

# Addressing Keloid and Hypertrophic Scars from Hair Transplant: A Case Report

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## Abstract

Hair transplants are significantly more effective in treating hair loss than non-surgical approaches such as over-the-counter medications, as it practically involves replacing old follicles with new follicles that are still able to grow real hair while delivering permanent results (Unger et al., 2011). Within four months, patients should anticipate between 10% and 80% of hair harvested from the donor area to regrow completely on the recipient site. However, it's critical to understand that different techniques may produce different results (Salanitri et al., 2009). In this paper, we will focus on some of the cases of patients who experienced unpredictable scarring of the donor area - in which the patients are not satisfied with the results due to the appearance of the keloid and hypertrophic scars. This caused discomfort among the patients as they strived for natural results and were not expecting to be left with such evident marks. Fortunately, these particular issues are addressed with a newer and less invasive technique of FUE and Scalp Micropigmentation (SMP).

**Keywords:** Follicular Unit Transplantation, Follicular Unit Excision, keloid, hypertrophic, FUE, Scalp Micropigmentation

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The Follicular Unit Transplantation (FUT), also known as Strip Surgery, involves collecting healthy hair follicles in a single session by removing a strip of hair from the back or sides of the scalp in a long, narrow strip, typically 20 to 25 cm in length and 1 cm to 2.5 cm in width. The doctor will then use staples or stitches to close the incision made in the donor area. Individual follicular units are then removed from the strip using stereo-microscopic dissection before restored into the balding area.

Unfortunately, some techniques of hair transplant may have its serious drawbacks, which is the linear scar found in the donor-occipital area, extending from the top of one ear to another (Ahmad, 2020). The scarring aftermath paves way for other techniques to overtake the older ones in providing a less invasive approach for hair restoration; one of them being the Follicular Unit Excision (FUE) (Rassman et al., 2002).

Normally, patients are informed beforehand of the inevitable scarring from the procedure, however, what is often left out is the fact that the scars can become unpredictable. This does not happen to every FUT patient but it is one of the risks of the procedure. In cases mentioned in this paper, two types of disfiguring scar may be formed (Alhamzawi, 2020) - keloid and hypertrophic scar - can be seen in the examples depicted in Figure 1.

These two scars are also known as raised scars and are abnormal responses to dermal injury, characterized by excessive collagen build-up (Brown et al., 1990). Keloids actually grow larger and project beyond the actual wound margins. Its size will not subside eventually (Garg et al., 2017). Any attempt to remove it would usually result in another formation of keloid scar as seen in Figure 2.

A hypertrophic scar has an appearance similar to keloid but is usually linear. The thickness of the scar tissue may restrict the amount of blood that reaches the newly grafted hair follicles, causing poor growth and defect (Pathomvanich, 2020).

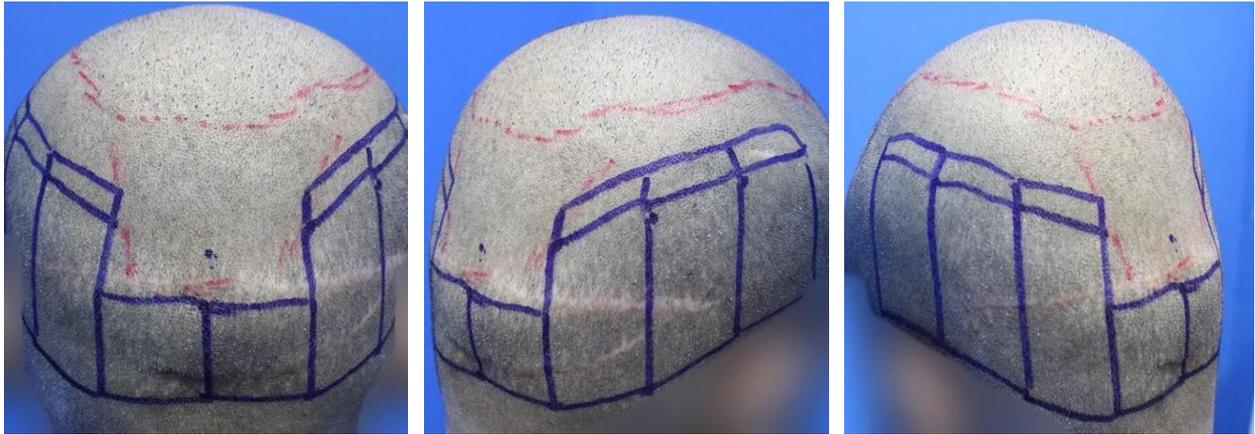
In these cases, the scars are too visible and would cosmetically disfigure the patient's appearance (Garg & Garg, 2021). We have received cases of hair transplant patients from other clinics who are not happy with their scarring and wanted it covered. The problems are addressed with a corrective treatment using the FUE and SMP techniques and is covered in the following section.

### Case Presentation

first patient, a Malaysian man of Malay ethnicity, aged 42, suffering from androgenic alopecia, had undergone a FUT procedure six years prior to his first visit to our clinic. He started to lose his hair in his early-30s and had a hair transplant surgery to restore it. According



**Figure 1:** Linear scar from a hair transplant becomes more noticeable as it turns into a raised scar. Patients often are affected by this appearance and seek to conceal it.



