Chapter 35
Gigasessions with Combination of FUT and FUE in Asians

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Follicular unit transplantation is the leading method of hair restoration surgery, and current techniques allow harvesting and implanting large numbers of FUs in a single session. For patients with advanced degrees of baldness (Norwood classes IV–VII), patients may require very large numbers of follicular units (3500–10,000), and there are a number of potential benefits to the patient of transplanting these very large numbers during a single session:

1. Faster results—the optimal cosmetic result of the hair transplant surgery is seen earlier, because it occurs 1 year after the first session, instead of 1 year after the last session.
2. Less inconvenience—patient undergoes the inconveniences related to surgery only once.
3. Lower cost—patient saves money, since in general the cost for one gigasession will be less than the cost of two smaller sessions.
4. Better donor scar—in general, the first scar is the best, even if the donor strip is wide.
5. Improved growth—in general, grafts from the first session grow better than after subsequent sessions [1], possibly due to less recipient area scarring or other potential reasons.

However, many hair transplant surgeons believe that performing gigasessions may cause a variety of problems:

1. Dense packing problems—placement of large numbers of grafts close to each other may compromise the vascularity of the recipient area and lead to a decrease in graft survival.

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2. Long surgery time concerns—long duration of gigasession (8–12 h) increases out-of-body time and the risk of grafts dehydration. In addition, the patient and the staff get tired and that may affect the quality of work.
3. Poor donor area issues—wide strip excisions in patients with low donor density or poor scalp laxity may cause an unacceptable scar.

Regarding dense packing concerns, usually gigasessions are performed in cases of advanced baldness, with Norwood classes IV, V, VI, and VII, when the recipient area exceeds 100 cm^2 and when transplanting less than 3500 FUs would result in average density of less than 50 FU/cm^2. Recent studies have shown that when small (less than 1 mm) and sharp instruments are used for recipient site creation, blood supply is not altered and graft survival is not decreased even when the density of implantation is greater than 70 FUs/cm2 [2, 3]. This suggests that planting densities of 35–50 FUs per 1 cm^2 can be considered safe as well.

While long surgery times are a valid concern, gigasessions of up to 5000 grafts should only be performed at clinics with a large team of professionals capable of completing these cases within a 6-h time frame. Mostly important is to efficiently organize the teamwork. Gigasessions begin with tumescent anesthesia, which decreases bleeding and persists for a long time, and are completed in 30 min with one surgeon and one nurse. Next the same two-person team harvests a large donor strip, which takes less than 1 h including trichophytic closure of the wound. The same team next prepares recipient sites, which takes no longer than 1.5 h. Thus, from the first steps of local anesthesia through the creation of the last recipient site, only 3 h are needed.

During this time, a second team, consisting of one surgical assistant for slivering and five to six assistants for cutting, prepares the needed number of grafts using stereomicroscopes. Highly experienced cutters can each prepare 300–400 high-quality grafts in 1 h, depending on the donor material characteristics. Thus 2.5–3 h are needed to prepare 5000 grafts.

The final step is implanting grafts in pre-created recipient sites. Three assistants implant the grafts while one to two assistants keep the recipient area clean and dry. Highly experienced surgical assistants can implant at a rate of 10–15 grafts per minute (depending on bleeding and popping). If the team of implanters consists of three assistants for 5000 grafts, then 2.5–3 h are sufficient to complete the task.

Thus, a gigasession of 5000 grafts can take less than 6 h to compete, including several 5–10 min breaks for the patient, which avoids fatigue for both the patient and the staff. In our experience, the only obstacle for performing gigasessions are patients with a poor donor supply, either from low donor density or poor laxity of the scalp.

In patients with high donor follicular density (more than 80 FUs per cm^2), we need to harvest a strip not less than 60 cm^2 to obtain 5000 FUs. Usually strip length is limited to 30–35 cm in length, so the average strip width needs to be 2.0 cm. Since the strip ends are tapered, this means that the strip width in the center has to be extended up to 3 cm. It is possible to harvest a strip of this width only in patients with very good scalp laxity. This is quite rare, especially in Asian patients where hair density is lower on average, varying from 65–75 FUs (120 hairs) per 1 cm^2 [4, 5].

In addition, the Asian scalp tends to be more firm and tight compared to Caucasians. According to our study [6], Asian scalp laxity is 1.5 times less than Caucasians. In our experience it's impossible to transplant more than 3000–3500 grafts in Asians without a tight wound closure which may increase the risk of wide donor scar formation. Scalp stretching exercises before surgery are very helpful for this problem. According to J. Wong, scalp stretching can improve scalp laxity and may increase the ability to harvest up to 1500 additional grafts [7]. But often this is not enough and therefore additional time must pass before a subsequent surgery.

Another option is injecting hyaluronidase into the donor area before surgery, which significantly increases scalp laxity. However, this effect is temporary and gives a false impression of scalp laxity. After the hyaluronidase effect resolves, the scalp tightness returns, and the risk of ischemia increases (Figs. 35.1 and 35.2). We

Fig. 35.1 Donor area necroses

Fig. 35.2 Shock loss in donor area

have experienced complications such as donor area necroses and shock loss in the donor area using this approach.

In an effort to reduce the strip width without decreasing the total number of grafts transplanted during one operation, we decided to combine strip harvesting with FU extraction (FUE). For example, to obtain 5000 FUs for transplantation, we initially perform FUE of about 1500 FUs from the zones above and below the strip and then excise a 1.5–1.8 cm width strip, from which we obtain 3500 FUs. This technique was first tested in 2006 and soon we appreciated the obvious potential of such a synthesis. This method allows us to harvest the necessary quantity of grafts while substantially decreasing the closure tension on the edges of the donor wound.

Combining the techniques of FUE and strip excision is rather simple. First, the desired strip outline is marked. The strip width seldom exceeds 1.5 cm, with a strip length ranging from 25 to 30 cm. Next, between 500 and 2000 grafts are harvested using the FUE method above and below the strip edges. Last, the strip is excised, which generates between 2500 and 3500 grafts depending on the follicular density. As a result, between 3000 and 5000 FUs are obtained for transplantation.

We performed a study measuring scalp tension during the process of closing the donor wound using two dynamometers (Figs. 35.3 and 35.4) and concluded that if

Fig. 35.3 Scalp tension forces measurement after strip excision

Fig. 35.4 Scalp tension forces measurement after strip excision and 1200 FU extraction

at least 30% of the grafts are obtained through FUE and the remainder are generated from a strip, the tension force decreases twofold during wound closure [8]. Using this combination in almost every patient, donor wounds were closed and cosmetically acceptable scars were obtained (Figs. 35.5, 35.6 and 35.7, 35.8).

While combining strip surgery with FUE increases the duration and cost of the procedure, we believe this is the optimal approach when attempting a gigasession in Asian patients with poor donor laxity and density.

Fig. 35.5 and 35.6 Donor area after combination of FUT and FUE

Fig. 35.7 and 35.8 Donor scars after combination FUT and FUE

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