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Reconstructive surgery in advanced perioral non-melanoma skin cancer. Results in elderly patients.

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Abstract

Background: Nonmelanoma skin cancer (NMSC) of the perioral region is not uncommon. Basal cell carcinoma is predominant in the upper lip area and squamous cell carcinoma in the lower lip area. While smaller lesions can be treated by excision followed by primary closure larger defects after tumor surgery can be challenging.

Objectives: Analysis of outcome after complete surgical excision with micrographical control of excision margins (delayed Mohs surgery) of large NMSC's of the perioral region (lips and chin).

Patients and methods: This is a retrospective, single-center analysis of patients with defects after delayed Mohs surgery of ≥ 3 cm of the perioral region. The study included a total of 25 patients (4 women and 21 men) with a mean age of 83.7 years. Twenty patients were diagnosed with squamous cell carcinoma and five had basal cell carcinoma. The lower lip was affected in 19 patients, the upper lip in 4 patients and the chin in 2 patients. Tumor stage was either T1N0M0 or T2N0M0.
The most common procedure for lower lip defect closure was staircase or modified staircase technique. Cheek advancement flaps were used for upper lip defect closure. Inferiorly based nasolabial rotational flap, cheek rotational flap and modified Webster flap were also employed.
In one patient Webster flap and unilateral staircase technique were combined.

Results: In all patients the tumor was removed completely with preservation of function and aesthetics. No local recurrence was observed after a median follow-up of 4.9 years.

Conclusion: Perioral reconstruction after removal of large NMSC is a complex issue. The age group of over 70 years, frequently with comorbidities, requires a robust surgical technique with short operation times and tailored approaches for defect closure. (*J Dermatol Case Rep*. 2014; 8(4): 103-107)

Introduction

Non-melanoma skin cancer (NMSC) is the most common malignancy in Caucasians world-wide.[1]

The head and neck region is the most affected. In the perioral region, SCC and BCC represent the predominant types of NMSC. Despite the development of new drugs targeting important pathways of NMSC tumor surgery remains the hallmark of treatment with the highest cure rates.[2]

In larger tumors, however, reconstruction after complete excision may become difficult and warrant an interdisciplinary approach. The perioral area has a complex anatomical structure that has to be considered and oral competence is a major goal of reconstructive surgery in this specific region.[3]

Here we report our own data on reconstruction after excision of larger NMSC in the perioral region in a dermatology department with a particular focus on elderly cancer patients.

Patients and Methods

Our hospital is an Academic Teaching Hospital with about 500 NMSC per annum. ICD 10 classification C44 is the most frequent group of diagnoses in the department. In this retrospective analysis we investigated patients with either BCC or SCC of lips and chin. Age and gender distribution were

assessed. Histologic type and TNM classification were recorded. The type of reconstructive surgery and outcome were analyzed. Tumor surgery was performed in local anesthesia with 3D histographic controlled margins (delayed Mohs). Large tumors were defined as tumors of at least 3 cm diameter of the resulting defect after delayed Mohs surgery. Staging included diagnostic ultrasound for lymph node status and routine laboratory according to the German Guidelines.[4,5]

Results

We observed 25 patients with large NMSC of the perioral region. 20 patients suffered from SCC and 5 from BCC. Among SCC patients there was a clear male predominance with only 2 females. Among BCC patients 2 were males and 3 were females. The age range was 69 to 95 years, mean age 83.7 ± 6.8 years.

Of the SCC two were T1N0M0, the remaining tumors were staged T2N0M0. All BCC's were T1N0M0. All SCC were G2 and all but one were on the lower lip. A single case was on the chin of a female patient. Histologic types in BCC were sclerodermic (2) and nodular (3).

Risk factors for NMSC were smoking > 10 years (15), outdoor work > 10 years (13), and skin type I (7). There was no patient with a genetic background as a risk factor (i.e. Gorlin-Goltz syndrome or xeroderma pigmentosum) and no post-transplantation state or immunosuppressive treatment.

