

A Retrospective Study of Re-excised Skin Cancers in a Pathology Center

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Abstract

Surgical re-excision is the recommended treatment for the complete removal of incompletely excised skin cancers (SCs), but it may not always lead to this goal. In the present study, the re-excision rate and the presence of residual tumors in re-excised SCs were evaluated. In this retrospective descriptive study, the pathological archives of a hospital center were examined for incompletely excised tumors. Out of the 96 incompletely excised tumors, 19 cases (19.8%) underwent re-excision, of which residual tumors were observed again in 7 cases (36.8%). The highest rate of residual tumor was found in the cheek (66.66%), and the involvement with tumor remnants of both margins combined was greater than the involvement of each of the lateral and deep margins alone. Collecting and reporting of surgical results of re-excised tumors may assist clinicians in determining the patient's condition and making appropriate decisions to increase the success rate of reoperations.

Keywords: Malignancy, re-excision, skin cancer, surgery

INTRODUCTION

Skin cancers (SCs) are among the most common human malignancies,^[1] which for reasons such as progression, tissue destruction, and metastasis should be treated as soon as possible.^[1,2]

Surgical excision is considered as the choice treatment of these cancers.^[3-5] However, the outcome of this method strongly depends on complete removal of the tumor^[6] and presence of clear and tumor-free histopathological margins.^[7]

Incomplete excision of cancers can be correlated with complications such as recurrence, morbidity, and mortality.^[5] Therefore, their re-treatment, preferably with surgery (surgical re-excision), is recommended.^[3] This study aimed to evaluate re-excision rate in incompletely excised SCs and the presence of residual tumor in these re-excised samples.

MATERIALS AND METHODS

In this descriptive retrospective study, incompletely excised tumors from our previous study^[8] were examined, and

of them, a number of re-excised cases were determined. Then, based on histopathology reports and patients' files, information such as the result of re-excision (with/without residual tumor), type of affected margin, age, sex, tumor location, and clinician specialty was collected.

RESULTS

Out of the 96 incompletely excised tumors, 19 cases (19.8%) were re-excised, of which residual tumors were observed again in 7 cases (36.8%). Clinicopathological characteristics of re-excised samples are presented in general and separately for each sample in Tables 1 and 2, respectively.

DISCUSSION

For incompletely excised SCs, re-excision of the lesion is preferably recommended to minimize the risk of

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recurrence,^[4] which is considered the worst surgical complication.^[2] Published data on re-excision of SCs are scarce and have been briefly supplied in a small number of studies. In this study, re-excision rate and presence of residual tumor in re-excised samples were investigated.

In the present study, 19.8% of the incompletely excised tumors underwent re-excision, which is almost similar to that reported by Codazzi *et al.*^[9] (18.14%). Comparing different studies, the rate of re-excised tumors has been found to vary from 1.9% to 100%.^[1,4,6,10,11] This difference between studies can be due to the following reasons:

- (I) Different biological behaviors of SCs, due to which in some tumors such as basal cell carcinoma (BCC), failure to completely remove the lesion does not necessarily correlate with recurrence. The reason for this can be the destruction of residual tumor by the cicatrization process^[2] and the theory of disappearing tumor cells as part of the second stage of the wound-healing process (inflammatory phase). So not enough tumor cells are left to survive. Therefore, in some cases, close monitoring of the patient is recommended and reoperated in the case of recurrence. However, this procedure is dangerous for some other tumors, such as invasive squamous cell carcinoma (SCC) which

can metastasize to regional lymph nodes and then to distant sites.^[4]

- (II) Failure to perform reoperation in the same center under study and then referring it to another center either at the request of the patient or due to the uncertainty of the clinician about the availability of the necessary facilities for repair and reconstruction of tissue defects caused by re-excision.
- (III) Lack of knowledge, sufficient experience, and practical skills required for the proper management of patients in need of re-excision.
- (IV) Patient's unwillingness for re-excision, which can be either due to inefficient follow-up systems and failure of the healthcare system in making the patient aware of a present problem or due to the patient's unpleasant experience with previous surgery and/or high surgical treatment costs.

Meanwhile, performing re-excision is an individual's choice, taking into account the patient's age and general condition.

In histopathological report of re-excised tumors, 36.8% had a residual tumor, which is similar to the result of Patel *et al.*^[10] (36%). This rate is relatively high in previous

