

High-Risk Basal Cell Carcinomas of the Head and Neck: Selected Successful Surgical Approach in Three Bulgarian Patients!

Georgi Tchernev^{1,2*}, Uwe Wollina³, Ivanka Temelkova^{1,2}

¹Medical Institute of Ministry of Interior (MVR), Department of Dermatology, Venereology and Dermatologic Surgery, General Skobelev 79, 1606 Sofia, Bulgaria; ²Onkodermat - Clinic for Dermatology, Venereology and Dermatologic Surgery, General Skobelev 26, 1606 Sofia, Bulgaria; ³Department of Dermatology and Allergology, Teaching Hospital Dresden-Friedrichstadt, Dresden, Germany

Abstract

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***Correspondence:** Georgi Tchernev, Medical Institute of Ministry of Interior (MVR), Department of Dermatology, Venereology and Dermatologic surgery, General Skobelev 79, 1606 Sofia, Bulgaria; Onkodermat - Clinic for Dermatology, Venereology and Dermatologic Surgery, General Skobelev 26, 1606 Sofia, Bulgaria. E-mail: georgi_tchernev@yahoo.de

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BACKGROUND: Regarding localisation, basal cell carcinomas are classified in three risk groups, designated as H for high-, M as medium-, and L as low-risk area. In patients with high-risk basal cell carcinomas (BCCs), as a first-line of treatment are mentioned, different types of surgical approaches and radiotherapy. Depending on the location of the tumour, the choice of surgical technique should vary and be consistent with the patient's will for a most aesthetically acceptable result.

CASE REPORT: Three cases of patients with BCCs defined as high-risk about two different indicators- localisation and relapse after radiation therapy are presented. For the recovery of the occurred defects, three different types of surgical approaches (primary closure/undermining surgical approach, island flap and advancement flap) were used, tailored to the high-risk factors in each patient, which at the same time provided a perfect clinical outcome.

CONCLUSIONS: High-risk BCCs are a challenge for every dermatosurgeon and require serious training and knowledge both in terms of anatomy and in terms of the possibilities for reconstruction of the defects that occurred. Operations usually run in three phases, namely: 1) removal of tumour tissue, 2) intraoperative plan for reconstruction according to the size of the defect and the condition of the surrounding tissues as well as phase 3) undermining of surrounding tissues and adaptation of the wound edges.

Introduction

The main indicators are determining basal cell carcinomas (BCCs) as high-risk include size, tumour location, histological subtype, recurrent tumours and previous history of radiotherapy [1]. Also, locally advanced BCCs refer to tumours affecting and infiltrating underlying and/or surrounding tissues with

the highest frequency for BCCs in the head and neck area [1]. We describe three different cases of basal cell carcinomas, two of which are defined as high-risk depending on the localisation (H-zone of the face and nasolabial fold), and the third as well, but due to the recurrent character after repeated radiation therapy. Various surgical techniques have been applied to the prospect of achieving a perfect clinical outcome.

Case Report 1

A 91-year-old man with hypothyroidism and several cardiovascular diseases is presented. The patient reported a 5-6-year onset of formations on the face and neck, which periodically bleed and were difficult to heal. The ambulatory biopsy taken showed basal cell carcinoma data, and on this occasion, the patient had a series of radiotherapy (Figure 1a and 1b). From 1 year in the neck area to the left, there has been a recurrence of BCC, for which case the patient is hospitalised again to be selected an adequate treatment regimen.



Figure 1: a), b), and c) Clinical view of an ulcer defect in the left neck area with a size of 5.2 to 3.1 cm, located retro-auricularly, with bleeding, purulent surface, raised edges and hemorrhagic crusts at the periphery

Within the clinical examination, an ulcer defect was found in the left neck area with a size of 5.2 to 3.1 cm, located retro-auricularly, with bleeding, purulent surface, raised edges and hemorrhagic crusts at the periphery, clinically suspected for recurrent BCC (Figure 1a and 1c).



Figure 2: a), b), c), and d) Intraoperative finding: radical surgical eradication under local anaesthesia with oval excision of the lesion, followed by undermining of the wound edges

Radical surgical eradication was performed under local anaesthesia, and the lesion was removed by oval excision (Figure 2a and 2c). It was followed by undermining of the wound edges with the purpose for maximum adaptation (Figure 2d).

The resulting surgical defect was recovered by advancement flap with a rotating element from the distal part of the neck to the retro- and periauricular area (Figure 3a and 3c).



Figure 3: a), b), and c) Undermining of the wound edges and rotating element from the distal part of the neck to the retro- and periauricular area. Closure with single interrupted sutures

The closure was with single interrupted sutures (Figure 3c, 4a and 4b). The histological examination showed the presence of residual basal cell carcinoma nests in extensive ulceration, underlined fibrosis and hyalinosis, resection lines - without tumour infiltration. A quiet post-operative period was observed, without complications and the perfect cosmetic result (Figure 4c).



Figure 4: a), b) and c) Postoperative finding: surgical defect closed by single interrupted sutures

Case Report 2

We present a 71-year-old man in good general condition. The patient reported the presence for 7-8 years of a cutaneous neoplasm in the base of the nose, which increased over time and began to bleed. In 2018 curettage of the lesion was performed without complete elimination of the tumour, and subsequently, the patient observed lesion enlargement and persistence of the already occurred ulcerative defect. He was hospitalized for surgical

treatment and radical excision of the erosive lesion in the Department of Dermatology and Dermatological Surgery. During the dermatological examination the presence of a lesion with ulcerative character and raised edge at the periphery, located in the area of the glabella and nose base, clinically suspected for basal cell carcinoma, was established (Figure 5a and 5b).