Time to diagnosis varied widely, i.e. between 12 months and 6 years (mean 25 ± 11 months).

All surgeries were done with local anesthesia using 1% prilocain. The primary surgery for complete tumor excision was delayed Mohs technique with 3D histological margin control.

The most commonly used procedure for defect closure were the staircase flap according to Johanson *et al*. (1974) (n=12) and the modified staircase technique of Kuttenberger and Hardt (1997) (Fig. 1).[6-8] Modified Webster flap and inferiorly based nasolabial flap have been used for lower lip reconstruction (n = 1 each) (Figs. 2 & 3).[9,10] In another case cheek advancement flap was combined with contralateral staircase technique (Fig. 4). Upper lip reconstruction was performed by lateral advancement flaps (3) (Figs. 5 & 6). For chin reconstruction latero-caudal rotation was employed (3) (Fig. 7).

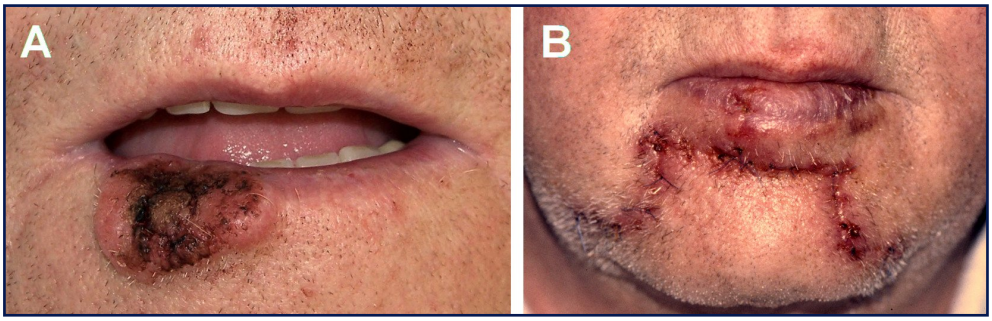

Figure 1
SCC of the lower lip (A). Defect closure and lip reconstruction by staircase technique (B).

