

BASOSQUAMOUS CARCINOMA OF THE HEADGufi George¹, Mendy H. Oley²

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Gufi.george.s@gmail.com¹, Mendy.hatibie@unsrat.ac.id²**Keywords***Basosquamous cell carcinoma, skin tumor, wide excision, transposition flap, anatomic pathology, skin surgery***Abstract**

Basosquamous carcinoma (BSC) is a rare skin tumor, but it has a higher potential for invasiveness and metastasis compared to basal cell carcinoma (BCC). This case report describes a 37-year-old woman with BSC in the temporoparietal region. The patient presented with the chief complaint of a lump on the back of her head for 5 years. The lump had grown, accompanied by itching and bleeding. Physical examination revealed a soft mass approximately 25 x 20 cm in size. A pre-operative diagnosis of a skin tumor was made, and elective surgical management was carried out in the Operating Room. Wide excision was performed, and the skin defect was covered with a transposition flap from the occipital base and a split-thickness skin graft. Anatomical pathology examination revealed basosquamous cell carcinoma. The patient was discharged without complaints one week after the procedure. The skin defect was closed, and hair began to grow three months after the surgery.

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E-mail: Gufi.george.s@gmail.com**INTRODUCTION**

Basosquamous carcinoma (BSCC) is a rare type of skin cancer. As a rare variant or subtype of basal cell carcinoma (BCC), it has features typical of both BCC and squamous cell carcinoma. The incidence of BSCC is very low, less than 2% of all non-melanoma skin cancers, and is more common in males. The causative factors are complex, but exposure to ultraviolet (UV) light, the aging process, and smoking appear to play a role in the development of BSCC. BSCC tumors are usually found in older men, especially in individuals of Caucasian descent, and often appear on sun-exposed skin areas, especially on the head and neck or other areas that are frequently exposed to the sun (Supit, 2021).

Basosquamous carcinoma (BSC), first identified by MacCormac in 1910, is a rare type of epithelial tumor with features typical of squamous cell carcinoma and basal cell carcinoma found mainly in transitional areas of the skin. Clinically, most cases of BSC usually appear in the head and neck region (Wermker et al., 2015). Some researchers have stated that basosquamous cell carcinoma has a worse prognosis, higher recurrence rate, and greater metastatic potential when compared to basal cell carcinoma (BCC). Some of them even equate their behavior with squamous cell carcinoma (Siriwardena et al., 2018).

The optimal treatment for basosquamous carcinoma (BSC) has yet to be determined due to the limited data available. Various treatment methods have been applied with varying results, including excision, Mohs micrographic surgery, surgery with added radiation, radiotherapy, laser ablation, cryotherapy, Smoothed (SMO) inhibitors, and chemotherapy (Peris et al., 2019). Due to this uncertainty regarding BSC treatment, there is currently no established standard of care (Tan et al., 2017).

In this case, we found a 37-year-old woman with a skin tumor in the temporoparietal region that was excised and later known as basosquamous carcinoma. To date, excision is probably the best treatment, and surgical margins should be wider due to the infiltrative growth pattern of this tumor (Sambri et al., 2016). However, a high recurrence rate has been reported despite wide local incisions, so complete excision is essential (Lund et al., 2016).

This study aims to analyze risk factors associated with the development of BSC on the head, such as sunlight exposure, family history, and environmental factors. The research will also evaluate the most common clinical symptoms and signs related to BSC of the head, including the physical appearance of lesions, pain, skin changes, and other disturbances. The study also aims to identify effective diagnostic methods for BSC of the head, such as biopsies, imaging, or blood tests, and analyze the accuracy of the diagnosis. Furthermore, the research will examine the prognosis of patients with BSC of the head, including survival rates, prognostic factors, and comparisons of responses to various treatment methods such as surgery, radiotherapy, or targeted therapy. Finally, the study aims to identify potential new therapies or treatment approaches that may prove effective in managing BSC of the head. This comprehensive research will contribute to a deeper understanding of the condition, aiding in its diagnosis and management.

RESEARCH METHODS

A 37-year-old woman presented to the surgical outpatient clinic with a chief complaint of a lump on the back of her head that had been bothering her for 5 years. Initially, the lump was small like a marble, but over time, it grew in size and was accompanied by itchy sores and bleeding. The patient had no complaints of pain. Physical examination identified a large soft mass, measuring approximately 25 x 20 cm, located in the temporocipital region. Pre-operative diagnosis suggested a possible skin tumor, and elective surgery was performed in the operating room. A wide excision procedure was performed, and the resulting skin defect was closed using a transposition flap taken from the occipital base, as well as split-thickness skin grafts. The removed mass was sent to the anatomical pathology department for further examination. A few days after surgery, the pathology results revealed that it was basosquamous cell carcinoma, a type of skin cancer. The patient was discharged after one week in an improved condition, with no significant complaints. The skin defect caused by the surgical procedure was closed, and hair started to grow back within 3 months post-surgery. The success of this case emphasizes the importance of early diagnosis and proper surgical management of skin problems such as basosquamous cell carcinoma.

