

# Hair transplant for acne scars: an innovative approach

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## Summary

Postacne scarring is a common entity that affects patients both physically and psychologically. Treatment of facial scarring is rarely a mono-dimensional process. Various modalities of treatments from cheaper subcision, punch techniques and excision to expensive laser resurfacing techniques are available. Treatment of postacne scars in a particular case has to be individualized, taking into consideration many factors like age, gender, types of scarring, Fitzpatrick skin type, and socioeconomic status of the patient. In this article, we describe an innovative method of simply doing hair transplantation in acne scars and hence making them less visible and cosmetically well acceptable to the patient.

*Keywords:* acne scars, follicular unit extraction, hair transplantation

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## Introduction

Postacne scarring is a psychologically devastating condition. It brings not only physical difference but also many a times social and serious interpersonal relationship problems to the patient. Treatment of acne scars is often a challenge for a treating dermatologist. During past decade, there had been a revolution in the number of techniques that can be used for the treatment of postacne scarring ranging from simpler chemical peelings to highly expensive laser therapies. Treatment of acne scars has to be individualized in every patient after taking into consideration several factors, including the socioeconomic status of the patient. To the best of our knowledge, we describe for the first time an innovative way to approach acne scars in a male patient by doing hair transplantation in his postacne scars.

## Case history

A 24-year-old male patient presented with complaints of postacne scarring on his face since 6 years. He had severe acne in the past for which he received oral antibiotics and systemic retinoids. He was off medical treatment since 2 years, and there were no active acne lesions at the time of presentation. On examination, multiple large superficial atrophic, rolling, and boxcar scars were seen on his cheeks (Fig. 1). He underwent subcision procedure for the atrophic scars twice before but with little improvement. Since there was complete loss of hair from the scars, making them more visible as compared to the surrounding normal beard, we thought of transplanting hairs in the scars. Our patient did not have keloidal tendency.

## Technique

For hair transplantation, follicular unit hair extraction and transplantation (FUE) method was used. We extracted follicular units from the beard instead of scalp, so that the texture, color, and thickness of transplanted hairs remain same as that of surrounding beard hairs.

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**Figure 1** Multiple, atrophic, broad, boxcar scars on left cheek of the patient.

Submandibular and submental regions were selected as donor area as these are less visible areas on the face. Our patient had thick, black, coarse terminal hairs in the donor area that was suitable for hair transplantation. The technique can simply be divided into following three steps:

#### Step 1: preparation of the patient

The patient was asked to shave his beard 3 days before the surgery, so that the anagen hairs grow out to the length of 1–3 mm which helps in the estimation of the direction of hair growth and follicular unit angle, thereby minimizing the chances of transection of the follicular units while extracting. On the day of surgery, patient was instructed to wash his beard area with povidine iodine shampoo. He was started on oral antibiotic (amoxicillin/clavulanic acid 625 mg) from the morning of the day of surgery.

#### Step 2: preparation of donor area and FUE

Patient was instructed to lie down in supine position with neck extended. Submandibular and submental areas of beard were thoroughly cleaned with spirit and povidine iodine solutions. Local anesthetic mixture (2% lignocaine and 0.5% bupivacaine in 3:1 ratio) was infiltrated in the cleaned area. Further, normal saline (10 mL, as tumescent) was infiltrated into the donor area to increase the tissue turgidity that helps in easy extraction of hair follicular units and also lessens bleeding from the punched area. Follicular unit extraction was carried out with 1 mm disposable skin biopsy

punches. The punch was placed on the hair follicle and aligned in the direction of hair shaft and pushed slowly by clockwise movement. This dislodged the follicular unit from its connection in deeper dermis and subcutaneous tissues. The dislodged follicular units were extracted easily by fine forceps. Around 50 extracted hair follicular units (grafts) were stored in cold normal saline (Fig. 2). Donor area (Fig. 3) was cleaned and aseptic dressing with chlorhexidine gauge pieces was performed.

#### Step 3: preparation of recipient area and hair transplantation

Both cheeks were cleaned with spirit and povidine iodine solutions and scarred areas were infiltrated with local anesthetic (2% lignocaine without epinephrine) followed by normal saline. Hair grafts were placed by stick and place method, in which needle stick tunneling and placement of grafts in tunnels are performed simultaneously. Needle tunneling was carried out with a sharp end of 18 gauge disposable needle, placed at an approximately 30° angle to the skin in the direction of hair shafts in the surrounding skin and inserted up to 3–4 mm in the scarred tissue. Follicular unit grafts were inserted with the help of angulated (45°) vascular nontraumatizing forceps. Depending upon the size of scar, 6–10 grafts were placed closely so that the scarred areas were hidden completely. After completing the implantation, recipient area was rinsed with solution containing normal saline and savlon (1:1) and gently mopped with saline-soaked gauge piece. At the end,



**Figure 2** Extracted follicular units, preserved in cold normal saline.



**Figure 3** Donor area after follicular unit extraction.

recipient area was touched gently with gauze containing tincture benzoin solution to ensure adherence of hair grafts and it was left open.