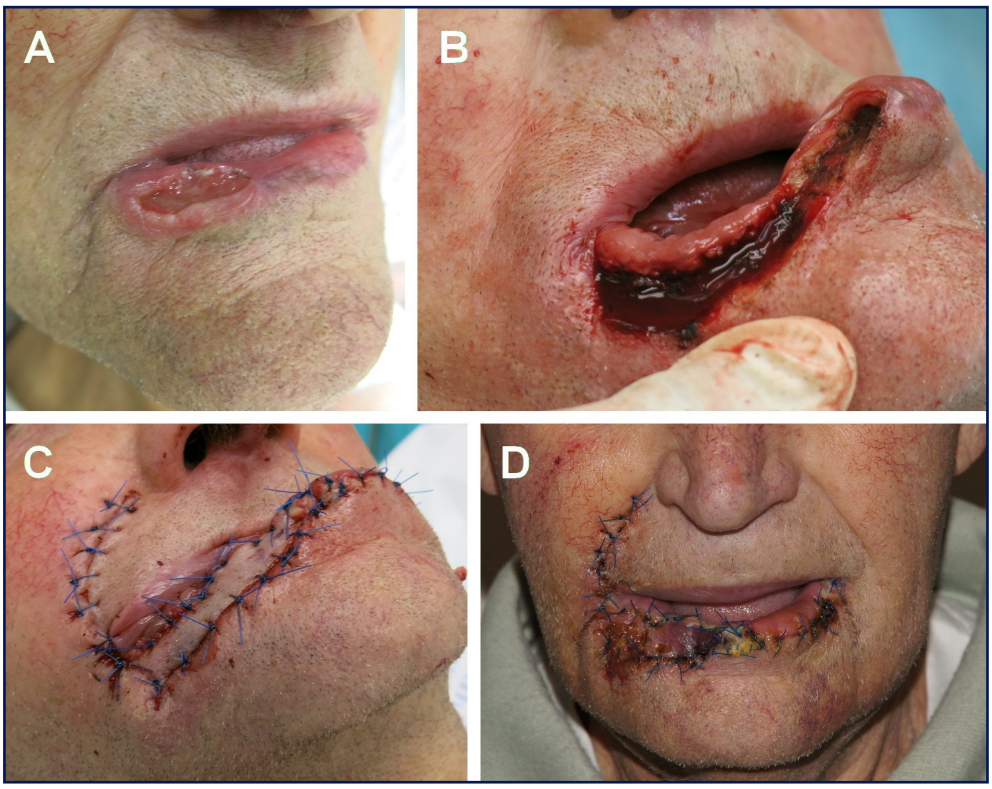

Figure 2
SCC of the lower lip. (A) Clinical presentation of a large ulcerated tumor. (B) Resulting defect after Mohs surgery. (C) Closure by an inferiorly based nasolabial flap. (D) Six days post-surgery.

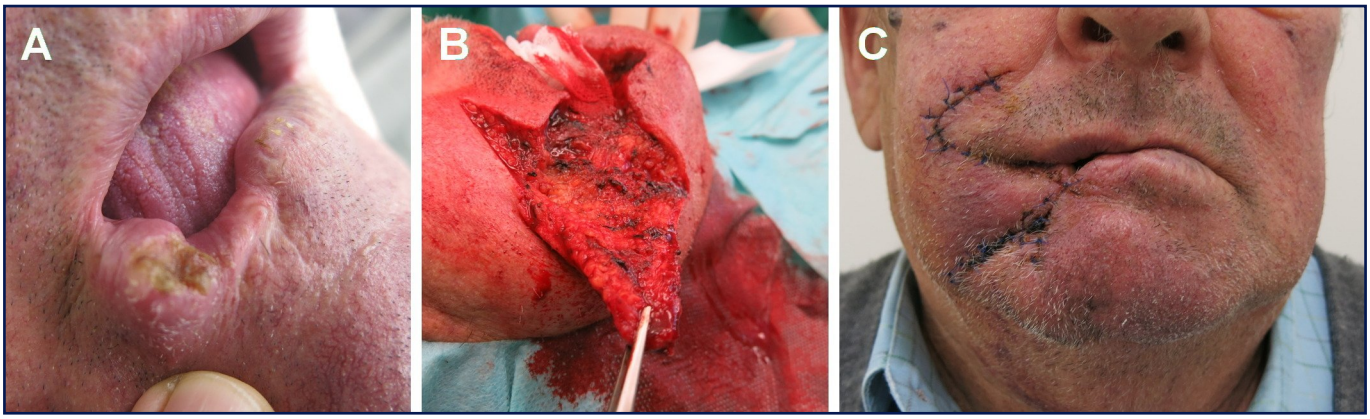

Figure 3

Large SCC of the lower lip (A). This patient underwent surgery six years ago for an SCC of the contralateral side of the lower lip limiting the current procedures. Primary excision was performed but closure by W-Y flap failed and a secondary defect closure was necessary. (B) Modified Webster flap with Burows triangle placed along the nasolabial fold and inferior incision along the labiomental crease. The muscular commissure remained uncut but fibers were separated in the vertical direction using a blunt scissor. The oral mucosa was advance and the defect was sutured in 3 layers (C) Ten days after surgery with minor whistle deformity at the site of notching.

