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A Novel Methodology for Correction of Cosmetic Problems via Secondary Eyebrow Transplantation

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Eyebrows create a very imperative and noticeable feature of the face. With increasing information, eyebrow transplant has become a prevalent technique. Though it is a small area still requires a lot of precision, knowledge and aesthetic skill regarding anatomy, designing of brows, extraction and implantation technique. In this paper, we performed many cases of eyebrow reconstruction including revision by our own implant. The cases analyzed in this paper were corrected only by transplantation of occipital donor hair without laser hair removal nor tattoos. This article gives a comprehensive view regarding how to correct previously unsatisfactory eyebrow transplant with special emphasis on several points as hair follicle density, eyebrow shape, entire or partially reconstruction, which has become the most skillful technique.

Keywords: Eyebrow Transplantation; Implanter; Hair Follicle Density; Hypothyroidism**Introduction**

Eyebrows are the most communicative feature and form a masterline of the face. It is the orientation fact concerning which all other perspectives and outlines of the face are established. Repairing eyebrows have become a reworking procedure of hair transplant because of the increasing information and exceptional results. However, eyebrow transplant requires a high degree of skill and experience, not to mention the reconstruction transplant under the condition of previously unsatisfactory eyebrow transplant. With the extensive experience of the author in the field of follicular unit extraction (FUE) and follicular unit transplant (FUT)/strip, especially in aesthetic facial hair restoration, it is feasible to perform high-quality surgical techniques creating satisfactory results and a happy outcomes to patients after previously eyebrow transplant under comprehensive communication.

Procedure evaluation before the transplant

Cosmetic is the most common signs of eyebrow transplant such as inherited absence or insufficient coverage, of a normal appearing eyebrow requiring darker colour or an uneven eyebrow with lack of lateral third or medial portion. The other uncommon indications are trichotillomania, scar due to trauma, burn or tumours, stable alopecia areata, madarosis due to hypothyroidism,

leprosy, etc. [1]. Although a correct candidate is one who has accurate expectations, understands limits in density achieved, has a pronounced defect than purely cosmetic purposes and stable or treated disease, the patient still expects a near-perfect surgical result. Even well aware of the difficulties of the reconstruction of eyebrow transplant, after seeing the patients undergoing previous surgery, showing an extremely depressed and anxious state, the authors had to try to deal with the cosmetic problem secondary to previous eyebrow transplant.

Methods

The outline of the eyebrows comes from the arrangement and display of each hair follicle. The quality and survival rate of the follicles implanted decide the appearance of the eyebrow. FUT/strip with long hair has long been used using single or small hair grafts for brow transplant [2,3]. Pursuing grafts of high quality, Graft quality index (GQI) of grade 1, can present the shape of the eyebrow more accurately. We prefer FUT with long hair to control the quality of grafts, especially a grade 1 of GQI [4], and only a high survival rate of hair follicle could show a beautiful outline of eyebrows. We use DIMIS-T 100A of high solution of digital Microscope and Samsung LED monitor for follicle dividing. Despite

preparing graft using a dissecting microscope gives the dividing a little slower, however, it is worth the effort and much more perfect.

Case Analysis

Entire reconstruction

The patient received eyebrow transplantation by body hair (leg hair) one year before visiting the clinic. Occasionally, the implanted body hair was too thin and too sparse to connect the original eyebrow hair to present an intact curve. This time, we used the occipital donor hair to make an entire reconstruction. And the result gets more complete than the body hair (Figures 1 & 2).



Figure 1: No obvious eyebrow curve appeared after body hair implantation.



Figure 2: Post eyebrow revision: Obvious eyebrow contour appeared after eyebrow revision by occipital donor hair.

Partially modified

The patient received eyebrow tattoo before eyebrow transplantation resulting in eyebrow hair lost and fibrosis under eyebrow area noted afterwards. She requested eyebrow implantation and liked it to go unnoticed. After the first implantation, partial eyebrow tail didn't grow well. We checked the direction and quality of the eyebrow head and made a consecutive curve of the eyebrow. The result of integral contour presented after secondary remodification (Figures 3 & 4).



