



Basal Cell Carcinoma

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Abstract

Background: Basal Cell Carcinoma (BCC) is a malignant neoplasm of non-keratinized cells in the basal layer of the epidermis, which is locally invasive, aggressive, destructive, and rarely metastasizes. BCC more commonly occurs in the elderly. Exposure to ultraviolet (UV) rays is the main risk factor for BCC, so predilection is areas of the body that are exposed to UV rays, especially the face, ears, and neck.

Case presentation: The following is a case report of a 65-year-old female patient who works as a farmer. The patient was diagnosed with basal cell carcinoma (BCC) with complaints of black nodules on the face, itching, and bleeding easily. With Dermatological status obtained. The lesion ad regio Fascialis Dextra shows a solitary hyperpigmented nodule, nummular in size, well-circumscribed, and unilateral.

Conclusion: Basal cell carcinoma is a malignant skin tumor originating from non-keratinizing cells in the basal layer of the epidermis.

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INTRODUCTION

Basal Cell Carcinoma (BCC) is a malignant neoplasm of non-keratinized cells in the basal layer of the epidermis, which is locally invasive, aggressive, destructive, and rarely metastasizes. BCC more commonly occurs in the elderly. Exposure to ultraviolet (UV) rays is the main risk factor for BCC, so predilection is areas of the body that are exposed to UV rays, especially the face, ears, and neck. This malignant tumor is characterized by slow tumor growth, rarely causes metastasis, but can cause destruction of surrounding tissue. The etiopathogenesis associated with BCC is genetic, environmental, and most often exposed to ultraviolet light. Clinically, there are five types of BCC, namely nodular, superficial, morphea form, pigmented, and fibroepithelioma Pinkus. In addition to clinical manifestations, supporting examinations are needed to assist in establishing the diagnosis, such as histopathological examination.^{1,2}

CASE PRESENTATION

A 65-year-old woman came to the dr. Soegiri Lamongan with complaints of lumps on the face since five months ago. Initially, a black spot appears and then turns into a lump. The bumps are itchy, bleed easily, and are painless. The patient works as a farmer. The patient had given desoxymethasone cream 3x1 (p.o), but the complaints did not improve. The patient has had a history of controlled hypertension since ten years ago and regularly consumes Captopril 5 mg 1x1 (p.o). On physical examination, the general condition was good, level of consciousness was *compos mentis*, blood pressure 210/100 mmHg, pulse 94x/minute, respiratory rate 20x/minute, temperature 36.5°C, weight 55 kg, height 145 cm. Dermatological status was obtained. Lesion ad regio Fascialis Dextra showed solitary hyperpigmented nodule, nummular in size, well-demarcated, and unilateral.



Figure 1. Patient with Basal Cell Carcinoma

DISCUSSION

Basal Cell Carcinoma (BCC) is a malignant neoplasm of non-keratinized cells in the basal layer of the epidermis; it is locally invasive, aggressive, destructive, and rarely metastasizes.² Other names for basal cell carcinoma are basalioma, rodent ulcer, basal cell epithelioma, Jacob's ulcer, or Konprecher's tumor.³

According to data from the Cancer Registration Agency of the Indonesian Pathologists Association (1989), out of 1530 cases of skin cancer, most were cases of BCC (39.93%). It is estimated that every year as many as 900,000 – 1 million patients are diagnosed with BCC in the United States. The ratio of men and women is 2.1:1. The latest report shows the ratio of men to women to be 3:2. The most cases in the world are in Australia, which reaches 2% of the population. BCC often occurs in the elderly, ranging from 50–80 years; on average, it occurs in the elderly age 65 years. In several epidemiological studies, only 1-3% of BCC suffered at the age of under 35 years, especially in patients with nevoid BCC syndrome who have the potential to become BCC at a young age.⁴

