

Case Report

AESTHETIC EVALUATION AFTER THREE-DIMENSIONAL SHAPING OF FREE FLAP FOR NASAL RECONSTRUCTION WITHOUT ADDITIONAL PARAMEDIAN FOREHEAD FLAP

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ABSTRACT

Nasal reconstruction has continued to advance in accordance with Menick's vision as it was first conceived. His combination of radial forearm free flaps with the gold standard of paramedian forehead flaps is highly regarded for producing superior outcomes, and it has received widespread praise as a consequence. In this study, we present nine patients who had nose reconstruction using free flaps. All of the patients had successful outcomes. Using the FACE-Q questionnaire, we assessed the degree to which patients were satisfied with both the functional and aesthetic aspects of their appearance. The outcomes were positive for nine of the patients.

Key words: Free flaps; Microsurgery; Reconstructive surgery

Rekonstruksi hidung terus berkembang sesuai dengan prinsip Menick seperti yang pertama kali dipahami. Kombinasi *radial forearm free flap* dengan standar emas *paramedian forearm flap* sangat dihargai karena menghasilkan hasil yang superior, dan sebagai akibatnya telah menerima pujian luas. Dalam penelitian ini, kami melakukan evaluasi pada sembilan pasien yang menjalani rekonstruksi hidung menggunakan *free flap*. Semua pasien memiliki hasil yang sukses. Menggunakan kuesioner FACE-Q, kami menilai sejauh mana pasien puas dengan aspek fungsional dan estetika penampilan mereka. Hasilnya positif untuk sembilan pasien tersebut.

Kata Kunci: Free flaps; Bedah mikro; Bedah rekonstruksi

Conflicts of Interest Statement:

The author(s) listed in this manuscript declare the absence of any conflict of interest on the subject matter or materials discussed.

INTRODUCTION

Nasal reconstruction has come a long way since Sushruta first introduced it. To achieve the best aesthetic results, the surgeon must have tridimensional vision, evaluate precisely the dimensions of the resulting defect, the damaged structures, and have a significant knowledge of the local nasal anatomy as well as the anatomy and tissue characteristics of the surrounding areas. There are two options for repairing extensive nasal defects: prosthesis and reconstruction.¹

Although prosthesis may produce an acceptable visual appearance, numerous patients complain about nasal airflow issues and

psychological issues with detachable devices. As a result, rebuilding is currently regarded as the best option, requiring a complicated and personalized approach.² Several procedures for reconstructing major nasal defects were documented, including the use of cartilaginous grafts, bone grafts, local flaps, and free flaps.^{3,4} Menick's approach of free tissue transfers has revolutionized the cosmetic and functional nose repair for complicated abnormalities in the present era. Complex tissue loss in the nasal unit is frequently repaired using free flaps at our institution.⁵ However, because majority of our patients presented as secondary cases, we believe that three-dimensional shape of the free flaps without extra paramedian forehead flaps is more

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possible. The purpose of this study is to evaluate the cosmetic effects of nose restoration utilizing such approaches.

METHODS

This research was conducted in line with the Helsinki Declaration. We evaluated 15 patients who underwent nasal reconstruction with free flaps in four consecutive years, from 2015 to 2019, using sequential sampling. The FACE-Q questionnaire was used to assess patients' self-satisfaction with their functional and aesthetic appearance. Nine participants were involved in the study. Six patients were excluded from the report owing to a lack of follow-up. All patients in the trial provided written informed consent.

CASE REPORTS

Case 1

We presented the example of a 44-year-old female patient who was transferred to the Department of Plastic and Reconstructive Surgery at the Cipto Mangunkusumo Hospital in Jakarta. Squamous cell carcinoma of the sinonasal and medial orbital regions was found to be present in a patient. In 2018, the ENT Department carried out a rhinotomy procedure. A reconstruction using a Radial Forearm Free Flap was carried out in the month of December 2019.

As follow-up treatments, liposuction, a fat transplant to cover the dorsum of the nose, and a W-plasty were all performed in January of 2020. A second rhinoplasty was conducted one month after the first one. This time, a rib cartilage transplant measuring 4.5 centimeters was used to create the nasal spine, alae nasi, and diced cartilage was used to fill the golden tip. At this point in time, the outcome met my expectations. After a follow-up period of four months, the results are favorable, and the patient is pleased with them.



Figure 1. Patient Before and After Reconstruction

Case 2

We included the case of a 47-year-old male patient who had been transferred to the Plastic and Reconstructive Surgery Department at the Cipto Mangunkusumo Hospital in Jakarta. The patient was found to have nasal nodular infiltrative basal cell carcinoma, which had progressed to the right maxilla and orbit. In February of 2019, the Eye Department performed an ocular exenteration on the right eye, while the ENT Department carried out a wide excision as well as a frozen section.

Free tissue from the anterolateral thigh was utilized to restore the patient's nose and orbit. The patient's evaluation of the flap's condition during the first follow-up appointment was positive and encouraging. At the follow-up appointment after two months, the patient expressed satisfaction with his appearance. The columella was revised, and the nose was formed when more repair work was done.



Figure 2. Patient Before and After Reconstruction

DISCUSSION

Presented with anomalies affecting the overall thickness of the nose in whole or in part, reconstructive surgeons may face a formidable obstacle. As is now well acknowledged, these shortcomings limit the use of local flaps and frequently demand composite microvascular free flaps for inner lining, a sufficient suspension framework, and a paramedian forehead flap for external covering.^{2,6} This is owing to the fact that transplanting local flaps is more challenging. For the reconstruction of the inner lining, which is the most difficult task, a number of different free flaps have been developed; nevertheless, the radial forearm flap is the one that is used most commonly since it yields the most dependable results.^{7,8}

Given that it is a thin bone with a strong corticalis structure, the radius is an outstanding option among all osteocutaneous flaps for nasal framework reconstruction. This happens because the radius's structure lends itself well to accurate cutting and delicate shaping. To sustain subsequent columella, only viable, rather thin bone is required.²

We included fifteen patients who underwent nose reconstruction with free flaps

over the course of four years to complete the FACE-Q questionnaire so that we were able evaluate their level of self-satisfaction with both their aesthetic and functional appearance.^{9,10} After that, a tabulation and analysis of the results was performed (Table 1). Positive findings were discovered in nine of the patients who had completed the FACE-Q questionnaire. The scores that were considered for this analysis were as follows: Nose (29.44+6.24), Nostrils (15.44+3.84), and Appearance Distress (11.11+2.67). In general, patients express their gratitude and a readiness to undergo more procedures to improve the appearance of their noses.

Table 1. FACE-Q Questionnaire Result

	Nose	Nostrils	Appearance Distress
1	24	17	11
2	32	20	16
3	40	20	8
4	23	10	10
5	35	15	10
6	30	12	11
7	30	15	9
8	20	11	15
9	31	19	10
Mean	29,44444444	15,44444444	11,11111111
Std Deviation	6,247221605	3,844187532	2,666666667

CONCLUSION

This study suggested that the free flaps for nasal reconstruction without additional paramedian forehead flap after resection of small to large defects shows as a reliable option with good appearance, quality of life, and function.

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