



How to Reconstruct a Complex Multiunit Skin Defect: A Single-case Survey Study

Inge J. Veldhuizen^{1-2#}, Frederieke F.M. Theelen^{1#}, Maarten J. Ottenhof¹, Rene R.J.W. van der Hulst², Maarten M. Hoogbergen^{1*}

¹Department of Plastic and Reconstructive Surgery, Catharina Hospital, Eindhoven, the Netherlands

²Department of Plastic and Reconstructive Surgery, Maastricht University Medical Center, Maastricht, the Netherlands

*These authors contributed equally to this work and are co-first authors.

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*Correspondence:

*Dr. Maarten M. Hoogbergen, Department of Plastic and Reconstructive Surgery, Catharina Medical Center, Michelangeloalaan 2, 5623EJ Eindhoven, the Netherlands; Email: maarten.hoogbergen@catharinaziekenhuis.nl.

#Inge J. Veldhuizen, Department of Plastic and Reconstructive Surgery, Catharina Hospital, Eindhoven, the Netherlands.

#Frederieke F.M. Theelen, Department of Plastic and Reconstructive Surgery, Catharina Hospital, Eindhoven, the Netherlands

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Reconstructing a defect after surgical excision of nonmelanoma skin cancer (NMSC) can be challenging as many different reconstructive options exist.^{1,2} When choosing a reconstruction method, it is important to understand the patient's perspective of the scar, operation, and healing process.³ A recent study showed that some patients benefit from receiving a mirror and looking at their defect after NMSC resection and before reconstruction, as this led to higher patient satisfaction.⁴ A possible reason for this is that patients can adjust their expectations and better understand the origin of the post-operative scar. This emphasizes that involving the patient in the decision-making and considering the patient's final scar, impacts patient satisfaction after surgery. To capture patient's experiences and treatment satisfaction, patient-reported outcome measurements (PROMs) are developed. A validated PROM to assess patient satisfaction after facial skin cancer resection and reconstruction is the FACE-Q Skin Cancer Module.⁵⁻⁷ This survey study examines the different reconstructive options of a patient with a surgical defect after Mohs micrographic surgery (MMS) for NMSC and evaluates patient's satisfaction following reconstruction using the FACE-Q Skin Cancer.

Institutional review board approval was obtained from Catharina Hospital Eindhoven. In August 2019, a 65-year-old woman with a 1.5x1.5cm defect at the right alar crease after MMS was asked to complete the Appearance-related Distress and Appraisal of Scar scales, and the Adverse Effects checklist of the FACE-Q Skin Cancer Module translated to Dutch.⁸ The questionnaires were sent by email before, one-week, three-months, and one-year after surgery. Higher scores indicated higher psychosocial distress and greater satisfaction with post-surgical scar formation. The Adverse Effects checklist comprises 10 symptoms (e.g., pain, numbness, tingling). Each symptom was scored separately (1-not at all bothered, 2-a little, 3-moderately, 4-extremely bothered).

A national survey was conducted in November 2019. An anonymized picture (Figure 1) of the 65-year-old woman was sent to all plastic surgeons and residents in plastic surgery practicing in the Netherlands (n=453) via the Dutch Society of Plastic Surgery (NVPC). The plastic surgeon or resident in plastic surgery had to choose one reconstructive option. Answer options for reconstruction were primary closure, a full-thickness skin graft (FTSG), a flap reconstruction, a free flap, or other. The survey participants were divided into plastic surgeons and residents in plastic surgery.



Figure 1. Patient case: 65-year-old ♀ with a 1.5x1.5cm defect at the right alar crease

A total of 132 members of the NVPC completed the survey (29.1%). Most of the responders were plastic surgeons (69.7%). The most chosen option was a flap (97.0%), notable a nasolabial flap. However, a wide range of reconstructive options was selected with 9 different flaps (Table 1). The results show a significant difference between the plastic surgeons and the residents regarding their choice of reconstruction ($p=0.01$) and years of experience as a resident ($p=0.01$). No significant difference was seen between the reconstructive method and years of experience as a plastic surgeon ($p=0.22$).

Table 1. Survey reconstructive techniques

Reconstructive method	N (%)
Primary closure	0 (0.0)
FTSG	3 (2.3)
Flap	128 (97.0)
Nasolabial flap	65 (50.8)
VY-plasty	11 (8.6)
Bilobed flap	8 (6.3)
Cheek advancement flap	7 (5.5)
Rhomboid flap	6 (4.7)
Mesolabial flap	2 (1.6)
Banner flap	1 (0.8)
Hatched flap	1 (0.8)
Forehead flap	1 (0.8)
Combined procedures ^a	26 (20.3)
Free flap	0 (0.0)
Other	1 (0.8)
Secondary granulation	1 (100)

^aCombination of two reconstructive methods (e.g., VY-plasty and bilobed flap, cheek advancement and bilobed flap)

The 65-year-old woman was reconstructed in August 2019 with a FTSG by a resident in plastic surgery with 3-5 years of experience. Three residents (0-3 years: 2, >5 years: 1) chose FTSG as an adequate reconstructive technique (7.5%), compared to none of the plastic surgeons (0.0%). After reconstruction, the patient was very satisfied with her facial scar, with a perfect scar score three-months (score 100) and one-year post-operative (score 100). The appearance-related distress score slightly increased after surgery; however, the

score remained low (before 14, one-week 23, three-months 23, one-year 28). The patient experienced none to minimal adverse effects during the whole period after reconstruction, with the mean for each symptom being less than 2 (a little) on a scale of 1-4 (Table 2).

Table 2. Adverse Effects checklist

Adverse Effects checklist	1-week score	3-months score	1-year score
Pain	1	1	1
Discomfort	2	2	1
Sensitivity	2	1	1
Numbness	2	2	2
Tingling	1	1	1
Tightness	1	2	2
Itchiness	1	2	1
Swelling	2	2	1
Bruising	2	1	1
Difficulty facial movements	2	1	1

Although the participants received a limited survey in order to achieve a high response rate, our data showed that a wide range of reconstructive techniques is considered in Dutch plastic surgery practice. Since many different reconstructive options exist, it is often difficult to choose the best technique for specific patients. FTSG is a fast and simple reconstruction with minimal scarring. Flaps may avoid contour defects and can lead to high aesthetic outcomes.⁹ By keeping both the differences in skin characteristics (e.g., skin color, texture, and thickness) and contouring of facial subunits in mind, the scar can be strategically positioned and therefore camouflaged.^{10,11} However, it may lead to a larger operation and larger post-surgery scars. Even though 97.0% of the participants chose a flap reconstruction as an adequate reconstructive technique, a simple reconstruction with a FTSG showed maximum satisfaction with the post-surgical scar and low appearance-related distress. Although this survey is limited by one patient case and not every defect may be suitable for a simple reconstruction, this study shows that the patient's perspective on satisfying outcomes often differs from that of the surgeon. It is not always necessary to choose the most challenging or extensive reconstructive technique to obtain a satisfactory outcome.

Keeping it simple while managing patient expectations can often yield the best overall outcome. By involving the patient in the decision process and explaining the different simple and complex reconstructive options higher satisfaction can be obtained.

Conflict of interest Disclosures

None reported

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