Research Article

Pre-Auricular Composite Adipo-cutaneous Graft for Coverage of Small Nasal Defects Post BCC Excision

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Abstract

Background: Small partial thickness nasal defects may be reconstructed with a skin graft or loco-regional flap. Grafts often result in contour deformities, and flaps are often too much for these small defects. Also, it is difficult to match flap thickness with the defect. In such cases, composite adipo-cutaneous grafts provide better contour match and aesthetic appearance and are also technically easier to perform. We present our experience of using these grafts in patient with nasal defects.

Methodology: This prospective study was done over a 1-year period from 1st July 2021 till 30th June 2022 at Mayo hospital Lahore and Iqra Medical Complex, Lahore. Patients with nasal lesions with expected defect size of 1.5 × 1.5 cm were included. Under local anesthesia, excision of lesion and coverage with composite adipo-cutaneous graft was done. Graft take was assessed on 7th post-operative day. At one month follow-up, aesthetic outcomes in terms of pigmentation and contour deformity were assessed as Good, fair, or poor. Patient satisfaction was also assessed and recorded.

Results: the total number of patients was 10. Of these, 80% had excellent or good graft take. 70% had excellent/good color match and 90% had excellent/good contour match. All patients reported being satisfied with the results. There were no donor site complications.

Conclusion: composite adipo-cutaneous grafts provide a useful reconstructive option for small deep defects on the nose

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Introduction

Cutaneous malignancies are the most common malignancy seen worldwide, and are continuously on the rise.[1] Amongst them, Basal cell carcinoma (BCC) is the most common, followed by squamous cell carcinoma, malignant melanoma and other rare skin tumors.[2] The face is the most affected body part for BCCs and surgical resection is the first line of treatment[3]. Such resections, even when the lesions are quite small, leave a 3-dimensional defect. While in other parts of face, the relative skin laxity allows for the possibility of primary closure, such is not the case for the nose, and reconstruction is often required.

There are many possibilities of reconstructing a nasal defect. A full thickness skin graft provides a good color match and is simple and versatile in application.[4] However, there's often a contour deformity present which may necessitate elevation of depressed scar with micro-lipoinjectons later.[5] These defects may be reconstructed with local flaps such as the bilobed, banner, and dorsal nasal flaps.[6] These local flaps are often limited for use in certain subunits within the nose. Also they add more scars to the face, come of which may lead to the pincu-

shioning effect in the long run.[7]

Composite grafts are an established modality for reconstruction of certain defects, with improved graft survival when certain measures are strictly followed.[8,9] Few studies have been done on utilizing composite skin fat grafts for reconstruction of facial defects, and have shown promising results[10,11]. In lieu of the above points, we propose that an adipocutaneous composite graft is a worthwhile solution for small relatively deep defects of the nose. It com bines the versatility and ease of har-vest of a skin graft, with a better contour match as is seen with a flap. The objective of this study is to observe the clinical and aesthetic outcomes of using a pre-auricular composite adipo-cutaneous skin graft for reconstruction of small nasal defects.

Methodology

This was a prospective study done at Mayo Hospital Lahore and Iqra medical complex, Lahore over a period of 1 year from 1st July 2021 till 30th June 2022. Adult patients (>18 years of age) with nasal skin lesions requiring excision with expected defect size of up to 1.5×1.5 cm were selected from the Out-Patient Department and included in the study. Patients with uncontrolled comorbid conditions such as diabetes, hypertension or ischemic heart disease were excluded.

After standard preoperative testing, patients were scheduled for surgery. All procedures were performed under local anesthesia. The lesion was excised and meticulous hemostasis secured. After excision of lesion, an exact template of the defect was made. A composite adipocutaneous graft was harvested according to the size of template. Graft was secured with fine sutures and a bolster dressing placed (Figure 1).

1st dressing was opened on the 7th post-operative day and graft take assessed and graded as follows: Excellent (91-100%), Good (81-90%), Fair (71-80%) or Poor (<70%). Any complications present were also noted and recorded. Aesthetic outcomes were assessed at the 3-month follow-up visit on two parameters, pigmentation and contour match, and recorded as excellent, good, Fair or poor. Patient satisfaction was also assessed at this visit, and recorded as satisfied or unsatisfied.

