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Characteristics of Malignant Eyelid Basal Cell Carcinoma in Dr. Mohammad Hoesin General Hospital: A Retrospective Study

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A B S T R A C T

Introduction: Incidence rates of skin cancer have risen significantly over the last two decades. Most tumors develop in sun-exposed areas of the head and neck. Basal cell carcinoma (BCC) rarely metastasizes but can cause significant morbidity and death due to direct spread to the orbit, head, and neck and frequent recurrence. In addition, approximately 40% of BCC patients have other lesions after 5 years. Although there has been a lot of epidemiological data regarding the characteristics of BCC in developed countries, reports of BCC in Asia, especially in Southern Sumatra, are still at a minimum rate. **Methods:** This study retrospectively reviewed the medical records specific to periocular BCC. Data were collected from the patient register book recorded from January 2021 to May 2022. The clinical characteristics of patients with BCC, such as gender and age, clinicopathological findings of BCC lesions, and BCC management, were reviewed retrospectively. This study aims to determine the epidemiological profile of the malignant eyelid BCC patient, the BCC lesion characteristics, and the management of BCC cases at Mohammad Hoesin General Hospital Palembang. **Results:** From 16 BCC patients recruited for this study, most of them were 51–60 years old and 71–80 years old, each with 5 patients (31.3%). The female preponderance of 56.3%. Occulus dextra (56.3%), lower eyelid (62.5%), T1 (87.5%), nodular BCC (75,0%), and primary lesion (75,0%) were the most side, periocular site, size, histopathological subtype and recurrence, respectively. Most therapy done is excision (93,8%), while the leading reconstructive technique was Tenzel's flap (50,0%). **Conclusion**: There is a slight preponderance of females as BCC patients. BCC is commonly found in elderly people. The lower eyelid and right side are the most frequent anatomical locations. Nodular is the most common histological subtype. In addition, lesions often present in T1 size and primary lesions. Lastly, the treatment is mainly surgical (excision), with Tenzel's flap as the most used reconstruction technique option.

1. Introduction

Incidence rates of skin cancer have risen significantly over the last two decades.[1] most tumors develop on sun-exposed areas of the head and neck. As the earth's protective ozone shield continues to thin, further increases in the incidence of skin cancer can be predicted. Basal cell carcinoma (BCC) rarely metastasizes but can cause significant morbidity and death due to direct spread to the orbit, head, and neck and frequent recurrence.[2,3] In addition, approximately 40% of BCC patients have other lesions after 5 years.[4] Although there has been a lot of epidemiological data regarding the characteristics of BCC in developed countries, reports of BCC in Asia, especially in Southern Sumatra, are still at a minimum rate. In fact, appropriate screening, diagnostic, curative, and preventive interventions must also be based on up-to-date knowledge of epidemiology, in addition to risk factors and pathogenesis, clinical features, and management options available. This study aims to determine the epidemiological profile of the malignant eyelid BCC patient, the BCC lesion characteristics,

and the management of BCC cases at Mohammad Hoesin General Hospital Palembang.

2. Methods

This study retrospectively reviewed the medical records specific to periocular BCC. Data obtained from the patient register book recorded from January 2021 to May 2022 in dr. Mohammad Hoesin General Hospital Palembang. The total sampling method was used for data collection. The parameters analyzed were patients' profiles, namely gender, age, location of the lesion, size of the tumor, histopathological subtype, recurrence, therapy, and reconstruction technique. Data processing was performed using SPSS 24.

3. Results

During the period January 2021 to May 2022, there were 16 patients diagnosed with eyelid basal cell carcinoma. The clinical characteristics of patients with BCC such as gender and age, clinicopathological findings of BCC lesion, and BCC management. Profile of Eyelid Basal Cell Carcinoma patients at Dr. Mohammad Hoesin General Hospital Palembang

Table 1: Epidemiological profile of the patients

Parameters	Numbers and Percentages
Gender	
Male	7 (43.8)
Female	9 (56.3)
Age Group (Years)	
21–30	2 (12,5)
31–40	-
41–50	-
51–60	5 (31.3)
61–70	4 (25,0)
71–80	5 (31.3)
81–90	-
>91	-

In this study, the number of eyelid basal cell carcinoma patients was more female, namely 9 patients (56.3%) than 7 male patients (43.8%), with a ratio of 1.28:1 between women and men. Patients were categorized into groups divided by 10 years intervals. Most of the eyelid BCC patients were 51–60 years old and 71–80 years old, each with 5 patients (31.3%).

Table 2: Characteristics of BCC lesion

Parameters	Numbers and Percentages
Side	
OD	9 (56.3)
OS	7 (43.8)
OD-OS	-
Periocular Site	
Upper eyelid	4 (25.0)
Lower eyelid	10 (62.5)
Medial canthus	1 (6.3)
Lateral canthus	-
Combined	1 (6.3)
Unspecified	-
Size	
T1	14 (87.5)
T2	2 (12.5)
T3	-
Histopathology Subtype	
Nodular	12 (75.0)
Infiltrative	4 (25.0)
Pigmented	-
Recurrence	
Primary BCC	12 (75.0)
Recurrent BCC	4 (25.0)

BCC of the eyelids commonly affects OD, with a total of 9 patients (56.3%). The most common site of involvement was the lower eyelid (62.5%). The most BCC lesion size found in this study was T1 (< 2 cm) with 14 patients (87.5%). The majority of the histopathological subtypes of eyelid BCC found were nodular, with 12 patients (75.0%). Out of 16 patients, 12 patients (75%) presented with primary BCC, and the remaining 4 (25%) presented as recurrent cases.

