Original Article

Requirement of Re-excision in Surgical Margin Positive Basal Cell Carcinoma Cases without Macroscopic Residual Lesions (Our Experience of 714 Cases and a Review of the Literature)

Dinçer Altınel, Gaye Toplu[1], Merdan Serin[2]

Plastic, Reconstructive and Aesthetic Surgery Department, Istanbul Training and Research Hospital, Health Sciences University, [1]Private Practice, [2]Plastic, Reconstructive and Aesthetic Surgery Department, Goztepe Training and Research Hospital, Medeniyet University, Istanbul, Turkey

Abstract

Background: Basal cell carcinoma (BCC) is a local aggressive tumor, which almost never metastasizes. In this study, we investigated the results of our BCC cases in the last 9 years. **Objective:** The aim of this study was to better understand the re-excision requirements in positive surgical margin BCC cases. **Methods:** Seven hundred fourteen patients operated between 2012 and 2021 were included in the study. Localization, subtype, and re-excision results were investigated. **Statistical Analysis Used:** Descriptive analysis was performed. **Results:** The mean patient age was 66.9 years (range = 17–98 years). The most common localization for BCC was nasal region (n = 235), and the most common histopathological subtype was nodular (n = 298). Seventy-eight patients had positive margins following the excision. Thirty-eight re-excisions were performed. Thirty-one re-excisions revealed scar without any residue tumor. None of the 78 cases with positive surgical margin returned with a relapse. **Conclusion:** We evaluated the reliability and efficiency of our excision limits with the pathological evaluation. We achieved significantly high cure rates, even by reducing our excision margins up to 1 mm in critical anatomical structures.

Keywords: Basal cell carcinoma, excision margin, skin cancer

Introduction

Basal cell carcinoma (BCC) is the most common type of skin cancer. BCC emerges from pluripotent stem cells in the epidermis basal layer of the skin.[1-4] Although histopathologically, BCC is a malignant tumor, it rarely metastasizes.[5,6]

BCC is separated into a few histopathological subtypes. These subtypes are basically divided into two groups, a more moderate group and a more aggressive group. Nodular type is the most common subtype and is included in the moderate group. It takes its name from the appearance of nodular structure around an ulcer, formerly named as rodent ulcer. The superficial subtype is another nonaggressive subgroup. Different from nodular type, it has the appearance of flat reddish plaque. The subtypes in the aggressive group include micronodular, infiltrative, sclerosing, and metatypical.

BCC is considered as a local aggressive tumor. Because metastases are seen at a rate close to zero, the main and most effective treatment of the tumor is a surgical removal. If the tumor is completely removed, additional treatment is not needed. The lesion is initially very small and maintains its size and shape for years, especially in the less-aggressive subtypes. After a time, the lesion starts to grow slowly and become clearer. Most tumors are discovered early and successfully treated by timely intervention.

Submission: 14-03-2022 **Revision:** 09-08-2022
Acceptance: 24-08-2022 **Web Publication:** 28-11-2022

Access this article online

Quick Response Code:

Website: www.tjdonline.org

DOI: 10.4103/tjd.tjd_45_22

Address for correspondence: Dr. Merdan Serin, Plastic, Reconstructive and Aesthetic Surgery Department, Goztepe Training and Research Hospital, Medeniyet University, Istanbul, Turkey.
E-mail: merdanserin@gmail.com

How to cite this article: Altinel D, Toplu G, Serin M. Requirement of re-excision in surgical margin positive basal cell carcinoma cases without macroscopic residual lesions (our experience of 714 cases and a review of the literature). Turk J Dermatol 2022;16:115-9.

Local invasive tumors are more difficult to treat. Especially in areas with special anatomical structures such as the face region, the reconstructive process must be continued very carefully. The objective of the surgical process is to protect tissues as much as possible and to get esthetic and functional satisfaction.

The aim of this study was to investigate the re-excision requirements in positive surgical margin BCC cases.

