Repair of Scalp Flap

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Unhappy patients after scalp flap surgeries usually have the following kinds of complaints.

Abrupt and Straight Hairline

Fleming and Mayer reported that this problem could be prevented by the same technique used in trichophytic donor closure (see the chapter, Donor Wound Closure by Pathomvanich, this volume) [1]. Nevertheless, I had abandoned this closing technique in the temporo-parieto-occipital (TPO) flap because recurrent folliculitis often occurred. This complication may be a result of the Asian forehead skin being thick and oily as the technique is commonly employed with Caucasians.

Hair transplantation provides the best solution for this complaint. During the repair procedure, it is important to create micro-irregularities along the frontal hairline. Grafts should also be placed around the temporal hairline to camouflage the edge of the flap. Here slits should be made in a way that matches the angle and direction of the flap hair (Fig. 1a,b).

Hair Loss in the Scalp Flap

This condition is either caused by total or partial necrosis in the scalp flap that had not been treated carefully or because the scalp flap was taken from an area that was at risk of later hair loss. Both are good indications for hair transplantation (Fig. 2).

Hair Loss in the Areas from Which the Scalp Flap Was Taken

This is a common complaint, resulting from insufficient undermining and excessive tension on closure. The technique of repair is the same as for hair transplantation in other scar tissue (see the chapter, Repair of Iatrogenic Scarring and Non-Scarring Alopecia from Cosmetic Surgery by Pathomvanich, this volume) (Fig. 3a,b).

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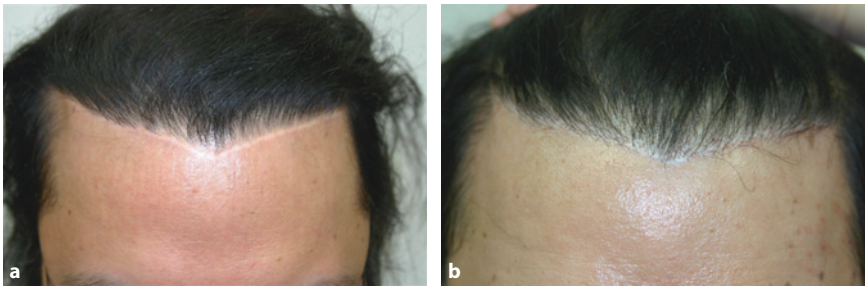

Fig. 1. Abrupt and straight hairline. **a** Patient underwent bilateral temporoparietal flaps by another surgeon in the 1990s. **b** View 18 months after second session of follicular unit transplantation (FUT) (total, 450 grafts)

Fig. 2. Hair loss in the flap. Patient underwent bilateral temporoparietal flaps by another surgeon in the late 1990s. Right flap was taken from balding area and started to go bald

Fig. 3. Hair loss in the area from where flap was taken. **a** Patient underwent temporo-parieto-occipital (TPO) flap by another surgeon in the 1990s. **b** At 12 months after one session of FUT (460 grafts)

Progressive Hair Loss Behind the Scalp Flap

As male pattern hair loss/female pattern hair loss (MPHL/FPHL) progresses, many patients will suffer further loss of hair in the area behind the scalp flap. If hair transplantation is planned, a large number of donor hairs will be required for the thinning area, and it is usually impractical to attempt to match the high density of the scalp flap (Fig. 4a,b).

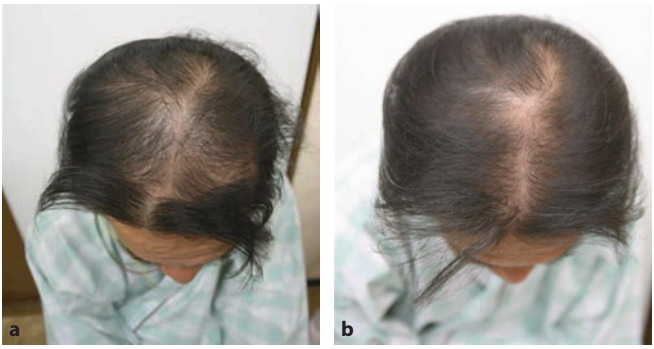

Fig. 4. Hair loss behind TPO flap. **a** Patient underwent temporo-parieto-occipital (TPO) flap by another surgeon in the 1990s. **b** At 12 months after one session of FUT (1100 grafts)

Too-Thick Appearance of the Scalp Flap

Brandy reported a technique for lowering the density of a scalp flap by using a punch 2–3 mm in diameter to extract follicles from the front edge [2]. The author prefers a 1.0- to 1.2-mm punch to remove the grafts under 3× to 4× magnification, and then to recycle the follicles after proper trimming.

Patients should be advised that several sessions may be required and each time the flap has to be shaved.

Poor Hairline Design with Blunt Frontotemporal Angle

Extremely unnatural and apelike hairlines caused by bad location of the flap are described in Western literature, but fortunately this complaint is not common in Asians, possibly because of the Asian anatomical hairline features. The author thinks that the wide frontotemporal angle and straight hairline of Asians might conceal the flappers' poor techniques and make these less conspicuous.

This condition can be repaired in two ways:

1. Incisions are made lateral and posterior to the flap as described by Mayer and Fleming [1] when a dog-ear at the anterior margin of the flap still exists.
2. A fusiform shape of forehead skin is excised anterior to the frontotemporal hairline of the flap as described by Brandy [2] and Beehner [3] (Fig. 5a,b).

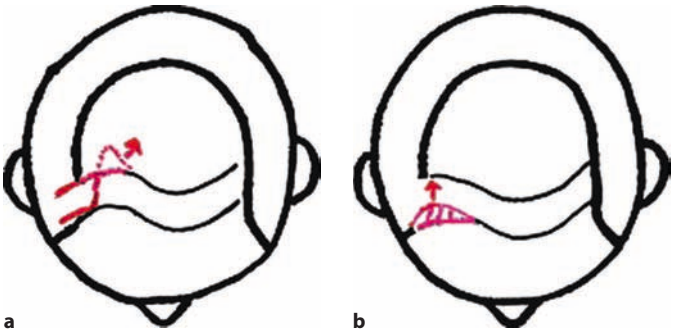

Fig. 5. The repair of blunt frontotemporal angle. **a** Lateral and posterior incision of the flap. **b** Anterior incision of the flap

A Backward Hair Direction

Explanation must be given to the patients that it is almost impossible to change hair direction of the established temporo-parieto-occipital (TPO) and temporoparietal (TP) flap, and in fact such backward hair direction has an advantage in camouflaging hair loss behind the flap. Ohmori of Japan developed a microsurgical free flap to overcome the problem of hair direction from flaps (see the chapter, Advantages of Microvascular Free Scalp Flap Transfer as a Means of Hair Transplantation by Ohmori). Unfortunately, the density of hair within these flaps created difficulties with subsequent hair styling and these flaps never became popular.

It is important to keep in mind that most patients after flap surgery have a tight scalp and overall lower hair density because of extensive undermining and traction. The total number of grafts available for transplantation is therefore limited. These patients very often have several complaints about the flap and their progressing baldness, which cannot all be repaired in a single procedure. Surgery must therefore be planned carefully, the priority of the patient's complaints must be identified, and the number of grafts estimated for each problem. When faced with a limited supply of grafts, it is important to group them into selected areas to achieve satisfactory density. Placing a small number of grafts into a large area will never achieve patient satisfaction.

Don't spread the battlefield!

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