vital structures. Patients with history PF BCC must be evaluated periodically. There is a 30% chance of a second BCC and a 6% chance of a cutaneous squamous cell carcinoma developing within 3 years of treatment of the initial tumor. This is a case report of BCC, which occurs very rarely.

## CASE REPORT

A 62-year-old female patient reported to the department of oral medicine and radiology with complaint of black mass
on the right side of nose (Figure 1). The patient initially noticed the lesion 3 months back, which was initially small in size, which gradually increased and reached the present state over a period of 1 month after which it stopped growing. The patient had no history of pain or discomfort till then. However about 1 month, back the lesion ulcerated with a serous discharge from the lesion. She consulted a nearby physician and was given; topical creams and the ulceration subsided with the same. Patient’s family and personal history were non-contributory. She doesn’t remember any history of continuous radiation exposure other than routine sun exposure.

On extraoral examination irregular ovoid dark brown mass presented in right nose involving the Ala measuring around 1 cm × 1.5 cm in size with border and surface (Figure 2). No bleeding and purulent discharge noted with blood clot in the floor. On palpation, it was non-tender, non-fixed, and non-indurated. Adjacent skin was normal with no significant lymphadenopathy. A provisional diagnosis of BCC and malignant melanoma was given based on history and clinical examination. An incisional biopsy was done, and the specimen was sent for histopathological evaluation.

Histopathology of PBCC with H and E staining revealed hyper orthokeratinized stratified squamous epithelium with melanin deposition in basal layer with increased melanocytes and basaloid cell proliferation with peripheral palisading pattern (Figure 3a-c).

As per clinical features and histopathology the case is diagnosed with PBCC and referred to a higher center for management.

**DISCUSSION**

Etiology of BCC can be attributed mainly to exposure to sunlight and skin pigmentation.\(^1\) BCC occurs due to the uncontrolled proliferation of pluripotent cells within stratum basale of follicular structures.\(^1,2\) Most common it occur in fourth to fifth decade of life. Male to female predilection ratio is 3:2.\(^4\) Common site of occurrence is the middle third of nose corresponding to alar area. Our patient belongs to the sixth decade with lesion on middle third of face in right ala of nose. Nodular BCC, PBCC, cystic BCC, superficial BCC, micronodular BCC, morpheaform, and infiltrating BCC are variants of BCC of which nodular BCC is the most common variety. Initially, it presents as small, slightly elevated papule with an area of central depression. In addition to the features of nodular BCC, PBCC contain brown or black pigment. Cystic BCC lesions are translucent blue cystic nodules which resembles benign cystic lesions. Superficial BCC, which found mostly on trunk and extremities and 40%, occur on head and neck region (7). They present reddish brown patches or papules often with central clearing. Micronodular BCC presents as yellowish white small nodules but morpheaform and infiltrating variety occur as sclerotic plaques or papules. Among all these micro nodular and morpheaform subtypes are the most aggressive ones.

Clinical differential diagnosis includes seborrheic keratosis and malignant melanoma which can be differentiated and confirmed by cytology. Cytology of melanoma reveals scattered single cells with occasional loose cohesive groups, which are variable in size, shape and number of nucleus. The nuclei are eccentric with hyperchromatism,
often macro nucleoli and atypical mitoses can be seen. By advanced immunohistochemistry utilizing HMB-45 and S-100 immunomarkers, which are positive in melanoma, thereby making it easier to rule out possibility of malignant melanoma.\(^3\) Cytology of seborrheic keratosis reveals sheets of squamous cells with anucleate squamous and basaloid cells. No palisading pattern and no basement membrane matrix seen.\(^3\)

Basaloid component of pilomatricoma is similar to BCC but vary in clinical presentation and in histopathology it has ghost cells and multinucleate giant cells and along calcific debris and no melanin deposits seen.\(^3\) Basal-cell carcinomas are differentiated toward the folliculosebaceous-apocrine germ, also known as the trichoblast. The differential diagnosis with trichoblastic carcinoma, a rare malignant trichoblastoma, is often difficult to make.\(^11\)

Treatment of choice in most primary BCC is surgical excision. For larger BCC’s with more aggressive growth pattern mohs micrographic surgery (MMS) is recommended. Intralesional injection of interferon alpha can be considered as an alternative treatment modality.\(^2\,\,12\) Mohs surgery (or MMS) is an outpatient procedure, which was developed by Frederic E. Mohs in the 1940s, in which the tumor is surgically excised and then immediately examined under a microscope. It is a form of pathology processing called complete circumferential peripheral and deep margin assessment. The base and edges are microscopically examined to verify sufficient margins before the surgical repair of the site. If the margins are insufficient, more is removed from the patient until the margins are sufficient. It is also used for squamous-cell carcinoma; however, the cure rate is not as high as Mohs surgery for basal-cell carcinoma. The 2008 study found MMS to be a good option for both primary and high-risk recurrent BCCs.\(^13\) Photodynamic therapy (PDT) is a new modality for the treatment of basal-cell carcinoma, which is administered by application of photosensitizers to the target area. When these molecules are activated by light, they become toxic, therefore, destroy the target cells. Methyl aminolevulinate is approved by European Union as a photosensitizer since 2001. This therapy is also used in other skin cancer types. The 2008 study reported that PDT was a good treatment option for primary superficial BCCs, reasonable for primary low-risk nodular BCCs, but a “relatively poor” option for high-risk lesions.\(^13\) Superficial BCC is often found on the trunk and extremities, although 40% still occurs on the head and neck.\(^14\)

**CONCLUSION**

This case report describes a rare subtype of BCC, which can be diagnosed by histopathology and immunohistochemistry. The knowledge of correct features of PBCC and its differentials will lead of proper diagnosis and treatment of the condition.

**REFERENCES**