Etiology and predisposing factors of BCC Chronic exposure to sunlight and X-ray radiation are also associated with the occurrence of BCC. Exposure to arsenic, carcinogenic chemicals, Immunosuppressive states, Xero-derma pigmentosum. Nevoid BCC syndrome (Gorlin syndrome). An autosomal dominant disease that occurs at a young age with multiple BCC. Bazex syndrome. Chronic irritation or ulceration.^{5,6}

BCC mainly occurs in the overgrown skin with hair and rarely on the palms of the hands and

feet. The incidence of this disease in the mucous membranes is questionable. The clinical manifestations of BCC vary according to the variety of histologic features.⁶ The primary lesions of BCC are nodular, pigmented, superficial, and morphological, with the most common locations on the head and neck, especially the nose. About 10-15% of this disease affects the skin that is not exposed to sunlight. Unusual locations are on the vulva, penis, scrotum, perineum, and breast areola. These tumors grow slowly and rarely metastasize.⁷

The most common form of BCC is the nodular form (45-60%). The typical picture of a nodular BCC is a dome-shaped, pearl-like papule with a telangiectatic surface and raised edges. The surface may be ulcerated.⁸ The superficial form of BCC is in the form of well-defined erythematous scaly plaques with raised edges and often occurs on the trunk and extremities. It can be misdiagnosed with Bowen's disease or nummular eczema. Pigmented BCC is common in black and Hispanic populations and can mimic melanoma. Basal cell carcinoma, which is the most difficult to diagnose and treat, in the form of morphea, in the form of white plaque induration, not clearly demarcated, which can be diagnosed as a localized scar or scleroderma so that the patient and doctor are not aware of it.⁹

The presence of suspicious lesions in high-risk areas such as the central part of the face should be biopsied immediately to confirm the diagnosis so as to speed up treatment. BCC halo, in the form of erythematous papules 1-2 mm, occurs in areas exposed to sunlight and surrounded by areas of hypopigmentation. According to the American Joint Committee on

Cancer, if the BCC size is >5cm, it is called giant basal cell carcinoma (GBCC) and is found in $\pm 12\%$ of all BCC. This type of BCC is more aggressive with invasion into deeper tissues and affects structures outside the dermis such as bone, muscle, and cartilage, metastasizes, and has a poorer prognosis. One case of GBCC has been reported with infection with Human Papilloma Virus types 31, 33, and 35.^{8,10}

BCC pathogenesis to date is not known for sure, but it is suspected to be related to signaling pathways sonic hedgehog (SHH)/ patched-1 (PCTH-1) /smoothed (Smo)/ Glioma (Gli)/, which plays a role in the formation of neoplasm. The SHH pathway has a vital role in the development of cell embryogenesis and also plays a role in skin stem cell population, development of hair follicles, and sebaceous glands¹⁵. Pathogenic Basal cell carcinoma preceded by collagen is often found on skin that is slightly pigmented and gets excessive sunlight so that nutrition of the epidermis is disturbed, which is a predilection for the occurrence of skin disorders. Melanin functions as amorphous energy that can absorb energy and remove it in the form of heat. If the incoming energy is too large, it can damage and kill cells or undergo mutations to become cancer cells subsequently.¹¹

The differential diagnosis of BCC includes an adnexal tumor with follicular, sweat gland, or sebaceous differentiation. Nodular type BCC has a differential diagnosis of trichoblastoma or trichoepithelioma, adenoid cystic carcinoma, and Merkel cell carcinoma. Sometimes it may not be easy to distinguish a BCC from an

SCC when a keratin mass is present. Histopathology is the gold standard in establishing BCC.^{12,13}

The general histologic characteristics of BCC are the presence of basaloid tumor cells in clusters with palisading margins, cells with mitotic nuclei, apoptotic bodies, myxoid stroma, and the presence of artifact gaps in the peritumor area between tumor cells and the surrounding stroma. Basaloid tumor cells have cells that resemble basal epithelial cells and contain a large, oval, or elongated nucleus and relatively little cytoplasm. In some cases, it is difficult to obtain a picture of the cytoplasm of the tumor cells.¹⁴ The difference between basaloid tumor cells and basal cells is that basaloid tumor cells have a larger ratio of cytoplasmic nuclei compared to basal epithelial cells and do not show any intercellular bridges. Tumor cell nuclei usually appear relatively the same size, do not vary, and contain homogeneous color intensities.¹⁵

