



NASAL RECONSTRUCTION IN A PATIENT AFTER SURGICAL TREATMENT OF RECURRENT BASAL CELL CARCINOMA OF THE LEFT NASAL WING

Rekonstrukcja nosa u pacjentki po leczeniu operacyjnym
wznowy raka podstawnokomórkowego
lewego skrzydła nosa



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Abstract

Basal cell carcinoma is the most common skin malignancy. Surgical excision is the basic treatment method. According to experts, the margin of macroscopically healthy tissue should be about 4 mm for primary lesions and about 10 mm for recurrence. The procedure is often associated with significant tissue defects. Facial lesions are often challenging because of the facial structure and the goal to maintain aesthetics. We describe a case of a patient with a third recurrence of basal cell carcinoma in the area of the left wing of the nose. Due to the expected significant loss of full-thickness tissues of the nasal wing, we planned reconstruction using two flaps: a lipocutaneous flap harvested from the nasolabial fold and a Mustarde rotation flap. The reconstruction was supplemented with split-thickness skin grafts. This approach allowed us to achieve full coverage of the tissue defect immediately after wide resection of the tumour. As a next step, we planned to reconstruct the nasal cartilage scaffold to improve nasal functionality and aesthetics. The described case is intended to present one of the reconstructive options for large post-resection tissue defects in the nasal wing area.

Streszczenie

Rak podstawnokomórkowy jest najczęściej występującym nowotworem złośliwym skóry. Podstawową metodą leczenia jest wycięcie chirurgiczne. Według opinii ekspertów, w przypadku pierwotnej zmiany należy zachować margines około 4 mm makroskopowo zdrowych tkanek, a przypadku nawrotu – około 10 mm. Takie postępowanie często wiąże się z powstaniem znacznych ubytków tkanek. Zmiany występujące na twarzy nierzadko są problematyczne, biorąc pod uwagę jej budowę i dążenie do zachowania estetyki. Opisujemy przypadek pacjentki z trzecią wznową raka podstawnokomórkowego skóry w okolicy lewego skrzydła nosa. Ze względu na spodziewany duży ubytek tkanek pełnej grubości skrzydła nosa, zaplanowano rekonstrukcję dwoma płacami – płatem skórno-tłuszczowym z fałdu nosowo-policzkowego i płatem rotacyjnym Mustarde'a. Rekonstrukcję uzupełniono o przeszczepy skóry pośredniej grubości. Stosując tę metodę, uzyskano pełne pokrycie ubytku tkanek bezpośrednio po szerokiej resekcji nowotworu. Zaplanowano również kolejny etap – odtworzenie rusztowania chrzęstnego nosa w celu poprawy funkcjonalności i estetyki nosa. Opisany przypadek ma na celu przedstawienie jednej z możliwości rekonstrukcji dużych poresekcyjnych ubytków tkanek w okolicy skrzydła nosa.

Keywords: basal cell carcinoma; skin cancer; reconstruction of nasal wing; flap reconstruction; plastic surgery

Słowa kluczowe: rak podstawnokomórkowy; nowotwór złośliwy skóry; rekonstrukcja skrzydła nosa; rekonstrukcja płatowa; chirurgia plastyczna

DOI 10.53301/lw/194131

Received: 22.09.2024

Accepted: 04.10.2024

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Introduction

Basal cell carcinoma (BCC) is the most common type of skin malignancy and the most common cancer in Caucasians [1]. It accounts for 75–80% of all cancers [2]. Although BCC very rarely spreads to other organs, several hundred cases of metastasis of this tumour have been described worldwide, most often to lymph nodes, lungs, and bones, with an estimated incidence of metastasis of about 0.0028–0.5% [3]. Surgery is the first-line treatment. This is the only approach allowing for histopathological verification of the lesion [4]. It is considered that conservative treatment should not be used for tumours with a difficult location (near the eyelid, lips, nose) [5]. For primary lesions, resection with a macroscopically healthy tissue margin of at least 4 mm is recommended [6]. In case of high risk of recurrence, the recommended margin of healthy tissue is up to 15 mm. Risk factors for recurrence include size ≥ 2 cm, location in central face, periorbital skin, nose, lips and ears, poorly defined border assessed as poorly demarcated histopathological margin, aggressive pathologic features (vascular and/or neural involvement), and failure of previous treatment [5]. After surgical removal of the lesion, the tissue defect is closed with simple skin suture, flap reconstruction or skin graft.