Patients and Methods

We evaluated 714 patients that we operated and followed between 2012 and 2021 in this retrospective study. Patient consents were received prior to surgery. Ethical approval was obtained. We only included lesions diagnosed with BCC. Patients with a minimum of 1 year follow-up were included in the study. Patients with basosquamous carcinoma were not included. Forty patients had multiple BCC lesions. Only the largest lesion was included in the study. One hundred forty-five patients were diagnosed by dermatoscopic examination of the lesions. Five hundred sixty-nine patients were diagnosed with punch biopsies.

Prior to surgery, the boundaries of the lesion and excision were marked, and the total excision was performed. We applied 1–2 mm excision limits on anatomically critical areas such as ear, eyelid, and nose. We applied excision limits between 3 and 5 mm in other areas. None of the other treatment options described in the literature, such as curettage, cryotherapy, immunotherapy, and topical chemotherapy application, were used in this study. Only total surgical excision was performed. Mohs surgery technique was not used in any of the cases.

Primary lesions were removed with a macroscopic boundary in the range of 1–5 mm, considering their anatomical regions. We applied the macroscopic re-excision limit in the range of 1–3 mm according to the anatomic region in residential lesions.

Statistical analysis was performed using GraphPad Prism version 7.00 for Windows. Descriptive analysis was performed, and percentages of cases were calculated (GraphPad Software, La Jolla, California, USA).

Results

The mean follow-up time was 3.2 years. There were 311 female and 403 male patients. The mean patient age was 66.9 (range = 17–98 years). The most common localization for BCC was nasal region (n = 235), cheek (n = 98), and periorbital region (n = 96) [Table 1]. The most common histopathological subtypes were nodular (n = 298), infiltrative (n = 145), and solid (n = 88) types [Table 2]. Seventy-eight patients had positive margins following the excision [Tables 1 and 2]. Forty patients did not want any more surgery, so re-excision was not performed. These patients were monitored monthly for a relapse. Thirty-eight patients accepted the surgery and re-excisions were performed. The highest number of re-excision was performed from the nasal region (n = 14; 35%) followed by periorbital, temporal, and cheek [Tables 1 and 2]. Thirty-one re-excisions revealed scar without any residue tumor [Tables 3 and 4]. None of the 78 cases with positive surgical margin returned with a relapse during the 1-year follow-up period. 70% of the cases were primarily closed [Table 5]; 82% of the cases were performed under local anesthesia [Table 6] [Figure 1].

Discussion

BCC excision requirements have been discussed in various studies to find the answer to the question "what is the safe excision margin?" In these studies, the safe margin has varied significantly between 3 mm and 10 mm for primary lesions. In localizations that are more critical anatomically such as ear, eyelid, and nose, excision limits have been pushed down to 2–3 mm. Outside of these regions, it has

Table 1: Number of total/positive surgical margin/re-excision cases according to the location

Total number of cases			Number of positive surgical margin cases		Number of re-excision performed	
Location	Number	Percentage	Number	Percentage*	Number	Percentage*
Nasal region	235	32.9	39	50	14	35
Ear	44	6.2	4	5	1	3
Lip	20	2.8	1	1	1	3
Periorbital	96	13.4	6	8	5	13
Chin	11	1.5	2	3	1	3
Frontal and glabella	40	5.6	3	4	0	0
Temporal	47	6.6	4	5	6	15
Scalp	31	4.3	1	1	2	5
Cheek	98	13.7	13	17	6	15
Neck	27	3.8	1	1	1	3
Extremity	24	3.4	1	1	1	3
Trunk	41	5.7	3	4	2	5
Total	714		78		38	

*Percentage of surgical margin/re-excision cases among all cases of the same localization

Table 2: Number of total/positive surgical margin/re-excision cases according to the histopathological subtypes

