



Figure 13.10 (a,c) Pre-op and (b,d) post-op 2 years 9 months; 4483 grafts were transplanted in one session.

MatriStem has also been used with no current scientific proof that it has worked in reducing donor scarring and increasing hair growth. I have no personal experience using these products and awaits the results of further studies.

For graft storage, the majority of surgeons use NSS, Ringer lactate, or Plasmalyte. We have studied with patient permission on one patient, William E medium used as storage solution on the right side and normal saline on the left side for comparison of growth rates and different times of insertion. Grafts were stored half in NSS and the other half in William E medium for 2, 4, 6, 24, and 72 hours and then planted accordingly. After 6 and 10 months there were amazing results with good growth on William E solution compared with less growth in NSS (presented at ISHRS Annual Scientific Meeting at Bahamas in 2012) (Figure 13.11).

Correction of female pattern baldness in Asians

Through the years, there has been a steady increase in Asian women seeking consultation for hair loss due to various causes and subsequently undergoing hair transplantation as a treatment option. As with women of all

ethnic backgrounds, a thorough diagnostic investigation has to be done to ascertain if the cause of hair loss is amenable to hair transplantation. Medical therapy alone may be the treatment option of choice for many etiologies (e.g., telogen effluvium, alopecia areata, active cicatricial alopecia, etc.). However, for certain causes of hair loss, such as female pattern hair loss (FPHL), transplantation may be a consideration. After confirming that the hair loss etiology is amenable to hair transplantation, evaluation then has to be made as to whether the female patient is a good candidate for this procedure. In some female cases, the donor hair might not be sufficient to cover the hair loss at the recipient area. The Ludwig and Norwood types of pattern baldness seen in women are the most common conditions for which surgeries are performed.

Hair characteristics of Asian women are similar to those of Asian men, except in women there is more subcutaneous fat, and the skin is soft and easy to cut.

Approach to hair transplantation in Asian women

In *Ludwig type* baldness, the main problem is central thinning with retention of the frontal hair line; thus, the goal would be to add density over the thinning area in the



Figure 13.11 (a) Before and (b) immediately after surgery. (c) Six months post-op with the left half of grafts stored in NSS and the right half stored in William E medium. (d) Eight months post-op.

central aspect of the scalp. If the area to be transplanted has existing hair, minimizing damage to these follicles is paramount. Adjacent hair follicle injury can be lessened by following the angle and direction of the existing hair and using high-power loupes of at least 3.5 when making the incisions.^{24,25} If the patient has preexisting hair, 20–25 graft/cm² may be appropriated. Telogen effluvium or post-op shedding may cause distress to the patient. This must be informed, recorded, and signed. Minoxidil lotion might be helpful if the patient uses it preoperatively at least a few months prior to surgery.

In Norwood–Hamilton pattern (Figures 13.12 and 13.13), hair loss is usually confined to the frontotemporal region. High forehead, deep temple recession with miniaturized hair at the gulf are more common findings in women. The goal is to restore the frontotemporal hairline. Hair line design is time consuming in women. Pattern design that is oval and heart shaped, with or without a widow’s peak is drawn, and then the patient participates in observing whether the new hair line fits her face well. Because most patients have good and sufficient donor hair, high density can be achieved with 40 or even 50 graft/cm in selected patients.

The surgical technique in women is the same as in men.

Complications in hair restoration in Asians

Surgical complications can happen even in experienced hands, and surgeons need to know how to avoid and

correct complications if they occur. There are significant differences between Asian skin and the skin of other ethnicities. Even within the Asian race, significant differences are apparent. In the Indian population the skin varies significantly in terms of skin color, which makes pigmentation an important scar issue.

Early complications include facial swelling, which is the most common seen in hair practice; however, with the addition of a steroid to the tumescent fluid, wearing of the headband, plus a cold compress to the forehead post-op, the incidence is dramatically improved.²¹ If persistent hiccoughs occur during surgery, this can limit the ability to place the grafts. Bleeding, syncope, and infection are uncommonly seen. Post-op effluvium at recipient and donor sites are unpredictable; patients need to be warned that it may occur.