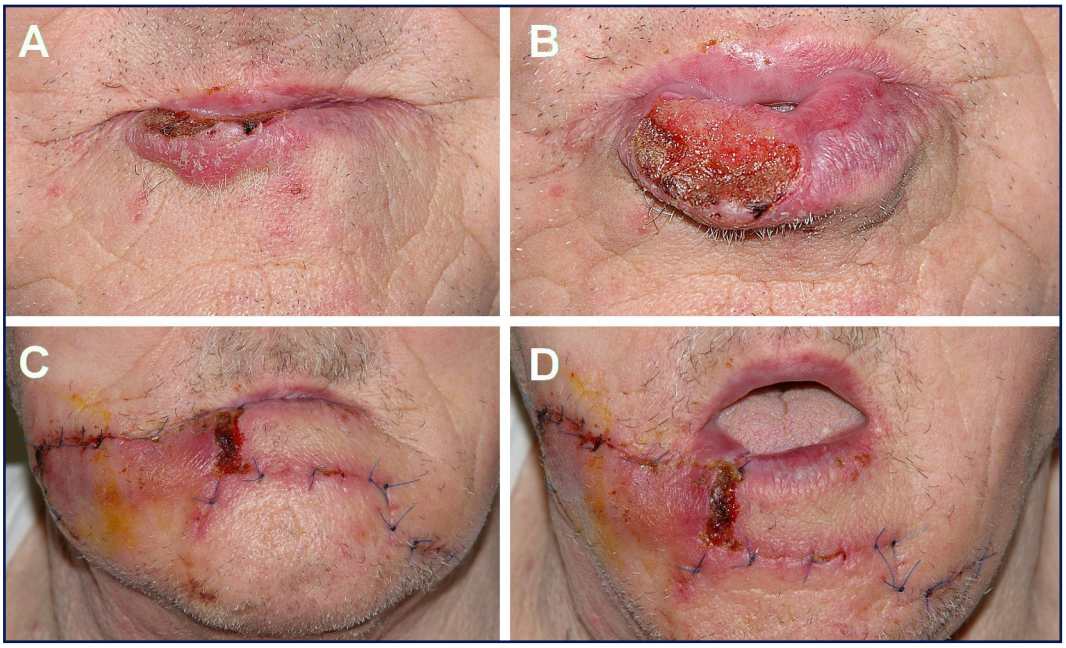

Figure 4

Large SCC of the lower lip: (A) with closed mouth, (B) with protruded lower lip. After surgery and defect closure by a combined flap, i.e. cheek advancement and staircase. (C) Closed mouth and (D) opened mouth (6 days later).

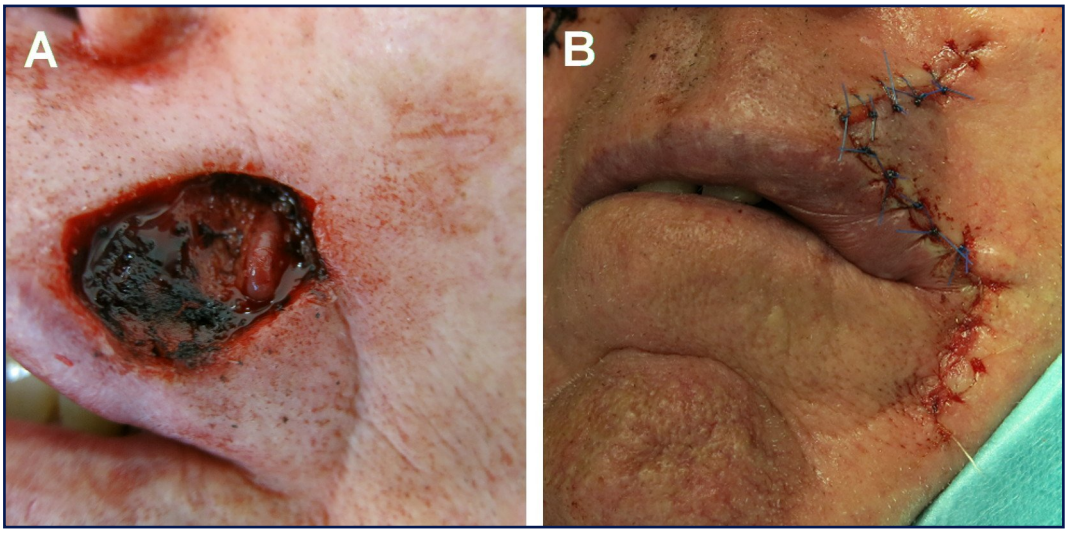

Figure 5

BCC of the upper lip. (A) Defect after excision. An arrow marks the arteria labialis superior which should be preserved during flap design. (B) Transposition flap with excised Burow triangle in the marionette line.

