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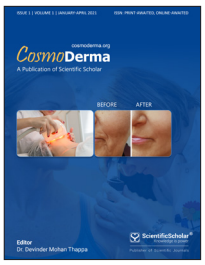

Case Report

Hair transplantation using long hair follicular unit excision technique in scarring alopecia of eyebrow: A case report

Kavish Chauhan[1], Megha Tandon[1], Amrendra Kumar[1]

[1]Department of Dermatology and Venereology, DermaClinix–The Complete Skin and Hair Solution Center, New Delhi, India.

***Corresponding author:**
Megha Tandon,
Department of Dermatology and Venereology,
DermaClinix–The Complete Skin and Hair Solution Center,
New Delhi, India.

tan.megha1993@gmail.com

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ABSTRACT

Hair transplantation remains a safe treatment option for patients who either desire to make the eyebrows appear fuller or the need to restore facial aesthetics in cases with scarring, as eyebrows constitute a prominent feature of the face. The increased aversion to undergoing head shaving due to occupational, social, and/or personal reasons in many patients, has led to the increased demand of non-shaven/long hair follicular unit excision (NS-FUE) technique. With the advent of this technique, surgery is unnoticeable and a preview of upcoming results is achieved immediately after the procedure. With only a handful cases reported in world literature, we report the successful outcome of eyebrow transplantation using the NS-FUE technique in a 25-year-old female with post-traumatic scarring alopecia of eyebrow.

Keywords: Non-shaven follicular unit excision, Eyebrow transplant, Scarring alopecia, Follicular unit excision

INTRODUCTION

Hair transplantation remains a safe treatment option for patients who either desire to make the eyebrows appear fuller or the need to restore facial aesthetics in cases with scarring, as eyebrows constitute a prominent feature of the face. With growing information in hair restoration surgeries, eyebrow transplant has become a popular procedure. The techniques of hair transplant have evolved rapidly from follicular unit transplant (FUT) to follicular unit excision (FUE) and the most state-of-the-art surgical technique in the field of follicular unit hair transplantation being Non-Shaven/Long hair FUE (NS-FUE) technique. The increased aversion to undergoing head shaving in conventional FUE due to occupational, social, and/or personal reasons in many patients, has led to the increased demand of NS-FUE technique. With only a handful cases reported in world literature, we report the successful outcome of eyebrow transplantation after 6 months of surgery using the NS-FUE technique with preview of the final result immediately after surgery.

CASE REPORT

A 25-year-old female presented with scarring alopecia following an accident over the middle portion of her left eyebrow [Figure 1a and b]. Detailed history was taken and general examination was performed to rule out any contraindications for the surgery. Investigations including

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blood counts, liver and renal function tests, blood sugar, prothrombin time, viral markers, and electrocardiogram were within normal limits. Pre-operative photographs were taken and informed consent was obtained for the procedure. With the patient looking into a mirror, surgical design of the eyebrow was confirmed followed by marking with a surgical pen. Field block anesthesia by infiltration with lignocaine and bupivacaine was given followed by use of minimum amount of tumescence and pressure taping just below the left eyebrow to prevent post-procedure eyelid swelling. Eighty-four slits were created at a very acute angle of 5–10° with density of 30 FU/cm^2 at the recipient site using 0.9 mm cut-to-size blades (preferred by the authors) in a herringbone pattern, that is, lower portion pointed upward and upper portion pointed downward creating a ridge of high density [Figure 2]. Ring block anesthesia and tumescence were administered in the donor area. To obtain a better visual field and minimize hindrance caused by long hairs during extraction of grafts, 0.7–1.0-cm sections of the scalp over the nape and periauricular area were exposed. This area is preferred to give best aesthetic outcome as the hairs are softer, finer and generally have thinner calibers as opposed to hair in the mid-occipital area.[1] This area usually heals well but the patient was well informed before surgery to avoid wearing her hair in a ponytail. For harvesting of the long hair follicular unit grafts, an all-purpose punch called the Intelligent Punch - Dr. UPunch i™ (20 Gauge) of the Dr.UGraft® Zeus™ System was used [Figure 3]. Eighty-four single haired follicular unit grafts with long hair were extracted and after extraction were kept in normal saline with liposomal adenosine triphosphate (ATP) solution [Figure 4]. Reports in peer-reviewed medical literature support that liposomal ATP has the ability to protect ischemic cells,[2-4] thus it's use as a graft holding solution additive may benefit ischemic hair follicles. Harvested long hair was trimmed to ~1–2 cm in length and gently implanted into the preformed slits maintaining the curl of the hair toward the skin using no root touch technique with use of two forceps. Thicker hairs from the upper extraction

Figure 1: (a) Scarring alopecia over middle portion of the left eyebrow in a 25-year-old female. (b) Close-up view showing scarring alopecia over the eyebrow.