Results

The total no. of patients was 10, out of which 6 were females, and 4 were males. The mean age was 58.9 years (range 50 – 65 years). The diagnosis in all patients was BCC. Average defect size was 1.47cm (taken as the mean of the largest dimension of defect). 5 patients (50%) had more than 90% graft take, and a further 3 patients (30%) had 81 -90% graft take. 3 patients had excellent color match, and 4 had good color match. Regarding contour match, 3 patients had excellent contour match, and 6 patients had good contour match. None of patients fell into the category of poor graft take, or poor color or contour match. The clinical outcomes are detailed in table 1 and table 2.

All patients reported being satisfied with the visible results. There were 2 patients who had partial graft loss and were in the category of 71 – 80% graft take. One patient had hypertension and had required change of dressing on 2nd post-op day due to soakage. There was a small hematoma that necessitated evacuation and resulted in decreased graft take. The second patient developed recipient site infection, which improved with oral antibiotics and wound care measures. None of the patients had any donor site complications.

Figures 1 and 2 demonstrate the technique and results (respectively) on 2 such patients.

Table 1: *Graft take as assessed on 7th post-operative day.*

Graft take on 7th POD	n (%)
Excellent (90 -100%)	5
Good (81 – 90%)	3
Fair (71 – 80%)	2
Poor (< 70%)	0

Table 2: *Aesthetic outcomes of the patients*

Clinical characteristic	Excellent (n)	Good (n)	Fair (n)	Poor (n)	Total (n)
Color match	3	4	3	0	10
Contour match	3	6	1	0	10

Figure 1: *a) marking for excision of lesion and for the preauricular graft, b) after excision of lesion, c) immediately post-op, and d) bolster dressing in place*

Figure 2: *a) lesion on root of nose, b) excision marking, c) graft in place, d) bolster dressing in place, and e) at 3 months post-operatively*

Discussion

The nose is the most prominent part of the face. Therefore, even mild deformities are less tolerated by the patient. The diagnosis of malignancy, compounded with the surgical treatment leading to scars affects the quality of life of affected individuals[12]. Considering the aesthetical importance of the nose on the face, it is pertinent that any planned reconstruction should aim to restore 'form' as best as possible. The utilization of a composite graft provides adequate coverage with a better contour than a simple skin graft would. Furthermore, no additional scar marks are added in the surroundings of the defect.

Composite grafts such as chondrocutaneous and dermofat grafts are already in use for various reconstructive needs[8]. A major drawback of composite grafts is the higher risk of graft loss. In our study, the graft take is good or excellent in >80%, which is comparable to other studies performing similar reconstruciton[10,13].

Interestingly, patients had fewer complications which are classically attributed to composite skin-cartilage grafts, such as infection and necrosis. In our study one of the ten patients developed infection (10%) whereas a similar study on chondro-cutaneous grafts have found a complication rate of upto 20%[14]. This could be explained by the fact that very small defects were chosen in this study. According to eto et al[15], the 3-zone theory for transferred fat states that the peripheral zone, which is 300µm in thickness is the survival zone in which all the grafted fat would survive. With very small defects, most of the fat will fall in this category.

In our study 70% of patients had an excellent/good color match, whereas 90% reported having an excellent/ good contour match. This is by far the major advantage of a thickness matched adipocutaneous graft over the conventional skin graft[16].

The limitations of this study are its very small sample size, and short follow-up. A larger study with a longer follow-up duration will provide valuable data on the longevity of the results of this technique, specifically in term of sustained contour match to the surrounding tissue.

Conclusion

Wide local excision of BCC lesions result in a small but three-dimensional defect, often on the aesthetically important region of the nose. Composite adipocutaneous grafts provide a useful reconstructive option for such nasal defects, in terms of better color and contour match, with an acceptable rate of graft take.

Conflict of interest *None*

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