Late complications are scarring, pitting, effluvium, and poor direction and angle (Figure 13.14). Ridging and tenting are still seen in the hair practice today. Inadequate and poor growth is of concern to the patient as well as to the surgeon, and requires further investigation and assessment.

The difference between Asian and Caucasian surgery results is mostly with the donor scar; again, the wider the strip, the wider is the scar. Surgeons need to avoid tension upon closure. The scar is seen more in the younger age groups and less in elderly patients. The surgeon needs to check for Ehlers–Danlos type II which can result in a very wide scar. In case of a hypertrophic scar or keloid, a series

(a)



(b)



Figure 13.12 (a) Before and (b) 8 months after 3030 grafts in Ludwig II.



Figure 13.13 (a,c) Before and (b,d) 1 year after 2419 grafts in Norwood type of pattern baldness.



Figure 13.14 (a) Poor hair transplant direction and angle; grafts were transplanted in posterior direction. (b) Poor growth.

of injections of intralesional corticosteroids (e.g., triamcinolone acetonide 10–40 mg/mL) are helpful to reduce the size or related symptoms. On average, three injections spaced at 4 and 8 weeks will markedly improve the scar. Scar revision is usually unsuccessful (Figure 13.15). I have done a few W-plasty procedures with only one acceptable result, the others having no change. The FUE planting into the scar may be helpful. Micropigmentation into the scar may be considered.

Effluvium or postoperative shock loss of existing hair might not grow back at the recipient site, especially the miniaturized hair. The effluvium at the donor area will grow back after 4 months. There is no treatment for effluvium other than to be patient. Ingrown hair is uncommonly seen and needs to be removed.

Because there is a constant influx of newcomers entering the field of hair restoration, pitting is still commonly seen in hair practice today, sometimes in conjunction with poor hair direction and angle that can be difficult to correct. The best solution may be to selectively surgically punch out the most visible grafts.



Figure 13.15 Wide and hypertrophic scar from strip surgery after multiple sessions.

Folliculitis

Folliculitis is the most common complication occurring in practice, usually occurring about 3 weeks to 4 months postsurgery. It usually disappears spontaneously, but occasionally, a chronic recurrent form of folliculitis can develop. This may be due to a foreign body reaction of recipient dermis against the epidermal component of the transplanted hair or a small fragment of hair, as well as obstruction of a sebaceous gland, because no hair grafts have yet exited the scalp. Fortunately, this eventually clears with time and rarely reduces eventual growth, although it can be delayed. Treatment consists of wet warm compresses for 15 minutes every 4–6 hours and wiping the area with alcohol 70%. Advise use of antiseptic shampoo (Hibiscrub) twice a day, oral and topical antibiotics, and drainage of pustules if necessary (Figure 13.16). Culture of the pustule for both aerobe and anaerobe plus Gram stain is helpful so the surgeon can give the appropriate antibiotic.



Figure 13.16 Post-op folliculitis drains with 21G despite no pustule visible on the skin.

As a means of prevention of folliculitis, preoperative cleansing of the scalp with shampoo reduces the colony counts in the skin, resulting in less overall risk of infection. Antiseptic shampoo pre-op is still debated because it also kills resident flora on the scalp to fight against bacterial intruders. The use of systemic antibiotics is still controversial because the scalp contains an abundant blood supply except in patients who have artificial heart valves or prostheses. However, in cosmetic surgery, most surgeons give antibiotics immediately before, during, and after surgery. Some surgeons prescribe for 5–7 days.

Poor growth is considered rare in follicular unit transplantation (FUE) by an experienced surgeon. It can be caused by follicle trauma, mishandling of the grafts during the procedure, transection, manipulation, desiccation, oxygen starvation, etc. To avoid these complications, it is important to follow each step of the protocol that may influence results.