The appearance of cystic, lacunar, or fissure areas between clusters of tumor cells and the surrounding stroma results from necrosis of tumor cells or decreased cellular adhesion. This image was initially thought to be an artifact due to fixation, but apparently, this was also found in unfixed frozen sections, and by immunohistochemical staining, positive expression of laminin and type IV collagen antibodies was obtained.¹⁶ There are several variations of histopathological types of BCC, which can appear in pure form or a combination of several main types and additional types. The main types of BCC are superficial, nodular, morphological and infiltrative, fibroepitheliomatous, and infundibulocystic.¹⁴

The superficial type is characterized by clusters of tumor cells that are entirely attached to the epidermis or adnexal structures. These groups of tumor cells are separated from each other by areas of the normal epidermis. Nodular type is characterized by the presence of groups of tumor cells in the form of nodules in the dermis, apart from the epidermis to the reticular dermis layer. Nodules vary in size and shape. Some authors divide this type into nodular and micronodular types based on the size of the tumor cell cluster diameter $<0.5\text{mm}$. In the morphological and infiltrative types, the term infiltrative is used to describe tumors that lack a solid nodular appearance and are dominated by groups of cells arranged irregularly, in bands, or scattered single tumor cells between the stroma.¹⁷ This irregular distribution of tumor cells between the stroma gives the appearance of an infiltrative tumor. The terms morphea form or sclerosing mean there are multiple areas of fibrosis in the stroma, causing tumor cells to be squeezed between the stroma like thin bands; Usually, no solid nodules are seen. The fibroepitheliomatous type (also called fibroepithelioma of Pinkus) is characterized by clusters of tumor cells in the form of bands that anastomose to form a fenestrated image between the proliferation of fibrous connective tissue. The infundibulocystic type is usually a tiny, indolent lesion with small keratocyte structures and finely chromatinized basaloid epithelial cells. Additional types include: adenoid basal cell carcinoma, pigmented basal cell carcinoma, differentiated squamous BCC (metatypical type), clear cell basal cell carcinoma, eccrine-differentiated basal cell carcinoma, and basal cell carcinoma with nuclear pleomorphism.¹⁸

Generally carried out with local therapy, it can be surgical and nonsurgical therapy (low degree

of basal cell carcinoma metastases). Surgical treatment may include curettage and electrodesiccation, cryosurgery, surgical excision, and Mohs excision. With curettage and electrodesiccation, the five-year survival rate is 95%, whereas, with surgical excision and Mohs, it is 99%. Mohs excision can remove 100% of the tumor at once because it simultaneously uses a frozen section examination to see if the excision margins and base of tumor excision still contain tumor mass.^{12,13}

BCC generally grows slowly. The indolent type is the infundibulocystic type with a minimal destructive effect on the surrounding tissue after several years. The types that are considered aggressive are infiltrative, morphea form, and micronodular types, which can cause severe damage to surrounding tissues. Although rare, in some cases, local recurrence and metastasis have been reported to nearby lymph nodes or to distant sites such as the lungs. Recurrence may occur in lesions $>2\text{ cm}$ in size, located in the central part of the face and ears, as well as morphea form histological types.¹⁹ The most frequent complication is recurrence. Metastasis can occur in BCC. Complications of basal cell carcinoma can damage bones, nerves, and muscles.²⁰

CONCLUSION

Basal cell carcinoma is a malignant skin tumor originating from non-keratinizing cells in the basal layer of the epidermis. Genetic and environmental factors, especially sun exposure, are associated with the etiopathogenesis of BCC. The diagnosis can be made by history, clinical examination, and histopathology. Management of BCC can be nonsurgical or surgical. Nonsurgical management of topical therapy with

chemotherapy and immunomodulating agents is helpful in some cases of BCC.

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