Table 1: Characteristics of re-excised skin cancers

Variable	Number of re-excised tumors (%)	After re-excision	
		Residual tumor+	Residual tumor–
Type of cancer			
BCC	12 (63.15)	3 (25.00)	9 (75.00)
SCC	6 (31.57)	4 (66.66)	2 (33.33)
Melanoma	1 (5.26)	0 (0.00)	1 (100.00)
	19 (100.00)		
Gender			
Male	10 (52.63)	4 (40.00)	6 (60.00)
Female	9 (47.36)	3 (33.33)	6 (66.66)
	19 (100.00)		
Site of re-excised tumor			
Nose	11 (57.89)	3 (27.27)	8 (72.72)
Cheek	3 (15.78)	2 (66.66)	1 (33.33)
Ear	1 (5.26)	0 (0.00)	1 (100.00)
Limbs	4 (21.05)	2 (50.00)	2 (50.00)
	19 (100.00)		
Involved margin			
Peripheral	5 (26.31)	0 (0.00)	5 (100.00)
Deep	4 (21.05)	3 (75.00)	1 (25.00)
Both (peripheral and deep)	10 (52.63)	4 (40.00)	6 (60.00)
	19 (100.00)		
Specialist			
Otorhinolaryngologist	5 (26.31)	2 (40.00)	3 (60.00)
Plastic surgeon	9 (47.36)	4 (44.44)	5 (55.55)
General surgeon	5 (26.31)	1 (20.00)	4 (80.00)

BCC = basal cell carcinoma, SCC = squamous cell carcinoma

Table 2: Characteristics of re-excised skin cancers separately for each sample

No.	Gender	Age, years	Cancer type	Site of tumor	Involved margin	After re-excision Residual tumor +/-	Physician speciality
1	Male	68	BCC	Nose	Both	+ (deep margin)	Otorhinolaryngologist
2	Male	86	BCC	Cheek	Deep	+	Plastic surgeon
3	Male	65	SCC	Cheek	Deep	+	Plastic surgeon
4	Male	71	BCC	Cheek	Both	-	Otorhinolaryngologist
5	Male	87	SCC	limbs	Peripheral	-	Plastic surgeon
6	Male	74	BCC	Nose	Deep	-	General surgeon
7	Male	63	SCC	Limbs	Both	+ (deep margin)	Plastic surgeon
8	Male	84	Melanoma	Limbs	Both	-	Plastic surgeon
9	Male	80	BCC	Nose	Deep	-	General surgeon
10	Male	60	BCC	Nose	Peripheral	-	General surgeon
11	Female	74	BCC	Nose	Peripheral	-	Plastic surgeon
12	Female	79	BCC	Ear	Both	-	Plastic surgeon
13	Female	82	SCC	Nose	Both	-	Plastic surgeon
14	Female	70	SCC	Limbs	Both	+ (deep margin)	General surgeon
15	Female	67	BCC	Nose	Deep	+	Otorhinolaryngologist
16	Female	81	BCC	Nose	Both	-	General surgeon
17	Female	69	SCC	Nose	Both	+ (both margin)	Plastic surgeon
18	Female	58	BCC	Nose	Both	-	Otorhinolaryngologist
19	Female	73	BCC	Nose	Peripheral	-	Otorhinolaryngologist

BCC = basal cell carcinoma, SCC = squamous cell carcinoma

studies.^[1,3,7,9] For example, Spyropoulou *et al.*^[4] reported residual tumor in 100% of the cases.

In most studies, including ours, the presence of residual tumor may be due to not using Mohs micrographic surgery. In this technique, all removed margins are histopathologically examined to ensure the absence of tumor cells, whereas further incision is made only where the tumor remains until complete resection.^[12] Non-application of this method in the present study with respect to the more invasive tendency of SCC to subclinical infiltration is probably the reason for the higher rate of residual tumor in this malignancy compared with BCC.

In addition, severe surgical outcomes such as significant cosmetic and functional defects or disfigured scars in the involved areas, especially in the visible areas, can also affect the outcome of surgical re-excision.

According to our findings, the residual tumor rate was 66.66% in the cheek, 50% in the limbs, and 27.27% in the nose. In the study of Griffiths *et al.*,^[7] the residual tumor rate was found to be 40% in the cheek, 36% in the nose, and 32% in limbs, whereas Spyropoulou *et al.*^[4] found it to be 83.3% in the cheek, 52.94% in the nose, and 75% in the ears. Similar to Griffiths *et al.*^[7] and Spyropoulou *et al.*,^[4] the highest frequency of residual tumor was observed in the cheek (probably due to using narrower margins for cosmetic, functional, and/or preserving underlay facial nerve reasons), but unlike the latter study,^[4] we found the residual tumor rate to be zero in re-excised cancers of ears (75% vs. 0.0%).

The most re-excised margins were both margins followed by lateral margin and deep margin of lesions alone, whereas in the study of Griffiths *et al.*^[7] and Masud

et al.,^[3] it was found to be in the order of lateral margin, deep margin, and both margins, respectively.

In this study, in agreement with Masud *et al.*,^[3] although in disagreement with Griffiths *et al.*,^[7] the highest frequency of residual tumor was observed in the deep margin of re-excised tumors. In contrast, in the study of Pua *et al.*,^[5] the margin of all re-excised cases was free of tumor cells.

CONCLUSION

Given the limitations of this descriptive study, further research with larger sample size and involving other study designs (e.g., prospective and analytical studies), focussing on finding the factors influencing the success of SCs re-excision, is suggested. Collecting and reporting of surgical results of re-excised tumors may help clinicians enhance the success rate of reoperations.

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Conflicts of interest

The authors declare no conflicts of interest

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