HAIR TRANSPLANT forum INTERNATIONAL

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2016

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IMPORTANT NOTICE

ISHRS 2016 World Congress Relocated from Panama.
See page 83.

SEE PAGE 58 FOR EXCITING UPDATES ON FUE!

Co-editors' Message

Robert H. True, MD, MPH, FISHRS *New York, New York, USA* editors@ISHRS.org

Next Generation FUE

I am very happy to present two articles in this issue of the *Forum* that are part of what I refer to as the "Next Generation of FUE." We are currently at the beginning of a new era of creativity with approaches to FUE that promise to significantly improve the procedure. This inventiveness and creativity is coming from many quarters. In the last issue, we featured the new 3D motor being developed by Dr. T.K. Shiao. This is a highly sophisticated motor that has many features not previously available in other motors.

In this issue, two significant innovations come from South America: Dr. Mauro Speranzini from São Paulo, Brazil, and Dr. Roberto Trivellini from Asunción, Paraguay. Dr. Speranzini presents a well-developed system of using dull implanters to place FUE grafts into premade sites. This has a big advantage in that assistants can still do the graft placement while reducing the risk of graft placement with forceps. I think this could very well become the preferred method for placing FUE grafts. Be sure to take a look at his video (link provided) accompanying the article. Dr. Trivellini presents his new Mega FUE motor. As with Dr. Shiao's motor, this device has many innovative features and controls that aid in the accuracy and efficiency of extraction. These new approaches promise a level of sophistication in FUE that truly does herald a new era.

FUE Graft Placement with Dull Needle Implanters into Premade Sites

Mauro Speranzini, MD *São Paulo, Brazil* speranzini.mauro@gmail.com

Grafts are different in FUE and FUT. In FUT, the grafts have tissue surrounding the entire length of the follicles. In FUE, the portion of the grafts near the bulbs often is stripped of tissue, which leaves them more vulnerable to both desiccation and trauma during removal, processing, and, most of all, insertion. Skilled hands can place grafts properly with forceps without damaging the follicles by grasping the tissue below and adjacent to them rather than the follicles themselves. In FUE, however, there is a greater chance of trauma and consequent poor growth with forceps because the follicles themselves are touched.[1] Implanters promise to be the answer for this problem.

Implanters are not new. Choi published an article in 1992 presenting a new implanter device, designed to simultaneously make recipient incisions and place grafts without touching the follicle bulbs.[2] Since then, implanters have become very popular in Asia, but are used by only a minority of surgeons elsewhere.[3,4] Perhaps this has been true because patients of other ethnicities have finer hair of higher density or very curly hair. Another possible explanation for the lack of acceptance is that in many practices graft placement into premade sites is delegated to assistants, and sharp needle implantation requires the surgeon to place the grafts.

Because in FUE the surgeon harvests all the grafts, placing all of them with sharp implanters using stick-and-place can be exhausting and can limit the amount that can be accomplished in a single procedure. Another problem with implanters is the cost. Each implanter's needle costs US$15.00 and 6-8 of them (three to four for single-hair grafts and the same number for 2- and 3-hair grafts) are usually required for each surgery. In case needles get dull, they must be changed during the procedure. In addition, implanters must be replaced regularly as they don't last long when autoclaved.

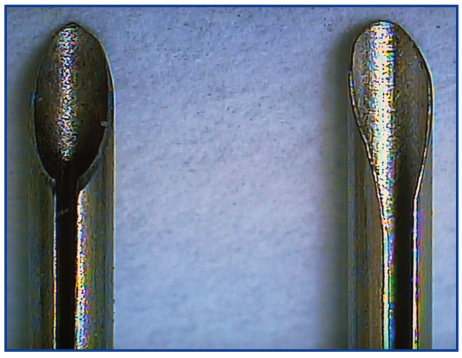

Figure 1. A sharp and modified dull KNU implanter needle

Using dull needle implanters solves these problems (Figure 1). Recently, Dr. T.K. Shiao developed implanters to place grafts into premade sites.[5] We have developed a similar system using regular implanters with dull steel needles. We will compare the advantages

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President's Message

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Your heart throbs and stomach aches just before your presentation, and then you feel a sense of accomplishment after presenting at an ISHRS annual meeting. Your active participation has helped lead the Congress to success. We are proud of your contributions. The advancement of the surgical treatment for hair loss is credited to accomplishments by members of the ISHRS. We, therefore, would like to invite all of you to the outstanding 2016 World Congress of the ISHRS to share your "pearls" with your colleagues. This year's Congress promises to bridge the waters between FUE and FUT in an atmosphere of professionalism with the highest levels of expertise.

