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Surgical excision with paramedian forehead flap reconstruction in recurrent basal cell carcinoma of the nose



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ABSTRACT

Background: Basal cell carcinoma (BCC) is the most common malignancy worldwide, especially in fair-skinned people. Along with squamous cell carcinoma (SCC), these malignancies are grouped as non-melanoma skin cancer (NMSC). The nose is a common site for BCC because it is exposed to the sun. The rates of recurrence are variable in the literature, between 10% and 67%. The ideal surgical treatment for BCC is complete tumor removal with safety margins. Wide excision of the BCC will leave the nose with a soft tissue defect and sometimes part of cartilage or skeleton, which requires nasal reconstruction.

Case presentation: An 80-year-old female was admitted to the General Surgery Department of Soebandi General Hospital Jember presenting with ulceration on the right side of her nose 4 months before admission. The patient had a previous history of surgical excision on the nose 15 years ago on the nose's left side.

Conclusion: Recurrent cases of BCC are still the main issue in treating BCC. Wide excision of the BCC will leave the nose with a soft tissue defect, which requires nasal reconstruction. The paramedian forehead flap is recommended for defect closure in nasal reconstruction.

Keywords: basal cell carcinoma, wide excision, nasal reconstruction.

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BACKGROUND

Basal cell carcinoma (BCC) is the most common malignancy world-wide, especially in fair-skinned people. Along with squamous cell carcinoma (SCC), these malignancies are grouped as non-melanoma skin cancer (NMSC).¹⁻³ The nose is a common site for BCC because it is exposed to the sun.^{4,5} It is characterized by slow growth and rarely metastasizes due to its low angiogenic potential. However, due to its local malignancy, it can invade and destroy adjacent tissues.^{5,8} According to European Standardized Incidence Rate (ESIR), BCC incidence rate in 2008 was 430/100,000 person-years for males and 352.6/100,000 person-years for females. The person-based incidence in other parts of Europe varies from 77–158/100,000 person-years.⁴

The ideal surgical treatment for BCC is complete tumor removal with safety margins.^{2,7} Wide excision of the BCC will leave the nose with a soft tissue defect and sometimes part of cartilage or skeleton,



Figure 1. Single ulceration on the right side of the nose with a slight necrotic edge.



Figure 2. Defect after wide excision with 1 cm tumor-free margin.

which requires nasal reconstruction.⁵ Removal of large tumors on the face with

proper margin while retaining function and aesthetics can be quite challenging. Moreover, it requires complex and detailed reconstruction techniques, such as free flaps or multiple local flaps.^{1,5}

Griffiths et al.⁶ stated that complete excision should cure the condition with satisfying results for conventional complete surgical excision, but there were higher 5 years recurrence rates of 23% for



Figure 3A. Defect closure with paramedian forehead flap (front view).



Figure 3B. Defect closure with paramedian forehead flap (side view).



Figure 3C. Seven days post-operative result showed no sign of infection (front view).

239 reported cases. The rates of recurrence are variable in the literature, between 10% and 67%.⁸

In this report, we present a wide surgical excision with paramedian forehead flap in recurrent BCC of the nose.

CASE PRESENTATION

An 80-year-old female was admitted to the General Surgery Department of Soebandi General Hospital Jember presenting with ulceration on the right side of her nose 4 months before admission. It started as a small wound on the left side of her nose 15 years ago. The wound was surgically excised at that time and left with no complaint until the last 4 months.

In the last 4 months, the wound was small at first, then it gradually increased in size and depth. Clinical examination revealed a single ulcer on the right side of the nose, extending to the left, sized 2cm x 3cm with a slight necrotic edge, and no hemorrhage (Figure 1). The patient was scheduled for fine-needle aspiration biopsy (FNAB) and was diagnosed with the nose's recurrent basal cell carcinoma. Laboratory studies including complete blood count, liver and renal function test, and electrolytes, were within normal limits.