Table 3: Management of BCC

Management	**Numbers and Percentages**
Therapy	
Excision	15 (93.8)
Exenteration	1 (6.3)
Radiotherapy	-
Observation	-
Reconstruction Technique (n=15)	
No reconstruction	1 (6,3)
Direct closure	-
Hughes flap	-
Mustrade cheek rotation flap	4 (25)
Glabellar flap	1 (6.3)
Tenzel's flap	8 (50)
Others	2 (12.5)

Excision followed by eyelid reconstruction was done in 15 patients (93.8%). The most used reconstructive techniques were Tenzel flap in 8 patient (50%). Another patient (6,3%) was exenterated with no reconstruction.

4. Discussion

Basal cell carcinoma is one of the most common cancers in the world. Eighty percent of BCC occurred in the head and neck region, of which 20% occurred in the lids and periocular regions. Orbital invasion is rare, with a reported incidence of only 1.6–2.5% of the total cases. The onset of BCC is usually at the age of 60–80 years.[4]

This study conducted found that females' preponderance of 56.3%. Kaliki *et al.* also reported a similar female preponderance in their studies.[6] This is thought to be due to BCC lesions that cause disturbing cosmetic complaints, especially in women, so female sufferers often consult a doctor. Women in developing countries which are dominated by the Asian and Hispanic races are also suspected of using sunscreen more often than women in developed countries, which are dominated by the Caucasian race, which leads to BCC.[7] Our study shows that the eyelid BCC was commonly seen in 51–60 years old and 71–80 years old, every 5 patients, respectively. This was consistent with other studies.[1,6-8] Typical cases of BCC are found at the age of 60–80 years, like other cancers, which are diseases of aging, influenced by both biological and behavioral factors (oxidative stress, genomic structure, gene expression, immunocompetence, connective tissue stability, etc.).[9]

Concerning anatomical location, this study shows the common site of BCC were located on the right side (56.3%) and lower eyelid (62.5%). These findings were consistent with Wu et al. with similar comparison.[10] More than 50% of cases of BCC occurring in the inferior lids are thought to be due to light reflected by the cornea. In addition, other factors, such as chemical or physical irritation by tears of the inferior eyelid, may contribute to the incidence of BCC.[11] In agreement with other studies, most of the BCC tumors (87.5%) were less than 10 mm (T1).[1,8,13]

There were 16 cases of BCC, 12 cases (75%) were diagnosed with nodular histological subtype. This finding was in concordance with previous studies. For example, a retrospective study carried out in Romania

reported that 57.6% of BCC cases were nodular histological subtypes.[14] Subtypes of BCC histology were also correlated with the recurrence rate. It ranged from 3–7% in the nonaggressive BCC subtype (nodular and superficial types), in contrast to 26% in the infiltrative BCC subtype.[15] Consistent with the findings, primary lesions predominated in 12 of 16 BCC patients. In addition, according to the findings on tumor size, recurrence was also associated with tumor size; The recurrence rate for tumors >2 cm (T2) is 23–40%, whereas, for smaller tumors (T1), it is only 10–12%.

Management of BCC depends on the clinical condition of the patient. Wide excision (WE) or Mohs micrographic surgery (MMS) is the first choice of BCC management. Excision aimed at removing all of the lesions can only be achieved by the clinician estimating the safety margin.[16] In line with the study from Poland, which performed excision of 142 of 158 total BCC patients[17], our study performed 93.8% of excision. Although MMS has been considered the best method for removing BCC with minimal recurrence, it may be too expensive and time-consuming for all periocular BCCs, and therefore, paraffin sections or frozen sections are more often used.[18]

Tenzel's flap is the most used reconstructive technique in this study, done on 8 patients (50%). This finding is similar to a study by Cha & Lee that used the technique in 7 case-series patients. The selection of the appropriate technique for the patient is based not only on the size of the vertical and horizontal defects, the location of the defect, or the potential for disruption of the lid margins, but also on the age of the patient, the tissue available for reconstruction, the patient's preferences, and especially the experience of the reconstructor. Tenzel's flap is a semicircular reconstruction technique using a myocutaneous flap selected for moderate-sized defects (33–66% to 75%).[19] This technique was chosen because it is a simple and efficient one-stage technique, with better postoperative wounds, risk of ectropion, minimal postoperative pain, and minimal damage to the donor site.[19,20] This technique can also be used if the patient does not wish to wait 3–4 weeks for the next stage of the Hughes procedure.[20] In this study, the technique chosen was also correlated with T1-sized tumor domination and the small operative margin used.

There are several limitations in this study, including the population in this study may not describe KB sufferers in Southern Sumatra, several factors that can affect the patient's condition, such as environmental and behavioral factors, this study does not calculate the significance so that it cannot be known the influence between epidemiological profile to lesion nor the lesion characteristics themselves, and this study uses a secondary data source in the form of handwritten medical records so that there may be a misinterpretation of writing.

5. Conclusion

There is a slight preponderance of females as BCC patients. BCC is commonly found in elderly people. The lower eyelid and right side are the most frequent anatomical locations. Nodular is the most common histological subtype. In addition, lesions often present in T1 size and primary lesions. Lastly, the treatment is mainly surgical (excision), with Tenzel's flap as the most used reconstruction technique option.

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