Subtypes	Total number of cases		Number of positive surgical margin cases		Number of re-excision performed	
	Number	Percentage	Number	Percentage*	Number	Percentage*
Nodular	298	41.7	13	4.4	5	13.16
Micronodular	28	3.9	6	21.4	4	10.53
Infiltrative	145	20.3	20	13.8	9	23.68
Morpheiform	14	2.0	10	71.4	4	10.53
Superficial	55	7.7	3	5.5	3	7.89
Solid	88	12.3	11	12.5	5	13.16
Pigmented	8	1.1	3	37.5	2	5.26
Adenoid	70	9.8	5	7.1	3	7.89
Metatypic	8	1.1	7	87.5	3	7.89
Total	714		78		38	

*Percentage of positive surgical margin/re-excision cases among all cases of the same subtype

Table 3: The histological results following re-excision

	Number	Percentage
BCC—neoplastic cells	7	18.42
Scar tissue without any neoplastic cells	31	81.58
Total	38	

Table 4: Demographic characteristics of patients who underwent re-excision ($n = 38$)

	Number	Percentage
Male	22	82.21
Female	16	11.62
Age	65 ± 14.5	
Total	38	

Table 5: Types of surgical methods for the defect closure

	Number	Percentage
Primary repair	502	70.31
Grafting	78	10.92
Local flap	69	9.66
Regional flap	65	9.10
Total	714	

Table 6: Types of anesthesia implemented

	Number	Percentage
Local anesthesia	587	82.21
Local + sedation	83	11.62
General anesthesia	44	6.16
Total	714	

been increased up to 10 mm in areas that provide primary closure of larger excisions due to the existence of more mobile skin.[6-10]

Using the advantages of Mohs surgery, it is possible to reduce safe excision limits up to 1 mm. However, the use of the classic excisional biopsy technique continues because the Mohs method is not readily available in every country and hospital and requires experience.[6,7] Nonsurgical cryotherapy can also be used for the treatment of BCCs in the early period, if there is no additional diseases that affect the immune system or if there is no genetic predisposition, but it would be safer to consider surgery without allowing the lesion to grow too much and invade to adjacent structures over a particular size and where other methods are considered ineffective.

Because of the low risk of metastasis of BCC, we did not apply an excision margin over 5 mm in any lesion. In patients with residual lesions who go to re-excision in the early period, excisions were performed with macroscopic boundaries. Gurunluoglu *et al.* showed that in 15% of their BCC patients, no residue lesion was found despite initial diagnosis. Kimyai-Asadi *et al.* showed that margins less than 4 mm were inadequate in only 20% of the patients. Konopnicki *et al.* also showed that the BCC excision margin could be safely reduced to 3 mm. All of these findings support the idea that the excision margins of BCCs can be reduced. In our study, we applied 1–2 mm excision limits on anatomically critical areas and 3–5 mm in other areas.[11-18]

Patients with a positive surgical margin were re-excised in the early period, usually within 3–4 weeks following suture removal and epithelialization of the suture line. All of the patients going to re-excision did not have the presence of macroscopic lesion. Only scar formation was observed. There was no need for a second re-excision in any of the patients. No neoplastic cell was found in the majority of the cases in the post re-excision pathology report, and most findings were reported as scar tissue or fibroblastic proliferation.

None of the lesions with negative surgical margin was re-excised, even if the surgical margin was under 1 mm in some patients. We believe that these patients do not need to go to re-excision unless there are macroscopically suspicious new or residual lesions. Because the tumor

Figure 1: (a) BCC lesion on the cheek; (b) and (c) the elevation of cervicofacial flaps; (d) following the closure of the defect

is progressing very slowly and the metastasis rate is considered to be near to zero, the surgery was not done until the macroscopic lesion was not observed.

In conclusion, our results show that significantly high cure rates, even by reducing the excision margins up to 1 mm in critical anatomical structures, can be achieved. Despite these results, it should be noted that minimum follow-up duration for the inclusion of patients in this study was 1 year. This period can be short for recurrences at the deep surgical margin. Longer follow-up studies are required to change current margin recommendations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will

not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflict of interest

There are no conflicts of interest.