Correction of cicatricial alopecia

Healthy scalp hair is a human characteristic that conveys aspects of self-image, identity, and perceptions of health. Hair loss from disease or other conditions may result in distorted self-perception and psychological conflicts. Cicatricial alopecia (CA) encompasses a diverse group of disorders characterized by permanent

destruction of the hair follicle and irreversible hair loss. It is classified into primary (the hair follicle is the main target) and secondary (nonfollicular) disease. Dermatological disorders causing permanent hair loss such as cicatricial alopecia make immediate diagnosis and therapeutic intervention imperative. Location of biopsy is very important; it should include good hair at the border of the lesion and inside the lesion that contains the hair follicle. At least two specimens 4 mm each should be sent for horizontal and vertical sectioning and direct immunofluorescence.

Primary cicatricial alopecia is an uncommon hair loss condition seen in everyday practice. The incidence is very low. In my practice, over 20 years only six primary CA were seen, but only three were Asian. Generally speaking, at least 2 years is the safe window period to perform hair transplantation in CA; however, the longer period of waiting is better. Should biopsy be performed to make sure the disease is in remission?

I have performed hair transplantation on two patients with frontal fibrosing alopecia (FFA), one pseudopelade of Brocq, and two lichen planopilaris. The FFA patients were instructed to take dutasteride and an immunomodulator postoperatively. In my experience, 3-year follow-up is promising, with the hair grafts being maintained over this time period (Figure 13.17). However, the long-term



Figure 13.17 (a,c) Before and (b,d) 2 years after two sessions of 4293 grafts.

(Continued)



Figure 13.17 (Continued) (a,c) Before and (b,d) 2 years after two sessions of 4293 grafts.

results need to be verified as to whether there will be loss of grafts with medical treatment.

Jeminez and Nausbaum reported total loss of grafts in 4 years after transplant in FFA and do not recommend hair transplantation in FFA.^{26,27}

Secondary cicatricial alopecia is increasingly seen—the majority from cosmetic surgery (e.g., face lift, coronal lift) (Figures 13.18 and 13.19) and some from burns and other injury to the scalp, thus resulting in hair loss.

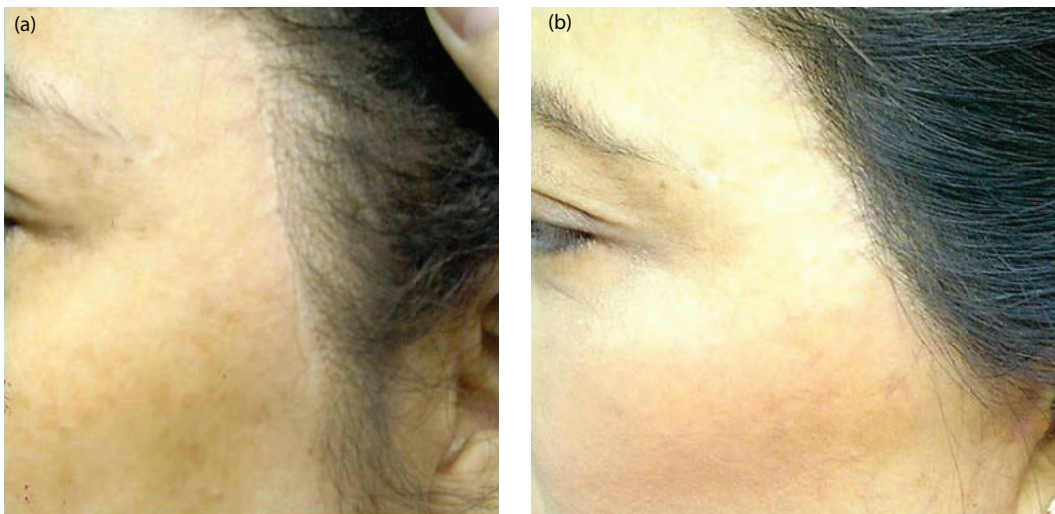


Figure 13.18 (a) Temporal lift scar. (b) One year post-op FUT.