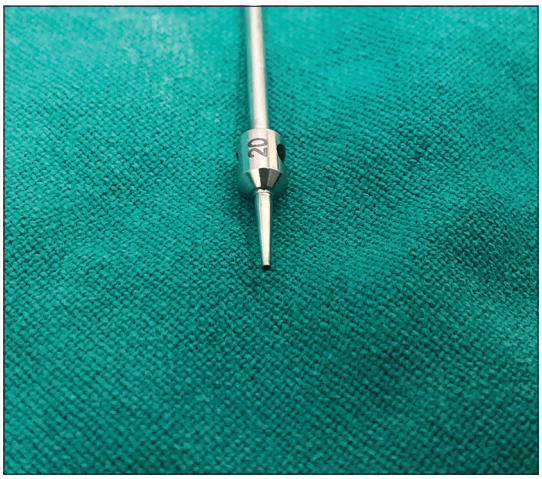

Figure 3: Patented, flared, hybrid, textured, and volumized ONE-PUNCH for ALL Follicular Unit Excision - Dr. U Punch i punch (20 Gauge).

Figure 2: Slits created in a herringbone pattern at the recipient site, visualized using gentian violet.

Figure 4: Extracted long hair grafts kept in normal saline with liposomal ATP solution.

Figure 5: Clinical images at baseline followed by post-operative immediately after implantation.

Figure 6: Clinical images at baseline followed by post-operative day 5 of surgery.

Figure 7: (a) Clinical image after 6 months of surgery, (b) Close-up view showing the transplanted hair in the left eyebrow at 6 months.

zone of nape and periauricular area were placed in the centre of the brow where thickness was needed most and hair from the lower portion with thinner caliber are placed along the peripheral margins of the brow, where softness is most desired. Long hairs were trimmed after implantation using sharp iris scissors to achieve a normal eyebrow hair length. [Figures 5 and 6] show the clinical images at baseline followed by post-operative immediately after implantation and after 5 days of surgery, respectively. [Figure 7a and b] shows the clinical images after 6 months of surgery. The patient was extremely satisfied with the result achieved.

DISCUSSION

Rassman *et al.* introduced the concept of FUE in 2002.[5] FUE has an advantage over traditional FUT in being much simpler, suture less, has less visible scarring, as well as shorter post-operative recovery period.[6] The internal milieu of hair follicle is maintained in FUE due to lack of their further dissection that helps to achieve better cosmetic results. Long hair FUE is a relatively new surgical technique used for hair restoration. The concept of previewing long hair transplantation was given by Pitchon in 2006.[7] In 2014, Park introduced the technique of direct NS-FUE.[8] There is no requirement of trimming or shaving the donor area in NS-FUE method. With the advent of this technique, surgery is unnoticeable and an immediate vision of the possible final result at 1 post-operative year by grafting follicles with long hair strands is achieved. Practices with long hair FUE available have also led to an increase in female patients, as women usually prefer to keep their hair longer. In eyebrow transplantation, this technique gives the additional advantage of matching the hair curliness which is a matter of utmost importance in such cases and is not possible with conventional FUE technique. Park *et al.* performed eyebrow transplantation using long hair FUE technique in 36 patients in 2021 with patient and surgeon satisfaction scores of 4.7 and 4.3, respectively.[9] A special type of open-window punch has been used for long hair FUE, in which slot was added in the punch tool for the hair to go through, intending to hold the hair out of the way.[8] Unlike the past technologies to harvest long hair, the Intelligent Punch™, or Dr.UPunch i™ lacks a groove or slot and has a specially-designed flared tip with a larger, rounded inside space meant to extract hair follicles of any kind. It creates a vortex effect due to the spinning motion that effectively sucks the long hair inside, allowing the punch tool to spin, and successfully extract the follicle without needing any kind of modification or position correction.

Long surgical duration, requirement of specialized tools, and being more technically difficult are the disadvantages associated with long hair FUE transplant. Another concern with this technique is the need to constantly comb and part the hair, performing the surgery in little sections at a time due to visual obstruction to the surgeon caused by long hair. Furthermore, it is not an ideal procedure in cases requiring mega sessions. Hence, NS-FUE is not a substitute for conventional FUE method; rather, it is a preferred option for those unwilling to get head shaven and for cases requiring delicate matching of hair curliness, such as sideburn reconstruction, eyebrow hair transplantation, and temporal and side hairline correction.[10,11]

CONCLUSION

Despite these caveats, we conclude through our experience that using long hair FUE technique gives the best possible cosmetic outcome in eyebrow transplantation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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