### Postoperative instructions and follow-up

Patient was instructed to do minimal movement of facial muscles following FUE, for at least 24 h. He was asked to take only liquid diet for the rest of the day and semisolid diet for another 2 days. He was advised against touching or removing scabs from the recipient area and shaving for at least 10 days. Only gentle washing with plain water and mopping was allowed, fourth day onwards. Patient was instructed regarding daily dressing of donor area, till all the punched sites healed. His oral antibiotics were continued for 1 week.

On follow-up visit of the patient on 10th day of surgery, hair grafts were well taken up in the recipient area. Donor area had completely healed and there was insignificant postprocedure scarring. He was instructed against close shaving of the beard.

### Results

Patient was reevaluated after 3 months. There was almost 80% of graft uptake, and his acne scars were less visible and esthetically acceptable (Fig. 4). The donor area showed almost negligible scarring.

### Discussion

Acne is a very common, chronic inflammatory disease of pilosebaceous units, which is estimated to affect 95–100% of adolescent boys and about 83–85% of



**Figure 4** Hair growth in acne scars, following 3 months of hair transplantation.

adolescent girls in one study.<sup>1</sup> About 95% of patients of acne are affected with postacne scarring, related both to its severity and delay of treatment. All clinical types of acne can cause scarring.<sup>2</sup> Scarring is a consequence of abnormal resolution or wound healing following the damage that occurs in sebaceous follicles during inflammation in acne. Postacne scars can be atrophic or hypertrophic scars. Atrophic postacne scars are relatively more common. This is because the inflammation in acne lesions is initiated beneath the epidermis in the infra-infundibular region of the pilosebaceous units including deeper structures. As the scars mature, they contract and draw in the surface layers leading to the appearance of an indentation or an atrophy.<sup>3</sup> Postacne scarring is esthetically embarrassing to the patients, and the treatment of acne scars is a challenge for the treating dermatologist. With advancement in technology, many newer treatment options available are promising better results than the traditional ones. The therapies/techniques used for the treatment of acne scars are to be individualized, taking into consideration many factors like age, gender, Fitzpatrick skin phototype, site of scars, clinical type of acne scars, grading of scars, socioeconomic constraints, psychological and physical health of the patient, etc. Various treatment modalities available for acne scars are topical therapies, chemical peelings, microneedling or microdermabrasion, subcision, autologous/nonautologous dermal fillers, fractionated/nonfractionated lasers, ablative/nonablative lasers, pigment or vascular-specific lasers, pigment transfer techniques, and minor surgical procedures.<sup>4</sup> Many a times, combination of these modalities is required to obtain satisfactory results in an individual patient.

Our patient had multiple, nondistensible, rolling, and boxcar postacne scars, which showed little response to subcision treatment. Microdermabrasion would not have been efficacious in our patient as the scars were broad. His skin type, according to Fitzpatrick's skin phototype grading, was grade V (moderate constitutive pigmentation).<sup>5</sup> The major obstacle in treating dark-skinned individuals for postacne scarring is probability of prolonged erythema and pigmentary change along with the risk of hypertrophic scarring.<sup>4</sup> So, procedures like microneedling and dermabrasion were not very suitable for our case. He was not willing for dermal fillers and laser therapies because of economic constraints. So, we planned to do hair transplant using FUE technique to make his scars less obvious. FUE is a suture less modality for hair transplantation with minimal/none postprocedure scarring.<sup>6</sup> Presently, FUE is being widely used for management of androgenetic alopecia. It was difficult to take grafts from the submandibular and submental area because of the absence of underlying bony support, more soft tissue and highly oblique placement of hair follicles. But these limitations were partially overcome by infiltrating normal saline in donor area, which increased tissue turgidity and helped in easy extraction of the hair follicular units. Also, we tried to extract maximum grafts from the skin nearing the base of mandibular bone.

We did not add epinephrine to local anesthetic mixture for both the donor and the recipient site. At the donor site, the tumescence with normal saline decreased the bleeding from punched sites, and at the recipient site, epinephrine was not given to avoid further compromise of the blood supply in the scars. While implanting hairs in the beard area, one should be very careful regarding the direction of the surrounding hair follicles. Compared to FUE in scalp, the placement of follicular grafts has to be highly oblique (20–30°) in the beard. Secondly, density of implanted hair follicular units should also match the density of surrounding beard hairs. Sometimes, we may have to do second sitting of FUE to provide a good match. We should never over do the density as otherwise it would create a dark patch in the beard. During extraction of the grafts, we found that most of the follicular units contained

single hair follicle, and therefore, we were able to implant all grafts with 18G needle. Our patient had good graft uptake in spite of the scarred recipient area, this was because facial skin is highly vascular and grafts in vascular areas are well taken up.

There are few limitations of our technique. Firstly, it is not suitable for patients with finer, light colored beard, and the patient should have good growth in the donor area for successful extraction of hair follicular grafts without much evident hair loss from the donor area. Secondly, this technique is meant for acne scarring only in the beard area as it would appear absurd if one transplant hairs anywhere else on cheeks. Thirdly, it does not add volume to the scarred tissue itself. So, in a patient with deep atrophic scars in beard area, this technique alone will not provide good cosmetic results. Lastly, the patient has to avoid close shaving of beard for good cosmetic effect.

Concluding, hair transplantation for acne scars in beard area in males is an innovative, less time consuming, relatively less expensive technique, which can be performed in a single sitting without any postprocedure side effects. By this technique, one can almost achieve patient's expectation of nonvisibility of acne scars.

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