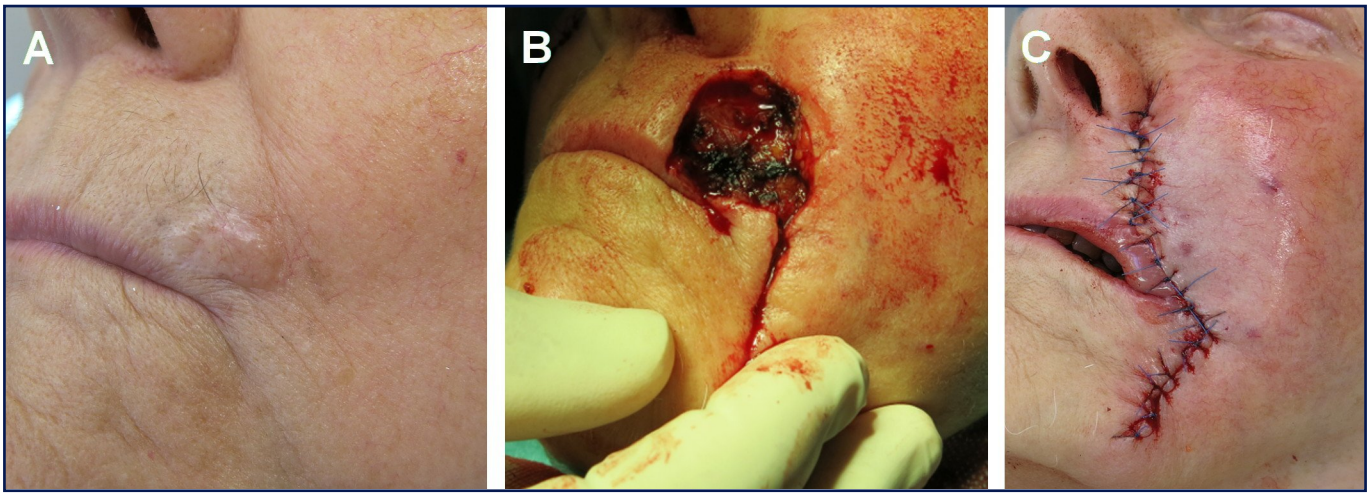

Figure 6
BCC of the upper lip. (A) Sclerodermic BCC. (B) Excision with halfmoon-like Burow triangle in the marionette line. (C) Defect closure by advancement flap.