References

1. Haas E. Onkologische grundlagen der behandlung von gesichtshautmalignomen. Laryngo-Rhino-Otologie 1982;61:611-7.
2. Holmes DR, Streeter OE. Intraoperative high-dose-rate brachytherapy—A novel technique in the surgical management of axillary recurrence. Breast Diseases: A Year Book Quarterly 2010;21:66-7.
3. Mitcov M, Scrivener Y, Cribier B. Trichoépithéliome desmoplastique: Étude anatomoclinique et comparaison avec le carcinome basocellulaire sclérodermiforme. Annales de Dermatologie et de Vénéréologie 2009;136:501-7.
4. Scholz S, Eckstein A, Dekowski D, Esser J, Westekemper H, Steuhl K. Aktuelle Therapiekonzepte bei oberflächlichen malignen Tumoren. Klinische Monatsblätter für Augenheilkunde 2017;235:1138-47.
5. Cigna E, Tarallo M, Maruccia M, Sorvillo V, Pollastrini A, Scuderi N. Basal cell carcinoma: 10 years of experience. J Skin Cancer 2011;2011:476362.
6. Newlands C, Currie R, Memon A, Whitaker S, Woolford T. Non-melanoma skin cancer: United Kingdom National Multidisciplinary Guidelines. J Laryngol Otol 2016;130:125-32.
7. Quazi SJ, Aslam N, Saleem H, Rahman J, Khan S. Surgical margin of excision in basal cell carcinoma: A systematic review of literature. Cureus 2020;12:e9211.
8. Schmitt J, Haddad G, Miot H, Alencar Marques M. Excision of basal cell carcinomas smaller than 1 cm with 2 mm safety margins: Lateral margin adequacy evaluated by double-bladed scalpel method. Indian J Dermatol Venereol Leprol 2018;84:603.
9. Weinstein MC, Brodell RT, Bordeaux J, Honda K. The art and science of surgical margins for the dermatopathologist. Am J Dermatopathol 2012;34:737-45.
10. Wolf DJ, Zitelli JA. Surgical margins for basal cell carcinoma. Arch Dermatol 1987;123:340-4.
11. Gurunluoglu R, Kubek E, Arton J, Olsen A, Bronsert M. No residual basal cell carcinoma after excision for biopsy-proven tumor: Clinical and medicolegal implications. Plast Reconstr Surg Glob Open 2013;1:e87.
12. Kim HJ, Lee SJ, Lee JH, Shin SH, Xu H, Yang I, *et al*. Usefulness of ultrasonography in determining the surgical excision margin in non-melanocytic skin cancer: A comparative analysis of preoperative ultrasonography and postoperative histopathology. Medicine (Baltimore) 2020;99:e23789.
13. Kimyai-Asadi A, Alam M, Goldberg LH, Peterson SR, Silapunt S, Jih MH. Efficacy of narrow-margin excision of well-demarcated primary facial basal cell carcinomas. J Am Acad Dermatol 2005;53:464-8.
14. Kimyai-Asadi A, Goldberg LH, Peterson SR, Silapint S, Jih MH. The incidence of major complications from Mohs micrographic surgery performed in office-based and hospital-based settings. J Am Acad Dermatol 2005;53:628-34.
15. Kondo RN, Gon ADS, Pontello Junior R. Recurrence rate of basal cell carcinoma in patients submitted to skin flaps or grafts. An Bras Dermatol 2019;94:442-5.
16. Konopnicki S, Hermeziu O, Bosc R, Abd Alsamad I, Meningaud JP. Nasal basal cell carcinomas. Can we reduce surgical margins to 3 mm with complete excision? Ann Chir Plast Esthet 2016;61:241-7.
17. Luz FB, Ferron C, Cardoso GP. Surgical treatment of basal cell carcinoma: An algorithm based on the literature. An Bras Dermatol 2015;90:377-83.
18. Mouriaux F, Stefan A, Coffin-Pichonnet S, Verneuil L, Rousselot P. Quelles marges d'exérèse pour les carcinomes de paupières? Journal Français d'Ophtalmologie 2015;38:154-8.