RESULTS AND DISCUSSION

Tumors can grow in any part of the body and can be benign or malignant. Benign tumors are tumors that do not attack surrounding normal cells and do not spread to other parts of the body. Malignant tumors, also known as cancer, are the opposite (Leão et al., 2018). Tumors are formed when the number of new cells that grow with the number of old cells that die is not balanced. This condition occurs when new cells are formed in excess, or old cells that should die remain alive (Fricker et al., 2018). The cause of this imbalance is not known for certain. However, there are several factors that are thought to be associated with the growth of tumors, namely:

1. Poor diet, e.g. eating too many fatty foods
2. Excessive exposure to sunlight
3. Viral or bacterial infections, e.g. HPV, hepatitis virus, and H. pylori
4. Excessive exposure to radiation, such as too many X-rays or CT scans
5. Consumption of immunosuppressive drugs after undergoing an organ transplant
6. Excessive consumption of alcoholic beverages
7. Smoking habit
8. Obesity
9. Exposure to chemicals, such as arsenic or asbestos

Malignant tumors or cancer is a disorder characterized by rapid growth, spread into the surrounding tissue, and can go to other organs that are more distant (metastasis). Metastasis of malignant disease to other organs can be through various ways, namely the bloodstream (hematogen) and lymph nodes (lymphogen) (Budhy, 2019). Cancer is a cellular disease characterized by the nature of uncontrolled growth followed by the process of invasion into tissues and spread or metastasis to other parts of the body's organs. Almost all cases of cancer are caused by mutations or abnormal activation of cellular genes that control

cell growth and cell mitosis (Velez & Howard, 2015). Abnormal genes are called oncogenes. In all cells, there are antioncogenes that suppress the activation of certain oncogenes. Inactivation of antioncogenes can allow activation of oncogenes and lead to cancer (Das & Das, 2020).

Non-melanoma skin cancers are the most common group of skin neoplasms in the white population with an increasing incidence worldwide. Another skin cancer is basosquamous carcinoma (Ciężyńska et al., 2021). Basosquamous carcinoma is a rare form of skin cancer and currently represents approximately 2% of all nonmelanoma skin malignancies. The majority of cases are found in the head and neck region with a higher prevalence in older Caucasian men. Clinical features of squamous cell carcinoma include exophytic, endophytic, leukoplakia (white patches), erythroplakia (red patches), erythroleukoplakia (combination of red and white patches). Exophytic growths (superficial lesions) can be cauliflower-shaped or papillary, and bleed easily. For endophytic growth there is usually a clear boundary between the lesion and normal tissue, the invasion can damage the bone which can cause pain and the appearance on the radiograph is radiolucency which is almost the same as osteomyelitis (Ramer et al., 2021).

Squamous cell carcinoma of the head and neck includes many anatomical subsite namely sinonasal cavity, nasopharynx, oral cavity, oropharynx and larynx. The clinical behavior of each of these anatomical locations has differences with varying degrees as well as the management. Nasopharyngeal carcinoma (KNF) has long been known to present a different entity from most other head and neck cancers such as Epstein-Barr Virus (EBV) infection as its etiology. KNF is highly sensitive to radiation and cisplatin chemotherapy (Novitasari & Maharani, 2022).

The majority of cases are found in the head and neck region with a higher prevalence in older Caucasian men. Labeled synonymous with metatypical basal cell carcinoma (BCC), BSC is almost always clinically indistinguishable from BCC, but is said to be more aggressive and invasive than BCC and squamous cell carcinoma (SCC), with higher rates of recurrence (reportedly up to 45%) and metastasis (approximately 5-10%) [2, 4, 5, 8]. Since its initial description in 1910, there has been debate regarding the terminology, definition, and subsequent management of BSC. These tumors have unpredictable behavior and mixed morphology, exhibiting features of both BCC and SCC with, or without, a transition zone between the two cell types. Initially, it was thought that BSCs were "collision" tumors, where SCC and BCC tumors developed independently and in close proximity to each other. However, given the histological features of BSCs and their pluripotency, this has recently led to the development of the squamatization theory, which suggests that BSCs are actually basal cell carcinomas undergoing squamous differentiation (Tan et al., 2017).