We present a case of a patient with recurrent BCC in the region of the left nasal wing. The woman had a history of tumour excision, with the defect covered with a buccal fat advancement flap, followed by radiation therapy due to the non-radical nature of the treatment. Due to tumour recurrence with perforation of the nasal wing, an extensive resection with lipocutaneous advancement flap harvested from the nasolabial fold and a Mustarde cheek rotation flap. A free split-thickness skin graft (STSG) was used to reconstruct the nasal mucosa. A good coverage of the extensive defect and oncological radicality were achieved. Subsequent reconstruction of the nasal skeleton using a rib fragment was also planned.

Case description

We present a case of a patient qualified for resection of recurrent BCC located in the nasal wing with its perforation, and simultaneous reconstruction using advancement flaps. The patient had previously undergone two surgeries to remove the tumour from the same location and close the defect with a split-thickness skin graft. Histopathology identified the lesion as BCC. Due to non-radicality of the procedure, the patient was qualified for radiation therapy. However, the tumour recurred after several years, causing perforation of the left nasal wing (Fig. 1). Computed tomography (CT) did not reveal any invasion of the nasal septum. Figure 2 shows a schematic drawing of the planned radical tumour resection using advancement flaps. The tumour was excised with a 10-mm margin of macroscopically healthy tissue. The resulting defect was covered with a nasolabial flap, and the defect after the buccal flap was covered with a Mustarde rotation flap. The inner side of the reconstructed left nasal wing was covered with STSG. STSG was also used to cover a fragment of tissue defect in the region of the nasal bridge, which could not be reached by the edge of the buccal flap. A fragment of the Foley catheter wrapped in a dressing soaked in liquid paraffin was left in the left nostril on the first postoperative day to prevent the nasal wing from collapsing, which could adversely affect STSG healing process. Figure 3 shows the patient's postoperative status on day 2 after surgery. No disturbances in the blood supply to the flaps, and no signs of exudate from the suture site were observed. A relatively pale colour of the STSG was noted, which could indicate delayed healing. The operated area was significantly oedematous, with signs of subcutaneous haemorrhages, which tended to subside over postoperative days. Considering the normal healing process, a decision was made to discharge the patient home, with arranged follow-up appointments according to the schedule. Histopathological examination confirmed oncological radicality. The patient was offered



Figure 1. Recurrent tumour with perforation of the left nasal wing



Figure 2. A schematic drawing of the planned radical tumour resection with flap reconstruction

another hospital admission after completed healing process and obtaining histopathological findings in order to perform reconstruction of the cartilaginous part of the nose using a rib cartilage graft.

Discussion

We described a case of extensive resection of skin cancer using combined reconstructive techniques. Excision with histopathological evaluation of surgical margins is

the treatment of choice in suspected BCC [7]. A lipocutaneous nasolabial flap, a Mustarde rotation flap, and two split-thickness skin grafts were used to close the post-resection defect and reconstruct the nasal mucosa. During resection, a healthy tissue margin of 10 mm was marked, in accordance with expert recommendations for high-risk BCC [7]. The patient presented with high-risk factors for recurrence, such as location in the nasal region, incomplete excision of the tumour in the past. Lipocutaneous nasolabial flaps are often used to cover tissue defects in the region of the nasal wing. They belong to the group of flaps transferred from an area adjacent to the defect. The shape and size of the flap is selected depending on the defect. The teardrop shape is most commonly used as it ensures the most optimal aesthetic effect [8]. Due to the large size of the secondary defect after transferring the buccal flap, it was decided to use a Mustarde flap, achieving complete coverage of the primary and secondary tissue defect.