Figure 3: Eyebrow tail didn't grow well after the first implantation.



Figure 4: Integral contour after the 2nd eyebrow remodification.

Shape adjustment



Figure 5: After the first time eyebrow transplantation.

Some patients intend to change their eyebrow shape after transplantation. The stretching points of the eyebrow contour are

mostly affected by the spots of brow's peak. If the peaks' position beyond the lateral canthus, the patient will appear angry and old look. Trying to enhance both brow heads and closer to the middle nose, it will lower down the arch of the eyebrow's contour. After adjustment and strengthening the heads of the eyebrows, it would make the face appearing kinder, gentler, and more pleasant (Figures 5 & 6).



Figure 6: Adjust the position of the heads and the new peaks, more amiable look after the post shape adjustment.

Density problem



Figure 7: Obvious interspace between eyebrow hairs.



Figure 8: More hairs implanted makes more evenly displayed look.

The contour and shape of the eyebrow are built by several hundred hairs. To implant several hundred hairs onto this limited area is really an arduous and skillful technique. However, the patients often desire the evenly displayed eyebrow hairs without any interspace for the better homogeneous presentation. We used single hair and small 2- hair grafts interspersing in the original hairs, making it look more pleasing and homogeneous (Figures 7 & 8).

Curl direction

Generally, most common problems are related to direction and curl, colour and texture mismatch or lack of regrowth [5]. Despite of the shape design and point location, the curl direction is an important factor to make up the image of the eyebrow. Reverse or crooked direction would damage the smooth curve of the eyebrow. To remedy the interference of the bad curl, we implant more and thicker hairs inside and beside them to ease off the visual effects of the undesired curl directions as much as possible (Figures 9 & 10).



Figure 9: Different and peculiar curl directions.



Figure 10: More conforming directions of curl.

Shaft diameter

Compatible hair qualities are necessary in eyebrow revision, even though it is unreasonable in some case. Selection of shaft diameter is related to the eyebrow even face image before surgery.

Thus, selecting compatible shaft diameter is important factor in eyebrow revision. It is more important to check the eyebrow shaft of previous implant by trichoscopy before eyebrow transplant, it could find a better reference for revision [6] (Figures 11 & 12).



Figure 11: Strong eyebrow hair in first transplantation



Figure 12: Compatible hair shaft to conform with the completion.

Low survival rate



Figure 13: Poor survival rate and odd direction of hair follicles after previous implant.

FUE is popular in recent years. However, unskilled physicians may have undesirable consequences. The patient

received FUE eyebrow transplant one year before coming to our clinic. Unfortunately, the implanted follicles from FUE presented extremely low survival rate. And owing to the short shaft of follicle is difficult to orient the hair flow, the hairs growed in odd directions. Because of poor survival rate and different hair flow, it will not present a smooth curve of the eyebrow at all. The affected area is too large for the patient to distinguish between old and new hairs. So, the author has to implant the eyebrows with very high density to facilitate the patient trimming (Figures 13 & 14).



Figure 14: Complete eyebrow shape after secondary eyebrow reconstruction with high density. One year after secondary eyebrow transplant.

Post-operative care

The patients are instructed not to wash the face and doing make-up on the periorbital area from the next post-operative day until all crusts have fallen off, about ten days after. After ten days, the implanted hair will start to fall off and nearly all brow transplanted hair fall due to anagen effluvium [7] until two months. Hair regrowth begins at 3-5 months. In next 6-8 months, number increases with more density.

Conclusion

The revision of eyebrow restoration is even more challenging than the virgin eyebrow implantation. The details include low follicle density, peculiar hair curl directions, unnatural looks, unsatisfied shapes, hair quality and so on after implantation. Inspite of the above, sometimes it still varies regarding the personalities of the patients. To keep careful and conservative communication with the anxious patients is a main determinant before making decision. Overall, with the use of highest standards of techniques and with increasing experience, we provide excellent and beautiful results with patient's accurate anticipations.

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