Although relatively rare, a worrying aspect of BSC is its ability to metastasize. Treatment of metastatic BSC is complex with poor outcomes, with one study reporting an average life expectancy of 1.6 years at diagnosis. However, this appears to greatly underestimate survival rates, with a further study reporting an overall survival rate in patients with very advanced disease of 54%.^{2,3}

Previous studies have reported varying local recurrence rates between 4 and 47.1% and the risk of recurrence has been found to increase with male gender, positive resection margins, and perineural and lymphatic invasion. Obviously, a reduced recurrence rate will lead to better clinical outcomes as well as reduced metastasis rates, and hence care should be taken to ensure adequate surgical excision margins.

There are currently no reports in the literature studying the use of radiotherapy in BSC. Cure rates of up to 91-93% have been seen with radiotherapy alone in treating BSC and that approaches using surgery and radiotherapy together show cure rates of around 95%. treatment with radiotherapy either alone or in combination with surgery may be an appropriate option for the management of BSC if standard surgical excision is not possible.³

The incidence of basosquamous carcinoma is about 1.2% of all non-melanoma skin cancers. These carcinomas arise mainly in the head and neck. Clinically and morphologically basosquamous carcinoma is similar to other basal cell carcinomas but it is a more aggressive tumor with a high likelihood of recurrence and risk of metastasis. Therapeutic management

of basosquamous carcinoma is based on therapeutic guidelines for basal cell carcinoma of aggressive histologic subtypes (Bichakjian et al., 2016).

The histogenesis of BSCC is unclear, but it is thought that the tumor originates from totipotent cells in the basal layer of the epidermis. The nature of BSCC is more aggressive and distinct behavior compared to BCC, with a high tendency to recur locally and spread to lymph nodes or other organs. Recurrent BSCC tumors are more difficult to cure than primary lesions. Treatment of BSCC requires extensive surgery with negative margins, with the risk of local recurrence ranging between 15% and 50%.²⁰ One of the standard therapies for BSCC is Mohs micro-graphic surgery (MMS) with wider excision margins than for BCC or SCC, and careful follow-up is mandatory (Supit, 2021).

The pathogenesis is related to genetic, environmental and sun exposure factors. The diagnosis is made through history taking, clinical features, and histopathologic examination (Udjaja, 2018). Therapeutic management of basosquamous carcinoma is based on therapeutic guidelines for basal cell carcinoma of aggressive histologic subtypes. Excision is one of the therapies of choice for this case. The goal of therapeutic management of a tumor is to remove the entire tumor with acceptable cosmetic results. Extensive surgical wound closure may be accompanied by a transposition flap (Losco et al., 2020).

Dermoscopy, deep incisional biopsy and immunohistology technique (Ber-EP4) should be applied to clinically suspicious lesions to achieve early diagnosis and better prognosis for basosquamous carcinoma. Surgical treatment, including wide excision and Mohs micrographic surgery, remains the treatment of choice. Finally, vismodegib, a Hedgehog pathway inhibitor, should be thoroughly investigated, with large controlled trials, as it may offer an alternative solution for cases of basosquamous carcinoma that are inoperable or difficult to treat and have progressed locally (Peris et al., 2019).

Another treatment strategy is to encourage the immune system to recognize and eliminate melanoma. When antigen-presenting cells (APCs) display intracellular proteins to T cells, there needs to be a co-stimulatory signal for the T cells to become activated. This occurs when the B7 molecule binds to CD28 on the T cell. If an inhibitory signal is sent as a result (a "checkpoint") the T cell does not become activated. This can occur when the B7 molecule on the APC binds to the cytotoxic T lymphocyte antigen receptor (CTLA-4) on the T cell or when the cell death ligand (PD-L1) from tumor cells binds to the cell death 1 receptor (PD-1) on the T cell. The basis of immunotherapy is to bypass these immune system checkpoints so that the T cells recognize and target cancer cells appropriately.

CONCLUSION

Basosquamous carcinoma is a rare type of skin malignancy that has significant invasive potential and metastatic ability. Currently, there are no clear management guidelines for this condition. The diagnosis of basosquamous carcinoma still relies on histopathological examination, which is the analysis of skin tissue taken through biopsy. The treatment that is generally considered to be the best modality to address basosquamous cell carcinoma is surgical treatment by performing a wide excision, which aims to remove the entire area affected by the cancer as well as the surrounding healthy skin margin. This approach is designed to minimize the risk of cancer recurrence by removing all infected tissue. Although there are no definitive guidelines, wide margin excision surgery remains a common standard of care for patients with basosquamous carcinoma.

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