Figure 5: a) and b) Clinical view of a lesion with ulcerative character and raised edge at the periphery, located in the area of the glabella and nose base. Outlining the surgical margins

The lesion was removed by radical excision with a field of surgical safety of 0.2-0.3 mm and the occurrence of a major surgical defect, encompassing the root of the nose and the glabellar area, reaching directly to the eyebrows (Figure 6a and 6b). The wound edges were undermined for optimal adaptation, and the resulting operational defect was initially closed step by step through single interrupted sutures (Figure 6c and 6e). The subsequent histological examination revealed the presence of superficial basal cell carcinoma with multifocal growth, a maximum tumour diameter of 28 mm, no lymphovascular invasion, resection lines less than 2 mm from the tumour. A smooth post-operative period without complications was observed (Figure 6f).



Figure 6: a) and b) Intraoperative view: radical excision of the lesion; c), d) and e) Undermining of the wound edges and closure of the resulting surgical defect with single interrupted sutures; f) Postoperative finding- perfect clinical outcome

Postoperatively prophylactically, nadroparin calcium was applied 2 x 0.4 ml/day due to high-risk localisation of the tumour and the existing risk for sinus cavernosus thrombosis.

Case Report 3

A 73-year-old man is presented with a complaint about a 1-year presence of a formation in the left cheek area, which progressively grows and periodically bleeds (Figure 7a). During the dermatological examination, an oval ulcerative lesion with a bleeding surface and the presence of hemorrhagic crusts was found, located next to the left ala nasi (Figure 7a and 7b). The so-called island flap was performed, and the lesion was removed by oval excision with an operational safety margin of 0.5 cm in all directions (Figure 7c). Next, a triangle was contoured in the distal direction along the line of the left nasolabial fold (Figure 7d), followed by transposition of the undermined triangle to the ala nasi in the left (Figure 7e). The resulting surgical defect was closed by a single interrupted suture (Figure 7e and 7f). A quiet postoperative period was observed. Post-operative histological verification revealed the presence of basal cell carcinoma with multifocal growth, tumour diameter 13 mm, free resection lines. Post-operative prophylaxis was performed with application of nadroparin calcium 2 x 0.4 ml/day.



Figure 7: a) and b) Ulcerative lesion with a bleeding surface and presence of hemorrhagic crusts located next to the left ala nasi. Outlining the surgical margins; c) Oval excision of the lesion; d) Contouring of a triangle in the distal direction along the line of the left nasolabial fold; e) Transposition of the undermined triangle in the proximal direction; f) Postoperative finding- surgical defect closed by single interrupted sutures

Discussion

Depending on the location of the BCC, there are three areas of risk indicating different parts of the body skin, namely H as high- (mask areas of the face including the central face, nose, eyelids, chin, ear, genitalia, hands, feet, nipple-areola, ankles), M as medium (cheeks, forehead, scalp, neck, jawline, pretibial surface) and L as a low-risk area (trunk and extremities, excluding H and M areas). Furthermore, depending on the additional features of the affected area, prerequisites that may lead to a higher risk of relapse may occur [2]. Because of the specific anatomical features and difficult surgical techniques in the H-zone of the face (i.e. nasolabial fold, nasal alar, orbital area and auricular area), and next to it, often it comes to narrow excision margins and inability to follow the recommended surgical margins of 4mm for small, primary, well-defined basal cell carcinomas and 5-6 mm for high-risk and recurrent tumours (as in case 2) [2], [3], [4]. It is believed that incompletely excised BCCs are most likely to recur [5]. As additional factors increase the risk of recurrence, microcirculation, vasculature and host inflammatory response of the affected area, especially in high-risk areas, such as H-zone, are also reported [2].

The main difficulties for the management of BCC in the glabellar area are derived from 1) the immediate proximity to the angular vein and the serious risk of eventual thrombosis (again case 2), 2) due to the fact that at the moment the precise venous anatomy of the glabellar to the forehead region remains unknown [6] and 3) the need for an aesthetically acceptable cosmetic result.

Regarding restorative surgical technique after radical excision, the primary closure is the simplest type of defect repair, which is most suitable at the nasal root where the skin is mobile and also in the medial part of the nasal bridge, and combined with the undermining of the wound edges gives a good favourable cosmetic result (case 2) [7]. Other surgical techniques that can be used to repair surgical defects in BCC patients and allow one-stage closure was applied to the other two patients, namely the so-called island pedicle flap and advancement flap [7].

The advancement flap performed in the first patient belongs to a group of sliding flaps, where the tissue is moved or "slid" directly into the adjacent defect and thus avoided the need for "jumping" over the interposed tissue [8]. Also, unlike rotation and transposition flaps, this type of plastic does not significantly alter the direction of the primary tension vector for wound closure and the tension vector required to close an advancement flap is nearly identical to a linear closure [8]. The other advantage of the advancement flap is that it creates the possibility of reconstruction that permits scar camouflage along cosmetic subunit junctions [8].

In the third described patient we used the so-called island flap, which has two main advantages, namely that 1) the island tissue which is being transposed, is near the surgical defect and 2) it can be performed under various variants (V-Y tissue), i. E represents a flexible method which, through variations of designs, allows successful modelling of delicate areas, especially those in the facial area [7], [9].

In conclusion, in patients with high-risk BCC, the surgical approach needs to vary depending on the individual indicators that define the tumour as high-risk. The advantage of the reconstructions carried out in one stage, as in the described primary closure, island flap and advancement flap, is the avoidance of further deformations of the tissue that might occur in one or two stage interventions, while at the same time leading to an aesthetically satisfying result.

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