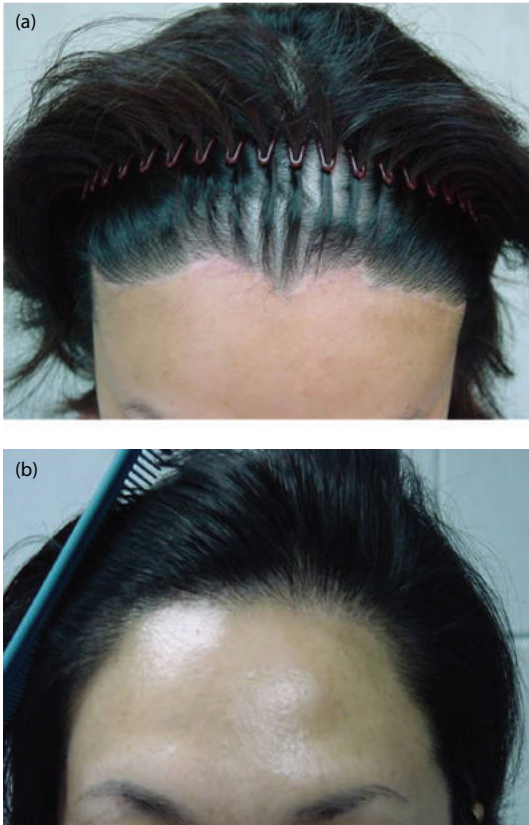


Figure 13.19 (a) Post-op bilateral short temporoparietal flap with unsightly scar and reverse hair direction (posteriorly). (b) FUT to camouflage the scar with aesthetically pleasing new hair line and anterior direction.

Face and body alopecia in Asians

Eyebrow transplant (Figure 13.20) is the most common surgery of all face and body alopecia, and second is from hair transplant of the scalp. The majority of East Asians do not have as much facial and body hair as do Indians and those of Middle Eastern descent. There are increasing demands of facial hair transplants, especially beard and goatee (Figures 13.21 through 13.23). However, men of Indian and Middle Eastern descent who are depleted in facial hair also want restoration to blend with their native culture. Hair transplantations for eyelashes, chest hair (Figure 13.24), pubic hair, and sideburns is still very low in demand.

The technique of surgery is different from scalp hair, and it is a more delicate and time-consuming procedure:

1. Mustache and eyebrow are coarser than scalp hair, so the surgeon needs to look for scalp donor hair of a caliber to match the beard and eyebrow.

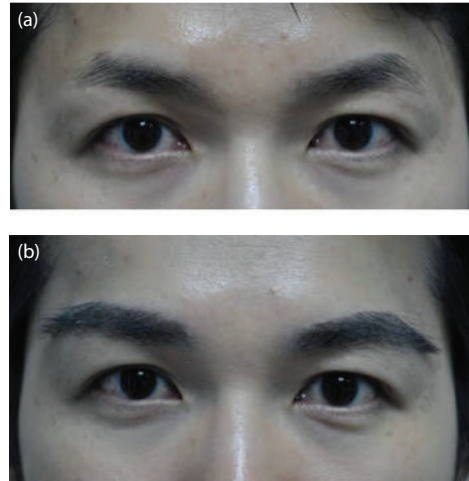


Figure 13.20 (a,b) Eyebrow transplant 538 grafts to both sides.

2. A two-hairs graft might be needed to blend for density.
3. Direction and angle need to be precise, especially with eyebrow transplantation.
4. The design of the pattern needs to fit the individual's face, and the surgeon needs to communicate with the patient whether he or she is happy with the drawing.
5. The donor site can be harvest by FUE or FUT.
6. Grafts insertion can be performed using stick and place, premade incision, or implanter.