The Mustarde flap is a rotational cheek flap, often used for the reconstruction of tissue defects in the infraorbital region and lower eyelid [9]. In order to ensure optimal conditions for STSG healing on the inner side of the flap, a dressing was made using a fragment of a Foley catheter wrapped in a dressing soaked in liquid paraffin. Such dressing ensured proper compression of the grafts to the recipient site, maintaining the patency of the newly created nostril. Fixing the STSG with skin sutures and pressing it to the recipient site is recommended to prevent the grafts from moving [10]. This allowed for avoiding any disturbances in STSG healing over the postoperative days. No disturbances in the blood supply to the flaps were also observed. As a result of the treatment used, a complete excision of the tumour and an aesthetic effect acceptable for the patient were achieved. In the next stage, reconstruction of the cartilaginous part of the nose was planned in order to improve its functionality and aesthetics. Continuation of the treatment will be possible once the nose has completely healed after reconstruction and a histopathological result confirming total excision of the tumour has been obtained.



Figure 3. Patient's status on postoperative day two

Conclusions

Reconstruction of tissue defects after resecting large skin cancer lesions while maintaining histopathological radicality is a major challenge in oncological surgery. The use of advancement flaps and the possibility of combining reconstructive methods allow for covering large defects that are difficult to close using conventional techniques. The combination of a lipocutaneous flap harvested from the nasolabial fold and a Mustarde rotation flap using split-thickness skin grafts can be successfully used to cover full-thickness defects after resection of nasal wing lesions.

References

1. Pabiańczyk R, Cieślik K, Tuleja T. Metody leczenia raka podstawonokomórkowego skóry. *Chirurgia Polska*, 2011; 13: 48–58
2. Hossfeld DK, Sherman CD, Love RR, et al. Podręcznik onkologii klinicznej. PWN, Warszawa-Kraków, 1994
3. Malone JP, Fedok FG, Belchis DA, Maloney ME: Basal cell carcinoma metastatic to the parotid: report of a new case and review of the literature. *Ear Nose Throat J*, 2000; 79: 511–515, 518–519
4. Walker P, Hill D. Surgical treatment of basal cell carcinomas using standard postoperative histological assessment. *Australas J Dermatol*, 2006; 47: 1–12. doi: 10.1111/j.1440-0960.2006.00216.x
5. Telfer NR, Colver GB, Morton CA; British Association of Dermatologists. Guidelines for the management of basal cell carcinoma. *Br J Dermatol*, 2008; 159: 35–48. doi: 10.1111/j.1365-2133.2008.08666.x
6. Wolf DJ, Zitteli JA. Surgical margins for basal cell carcinoma. *Arch Dermatol*, 1987; 123: 340–344
7. Owczarek W, Rutkowski P, Słowińska M, et al. Recommendations on the treatment of basal cell carcinoma and squamous cell carcinoma prepared by the Oncology Department of the Polish Dermatology Society and the Melanoma Academy Department of the Polish Society of Oncological Surgery. *Oncol Clin Pract* 2015; 11: 246–255
8. Chęciński P, Nuckowska J, Osuch-Wójcikiewicz E, et al. Rekonstrukcje ubytków nosa po operacjach onkologicznych w materiale Kliniki Otolaryngologii Warszawskiego Uniwersytetu Medycznego w latach 1998–2007. *Otolaryngol Pol*, 2009; 63: 122–125
9. Leone CR Jr. Tarsal-conjunctival advancement flaps for upper eyelid reconstruction. *Arch Ophthalmol*, 1983; 101: 945–948. doi: 10.1001/archophth.1983.01040010945019. PMID: 6860211
10. Beldon P. What you need to know about skin grafts and donor site wounds. *Wound Essentials*, 2007; 2: 149–155