The Board of Governors originally selected the beautiful, natural environment of Panama for this year's Congress and the program committee has already worked hard in the planning. However, the unexpected pandemic outbreak of the Zika virus has brought us serious concern. The results of an urgent poll conducted February 5-6, 2016, revealed that nearly 80% of ISHRS members were in favor of relocating the Congress from Panama to a region not affected with the Zika virus. As our members' safety is of upmost importance, the ISHRS BOG considered members' opinions and decided to change the Congress's location. It was a hard decision.

The ISHRS headquarters and Board of Governors are working hard to find an alternative venue. Soon, I believe that we will be able to announce new plans for the 2016 World Congress.

The ISHRS is strongly against the practice of surgery by assistants. Legislative efforts that prohibit the unlicensed practice of medicine are in process in some states. The ISHRS, however, has no intention of regulating its membership. The ISHRS is an educational organization. Members come from different states, different countries, and different regional jurisdictions. The ISHRS recommends that our members comply with their regional legislation and that they practice within the regulatory guidelines where they practice. Regulatory oversight is not the purview of the ISHRS. The ISHRS is and has always been dedicated to education since its origin. The responsibility of regulatory compliance rests with the member, as compliance with local regulatory standards is based on an honor system of self-implementation and reporting.

The ISHRS's position and policy regarding the unlicensed practice of medicine can be found at the following links:

http://www.ishrs.org/content/qualifications-scalp-surgery
http://www.ishrs.org/article/consumer-alert

It is also ISHRS policy that those who present at ISHRS educational activities must adhere to best practices—as noted in the links above.

The ISHRS has many outstanding educational opportunities to share. Some are workshops co-sponsored by the ISHRS, and others are independent but include respected members of the ISHRS as faculty. The ISHRS strongly endorses the highest quality educational program for all of the workshops, including the ISHRS Istanbul FUE workshop, the Paraguay FUE workshop, etc. All ISHRS workshops undergo educational scrutiny for content, and the organizers are vetted for their knowledge and experience in the field of hair restoration surgery. And as I noted previously, the ISHRS does expect its faculty at ISHRS meetings and workshops to follow best practices.

The ISHRS co-sponsors regional workshops to provide our international members a convenient venue to learn or upgrade their surgical skills. Members who are interested in partnering with the ISHRS to hold an ISHRS-sponsored regional workshop should contact the ISHRS for an application, which must be submitted by June 1, 2016. The guidelines and application can be found in the Members Only section of the website at: http://www.ishrs.org/members-only/regional-workshops-program-0.

The ISHRS maintains close ties with other scientific societies seeking for ways to support ideas and dreams to promote science and best practices of medicine. The ISHRS strongly endorses activities of the regional societies with high-quality educational

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Co-editors' Message

Mario Marzola, MBBS *Adelaide, South Australia* editors@ISHRS.org

"Next Generation of FUE"! I like that statement very much. Well done to my tireless Co-editor Dr. Bob True for nurturing innovation in FUE wherever he talks. He encourages new presenters to share their thoughts with us and put them on paper. Both Dr. Mauro Speranzini and Dr. Roberto Trivellini are clear and dedicated thinkers and we thank them for their articles in this edition of the *Forum*. Dr. Trivellini will help you harvest beautiful grafts and Dr. Speranzini will help you place them atraumatically. Please read these excellent articles and keep them for future reference.

This is the second edition of our *Forum* magazine for 2016, and the year is moving along nicely. We hope you are enjoying our specialty and enjoy reading our articles. As always, we welcome your opinions and experiences. As in past years, the ISHRS has many affiliated or sponsored meetings and workshops planned. On the back page of each issue of this magazine is a list of them all. Please do attend any that are of interest to you or your staff. We keep saying all the time that everything in this field evolves so quickly. Miss one or two years and your patients may no longer be getting the best outcomes. Witness the two articles mentioned above.

In the treatment of hair loss, modalities other than surgery are becoming more popular with our patients. A small but increasing number choose never to have surgery, regardless of what we think. Medical treatments such as finasteride, dutasteride, minoxidil, PRP, LLLT, scalp micropigmentation, and mesotherapy are all of interest to our patients. If it is to be surgery, then minimal scarring, minimal pain, and minimal time off is what they are looking for. It is not surprising therefore that FUE is becoming the favoured technique for harvesting grafts even if there may still be a percentage point or two less survival than with FUT. When my patients are told of this possibility, they still choose FUE.