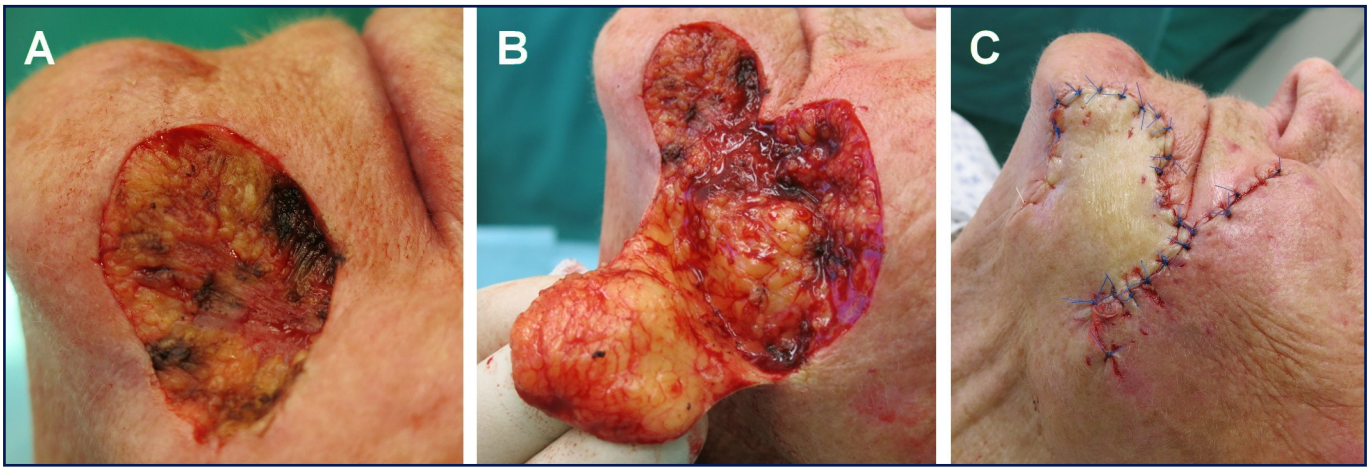

Figure 7
Large BCC of the chin. (A) Defect after Mohs surgery. (B) Flap preparation. (C) Defect closure by a rotational flap with back cuts.

Postoperative partial wound dehiscence was seen in two staircase flaps and a complete dehiscence was noted in a patient who was initially treated by a W to Y flap. Here final reconstruction was done by a modified Webster flap. All complications occurred in heavy smokers.

The follow-up varied between 3 months and 9 years, median 4.9 years. No local recurrence has been observed.

Discussion

NMSC is on the rise.[1,11] In 2008 lip cancer incidence in Australia was 0.19 (males) and 0.26 (females) for the upper lip and 3.34 (males) and 0.9 (females) for lower lip.[12] In Saxony, Germany, 1997 to 2006 2,776 patients with lip cancer have been registered. The 5-year survival rate in Germany has been calculated as high as 86.5%.[13]

The major goal in treatment is the complete removal of the tumor to reduce the risk of metastatic spread and disability due to tumor growth and destruction of normal tissue. The second goal is preservation of function and aesthetics.[14]

We analyzed our data for patients large NMSC's of the perioral region, who underwent tumor surgery. As shown, most patients belong to the age group of over 70 years. This has also an impact on the techniques and procedures preferred. In large tumors a delay of diagnosis by patients and primary physicians are the most important factors. After delayed Mohs surgery resulting defects were ≥ 3 cm in diameter. For the complex perioral region, closure of such defects may be challenging. The age group of 69 to 95 years often bears comorbidities that limit surgery and can impair wound healing. Time of surgery is important not only to reduce the risk of post-operative complications such as bleeding, infection and loss of flaps or grafts but for tolerability by this special age group.

The differences between lower and upper lip NMSC are obvious. The lower lip is much higher affected by SCC than BCC and vice versa for the upper lip. Males are predominant in lower lip NMSC. In an analysis of 470 NMSC of the lip 79.8% of lower lip tumors were SCC's whereas upper lip NMSC's were predominantly BCC's (85.7%). The gender distribution was also different for lower (70.8% males) and upper lips (mostly females due to the overrepresentation of BCC's).[15]

Defect closure was realized by standard techniques such as transposition and rotational flaps, staircase flaps and modified Webster flap. These techniques provide a robust armamentarium for functional reconstruction with a good aesthetic outcome. The techniques may be combined in selected patients. Microstomia has not been observed which may become a problem after Karapandzic rotational flap.[16,17] No local recurrences were seen.

Whistle deformities are seen after static lip reconstruction: A number of revisions have been proposed to deal with this problem. A double-barrel wedge resection is a good solution in case of limited primary surgery.[18] For mild deformities dermal fillers or autologous microfat grafting may be an option.[19] More serious deformities need musculo-cutaneous flaps for repair.

Dynamic reconstruction of lips after tumor surgery has the advantage of providing superior functional and aesthetic outcome in smaller defects. In more advanced tumors with larger defects after Mohs surgery, static defect closures such as Webster flap may be necessary.[20] The modified Webster flap allows an operation in local anesthesia. An acceptable aesthetic outcome can be achieved for closure of large lower lip defects.[17,20,21]

Conclusions

Perioral NMSC is of particular importance in patients of 70 years of age or higher. These patients have a significant number of comorbidities. Therapeutic approaches should be tailored for the needs of this special group. We have chosen a number of procedures that can be performed with local anaesthesia, ensure a complete tumor removal and provide an acceptable aesthetic and functional outcome.

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