The patient was planned for tumor removal surgery and forehead flap reconstruction to close the defect. Before the surgery started, the forehead flap design was made. The tumor was excised carefully with a 1 cm tumor-free margin, leaving a 4cm x3cm defect in the nose (Figure 2). After the tumor removal, the flap design was dissected carefully to preserved supratrochlear arteries.

The nose defect was closed with no tension, using interrupted suture with 5-0 nylon and 3-0 vicryl (Figure 3A, 3B, and 3C). No cartilage graft was used, and the flap was not ischemic. The surgery was successfully done, and the patient was satisfied with the result. The patient has planned a second-stage surgery for cosmetic improvement.

DISCUSSION

Basal cell carcinoma grows slowly and is painless. A lesion that bleeds easily or does not heal well may be suspected for

BCC. The majority of these cancers occur in areas of skin that are regularly exposed to sunlight or other ultraviolet (UV) radiation, such as the nose, nasolabial fold, etc.⁹ The other risk factors include old age, male sex, smoking, fair skin types I and II, arsenic exposure, and immunosuppression.²

Recurrent cases of BCC are still the main issue in treating BCC, especially in the head and neck region. Primary BCCs had a recurrence rate of 2.7%, whereas those of residual and recurrent BCC were 6.9% and 4.6% consecutively.¹⁰

There are various treatment modalities employed for the removal of BCC which are curettage, electro-desiccation, topical chemotherapy (5-fluorouracil and imiquimod), radiotherapy, standard wide surgical excision, and Mohs micrographic surgery (MMS), but the ideal surgical treatment for BCC is complete tumor removal with safety margins.^{2,7,11} Wide excision of the BCC will leave the nose with a soft tissue defect and sometimes part of cartilage or skeleton, which requires nasal reconstruction.⁵

Median and paramedian forehead flaps have been recommended for inseting defects greater than 2.5-3 cm in diameter. Flaps from the nasofrontal zone are containing supratrochlear arteries. Therefore, it is important to preserve the vascular pedicle of these flaps (supratrochlear arteries) and obtain sufficient thinning of the subcutaneous tissue from the distal flap to improve cosmetic results. The paramedian forehead flap is a useful flap with a resilient vascular supply that is largely used for the reconstruction of complex or large nasal defects.³ Nourhan et.al¹² stated that there are some disadvantages when using forehead flaps should be mentioned, which include: the two-staged procedure, the color mismatch, and the bulkiness of the flap and the donor site scar.

In this case, the preoperative assessment supported the paramedian forehead flap for defect closure on the nose. The defect after wide excision was 4cm x 3cm, so the forehead flap was suitable for the best surgery outcome. The vascular of the flap was preserved and there was no evidence of ischemia.

The goal of the first stage of surgery was

to surgically excise the tumor and cover the defect with the flap. The patient was satisfied with the first stage surgery result, although the risk of reoccurrence and early surgical complication might occur.

Despite the patient's satisfaction, there are several concerns, especially in the cosmetic aspect, such as visible surgical incision on the forehead, presence of hair on the nose, and local soft-tissue edema. Therefore, the second stage of surgery was planned for cosmetic improvement.

CONCLUSION

Recurrent cases of BCC are still the main issue in treating BCC, especially in the head and neck region. Wide excision of the BCC will leave the nose with a soft tissue defect and sometimes part of cartilage or skeleton, which requires nasal reconstruction. The paramedian forehead flap is recommended for defect closure in nasal reconstruction. Preservation of vascular of the flap (supratrochlear arteries) is important to obtain satisfying surgical outcome.

CONFLICT OF INTEREST

The authors declare no conflict of interest in this study.

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ETHICAL STATEMENT

This case report was consented by the patient to be published for educational and learning purposes. Patient had received signed written informed consent regarding publication of the clinical photograph in journal article.

AUTHOR CONTRIBUTION

Nathan Aditya Willyanto contributed for writing the original draft and data gathering. Samsul Huda responsible for case management and supervision.

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