**Figure 2:**Through FUE, scars can be repaired via hair restoration on scar tissue. For deep scars with uneven groove, autologous fat transfer procedure is performed by injecting fat into the scarred area to smoothen the surface.

to him, he was introduced to the procedure without any prior knowledge about other available forms of treatment, such as FUE. The outcome of the hair transplant was not satisfying as he started to go bald again on the front part after some time, on top of having a raised (keloid) scar on the donor site resulting from the procedure. This is especially problematic for the patient as he prefers having short hair where the scar will be most visible. Therefore, the patient resorts to wearing headgear and keeps his hair longer than he desires for this purpose; to reduce the visibility of his scar. The scar is more discernible in real life than in the photos provided in the next section.

The second patient, an Australian Caucasian man, aged 39, realized his progressive hair loss, and chose a FUT procedure to combat his problem. When asked if he had ever considered other procedures, he simply said that he based his choice on a recommendation by an acquaintance. The purpose of his visit to our clinic is also to get another hair transplant to increase his hair density and to be consulted on what can be done to reduce the visibility of his scar. Although initially yielding a satisfying result, he soon started to feel more insecure with the noticeable hypertrophic scar appearing at the back of his head. He received some comments from people

who pointed out the appearance, thus making him feel as if the result does not give a natural look, as he desired. Similar to the first patient, the scar is also too noticeable when the hair is too short or wet. When he goes for a swim or blows dry his hair, that's when the scar stands out the most. To cover up the scar, he also keeps his hair longer than he preferred so as to keep the scar more subtle, as can be seen in the photos.

## Methodology

### *Keloid Scarring*

The first patient's linear scar has turned into keloid (Figure 3 & Figure 4). Following the first hair transplant, he started to lose his hair again too and his purpose now is to treat the hair loss in addition to camouflaging the scar. During a hair restoration surgery, healthy hair grafts are harvested from the safe donor area and restored onto the new hairline (Figure 5). Patient requested some of the hair to be restored on the scarring site as well to conceal the mark left by the previous hair transplant, however, the patient was informed that hair on the scarred area will only have the survival rate of 60-70% (Figure 6).

### *Hypertrophic Scarring*

For the second case, a similar technique was applied to conceal the patient's hypertrophic scar from a previous hair transplant (Figure 7).



**Figure 3:** Patient with keloid scar (before shaved)



**Figure 4:** Patient with keloid scar (after shaved)



**Figure 5:** Hair harvested from donor site



**Figure 6:** Hair grafts planted around the scar area

The scar is more visible when his hair is short or wet. However, since the colour of the scar is significantly light, it could still be seen under the newly restored hair (Figure 8). Thus, the patient was advised to proceed with a Scalp Micropigmentation treatment directly on the scar as to further diminish its appearance, in addition to creating a fuller hair look (Figure 9).

### Result

After a few months, the patients returned for a follow-up. Due to a conflicting schedule, the patient with the keloid scar came in eight months later following his FUE procedure. The area around the keloid scar has been treated with

SMP to give the illusion of great hair density, reducing the appearance of the scar [Figure 10].

As can be seen in [Figure 11], the second patient's hair has grown excellently, with a hair density great enough to completely cover up the hypertrophic area, complemented by the SMP pigment which helps in diminishing the appearance of the scar. It does so by camouflaging the light-coloured scar with darker pigment as an imitation of hair follicles.



**Figure 7:** Patient with hypertrophic scar (before shaved)



**Figure 8:** Patient with hypertrophic scar (after shaved)



**Figure 9:** The comparatively lightened scar was camouflaged better with SMP (post-surgery)



**Figure 10:** Healthy hair growth in the previously balding area, and the keloid scar masked with SMP



**Figure 11:** Hypertrophic scar masked with the combination of FUE and SMP after 3 months

## Conclusion

What would constitute a good candidate to receive a FUE Hair restoration? The patient profiles for FUE are as listed down below:

1. Patients who wish to prevent a linear scar if they cut their hair extremely short.
2. Patients who have acceptable scarring from earlier surgery and are thus ineligible for strip excision.
3. Patients with insufficient scalp laxity to allow for strip harvesting.
4. Patients who heal with linear scars that are thicker or broad
5. Patients who require an immediate return to a high degree of activity following the surgery, such as athletes.
6. Patients who have a strong dislike for pain.
7. Patients with exceptionally broad hair shafts who require finer hair from the supra-auricular or low-neck areas to provide a more refined, attractive appearance.

8. Patients who require hair transplantation on the body
9. Patients with unsatisfactory cosmetic outcomes at the frontal hairline as a result of big grafts; FUE can be used to thin grafts one at a time.

Although similar in title, the two renowned methods of hair restoration can differ greatly. While some patients prefer to choose one of the two methods based on their preferences, others will have to act based on their specific circumstances.

To summarize the benefits and shortcomings of both treatments, it would be safe to deduce that FUE is the method for those who are more concerned with aesthetic dimensions of a chosen procedure; it is also an optimal treatment for one who wishes to wear their hair short. FUT, on the other hand, is the optimum procedure for those who deeply care about the quality of the results of their restoration and are not that much concerned with the outward appearance of their head after receiving the treatment.

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