Post-op care is important to avoid lost grafts and changing hair direction, especially after eyebrow transplantation. Infection must be avoided, especially where grafts transplant surrounds the lip with potential contamination from food and saliva. Antibiotic ointment or Vaseline ointment may be applied to keep the wound moist and to seal the grafts. An oral antibiotic is also given longer than 1 week. For unknown reasons, most grafts healed without infection. Subsequent sessions might be needed to add more density.

CORRECTION OF UNSIGHTLY SCAR AND POOR AESTHETIC OUTCOME FROM PREVIOUS COSMETIC SURGERY

The FUE with large plugs in the past (Figure 13.25), post rhytidectomy, temporal lift (Figure 13.18), and bilateral temporoparietal flap (Figure 13.19) result in several cosmetic problems needing surgical correction to improve aesthetic appearance. Several sessions of FUT or FUE are often needed to provide improved density.



Figure 13.21 (a,b) 2700 FUG (follicular unit grafts) on both sides.

CONCLUSION

Hair transplantation in Asian male and female pattern hair loss can produce results as good as those in Caucasians in spite of the high hair and skin contrast. Finasteride and minoxidil lotion are recommended in conjunction with surgery, because the hair loss is

progressive in nature. Low hair density is compensated for by larger caliber follicular grafts. A large quantity of single-hair grafts is needed for the frontal hairline to produce a pleasing aesthetic result. Special attention must be focused on the unique anatomical features of the Asian patient for optimal natural-appearing results.



Figure 13.22 (a,c) Pre-op: hair, moustache, sideburn, and goatee. (b,d) One year post-op.

(Continued)



Figure 13.22 (Continued) (a,c) Pre-op: hair, moustache, sideburn, and goatee. (b,d) One year post-op.

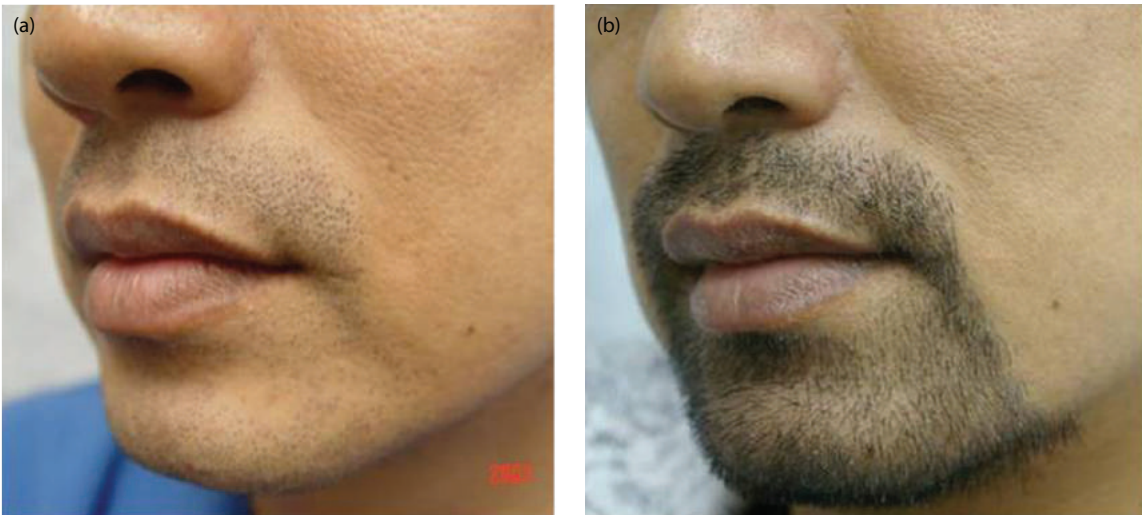


Figure 13.23 (a,b) Moustache transplantation 601 FUG.