I may have said this before, but I am looking forward to the day when any type of surgery will be seen as a last resort in hair loss treatment. Never fear. Because of our deep knowledge of hair growth and hair loss, we will still be needed—but we must evolve like our procedures. Come on PRP and stem cells!◆

President's Message *from page 50*

programs. The ISHRS has no intension to interfere with activities of each regional society. The ISHRS will support meetings and workshops held by the regional societies, even if they are not sponsored by the ISHRS, as long as the faculty work hard to provide an excellent educational opportunity for their peers.

We congratulate the recent foundation of the Hellenic Academy and Paraguayan Society of Hair Restoration Surgery. The ISHRS Global Council now consists of more than 17 regional societies. Every founder of a new regional society is very welcome to join the ISHRS Global Council. The door is always open. We can learn many things at the World Congress of the ISHRS and from the Forum together.

It is our responsibility to unite regional societies under the umbrella of the ISHRS. Based on mutual respect with regional societies, the ISHRS has continued efforts to promote science, research, and education in the field of hair restoration surgery throughout the world. As the leading organization in the field of hair restoration surgery, the ISHRS is strongly against divisive action by political conflicts, which sacrifice our hard work.

We have devoted ourselves to innovating and teaching the art and science of hair restoration medicine and surgery for more than 20 years. We will continue to reach out to all physicians committed to high standards of care in the practice of hair restoration surgery. As for public education, the ISHRS continues to provide the public with correct scientific and medical information on the website. The ISHRS endorses every effort to contribute to the patient benefit and safety of surgery.◆

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

Vision: To establish the ISHRS as a leading unbiased authority in medical and surgical hair restoration.
Mission: To achieve excellence in medical and surgical outcomes by promoting member education, international collegiality, research, ethics, and public awareness.

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Korean Society of Hair Restoration Surgery
Polish Society of Hair Restoration Surgery
Sociedad Iberolatinoamericana de Trasplante de Cabello

Editorial Guidelines for Submission and Acceptance of Articles for the Forum Publication

1. Articles should be written with the intent of sharing scientific information with the purpose of progressing the art and science of hair restoration and benefiting patient outcomes.
2. If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail.
3. Articles submitted with the sole purpose of promotion or marketing will not be accepted.
4. Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
5. Trademarked names should not be used to refer to devices or techniques, when possible.
6. Although we encourage submission of articles that may only contain the author's opinion for the purpose of stimulating thought, the editors may present such articles to colleagues who are experts in the particular area in question, for the purpose of obtaining rebuttal opinions to be published alongside the original article. Occasionally, a manuscript might be sent to an external reviewer, who will judge the manuscript in a blinded fashion to make recommendations about its acceptance, further revision, or rejection.
7. Once the manuscript is accepted, it will be published as soon as possible, depending on space availability.
8. All manuscripts should be submitted to editors@ishrs.org.
9. A completed Author Authorization and Release form—sent as a Word document (not a fax)—must accompany your submission. The form can be obtained in the Members Only section of the Society website at www.ishrs.org.
10. All photos and figures referred to in your article should be sent as ***separate*** attachments in JPEG or TIFF format. Be sure to attach your files to the email. Do NOT embed your files in the email or in the document itself (other than to show placement within the article).
11. Images should be sized no larger than 6 inches in width and should be named using the author's last name and figure number (e.g., TrueFigure1).
12. Please include a contact email address to be published with your article.

Submission deadlines:
April 5 for May/June 2016 issue
June 5 for July/August 2016 issue
August 5 for September/October 2016 issue

www.ISHRS.org

Notes from the Editor Emeritus

Bernard Nusbaum, MD *Miami, Florida, USA* drnusbaum@yahoo.com

Treating patients with female pattern hair loss (FPHL) has become a very active and extremely rewarding part of my practice. After many years of telling these patients to go to their local pharmacy and buy over-the-counter minoxidil with disappointing results, I feel I can now achieve consistent improvement in a large percentage of patients. Our armamentarium includes finasteride, spironolactone, low level laser therapy (LLLT), possibly platelet rich plasma (PRP), and, of course, minoxidil. Without question, minoxidil monotherapy has the largest amount of evidence-based proof of efficacy for FPHL, yet concomitant therapy targeting the inflammatory process associated with this condition has recently been shown to have therapeutic value.[1] In this regard, compounding minoxidil with corticosteroids appears to be effective in treating FPHL patients and I have found that these combinations do, in fact, enhance my patients' results. In addition, adding retinoid to minoxidil may increase its efficacy, presumably by enhancing absorption as it has been shown (in men) that once-daily applications of 5% minoxidil with 0.001% retinoid was just as effective as twice- daily 5% minoxidil alone.[2] Obviously, a once-daily application increases compliance, especially in women who find topicals "messy" when applied to the scalp. There has also been increasing interest in the use of LLLT for FPHL with several home-use devices currently available and a recent randomized, sham-controlled, double-blind multicenter trial showed a statistically significant increase in terminal hair counts at 26 weeks in a study group of 122 women with FPHL.[3] In an attempt to achieve an additive or synergistic effect by using concomitant modalities, I routinely treat FPHL with a combination approach that has resulted in high levels of compliance and efficacy. The regimen consists of three components:

1. a compounded topical solution containing minoxidil in concentrations ranging from 2%-5%; corticosteroids of class 3, 5, or 6 (tables showing the actual topical steroid in these classes are readily available); with or without retinoic acid (0.01%-0.025%);
2. an oral daily nutritional supplement capsule containing vitamins, minerals, and amino acids; and
3. home-use LLLT.

We term the regimen "triple therapy," and although this "shotgun" type of approach does not allow us to evaluate the contribution of each treatment component, patients don't seem to care about that and generally just want to achieve improvement.

With regards to efficacy assessment, I prefer coupling global photography with hair bundle cross-section measurements (HBCM) using the HairCheck® device, and these two modalities show a high degree of correlation. HBCM compensates for the many limitations of global photography such as differences in hair length, color, or hairstyle at different visits, and patients generally like the idea of having a numerical value associated with their hair to be able to compare on subsequent visits. A technician can be easily trained to perform HBCM so it works well with patient flow.

I recently evaluated 50 consecutive FPHL patients whose diagnosis was determined in part by scalp dermoscopy and/or biopsy. It is of critical importance to exclude patients with telogen effluvium as spontaneous regrowth can falsely inflate results. Patients receiving triple therapy achieved a mean increase in HBCM of 20.5% at 6 months, which increased to 24.5% at 14 months, with 74% of the patients achieving a minimum of 15% increase in HBCM. On global photography, 79% of the patients on triple therapy achieved improvement. While it is not a fair comparison, it is interesting to note that in a study in the literature evaluating 5% minoxidil treatment in 50 patients with FPHL, 67.7% of patients were deemed to have improved by global photography (compared to 79% with our triple therapy).[4]

In our patients, adverse effects were confined to the topical solution and consisted of irritant contact dermatitis in 7% of the patients, facial hypertrichosis in 2%, and scalp folliculitis in 2%. These resolved with discontinuation of tretinoin, decrease in minoxidil concentration, and lowering of steroid potency, respectively.

Targeting inflammation by compounding a topical steroid with minoxidil appears to have a therapeutic value, and adding LLLT and a nutritional supplement may further contribute to the overall response. Controlled studies are needed to assess the individual effects of each component and whether synergism truly occurs.

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FUE Placement *from front page*

and disadvantages of this approach to premade sites forceps placement, and also to sharp implanters.

Figure 2. Surgeon resting while grafts are being placed.

Figure 3. Grafts being extracted and placed simultaneously.

Main Advantages

1. **Delegation of work.** Premade sites allow the surgeon to delegate the work of placement after graft harvesting. Surgical assistants, whether physicians or not, can place a few hundred grafts while the surgeon rests between harvesting sessions (Figure 2). In order to minimize time out of the body, and when harvesting and placement simultaneously is not possible, we routinely harvest from 300-400 grafts and place all of them before harvesting additional grafts. This optimizes yield and produces a comfortable cycle of activity and rest for both the surgeon and the staff. When we are harvesting with the patient lying on their side, harvesting and placement can occur simultaneously with the implanters (Figure 3).
2. **Minimal trauma, optimal growth.** Implanters allow placement without risk of follicle damage such as that which occurs when too much pressure is applied to the graft with forceps. Important in any technique, but essential in even more fragile FUE grafts (Figure 4).

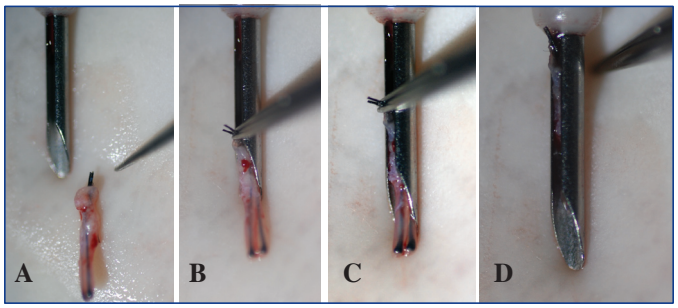

Figure 4. *A-D:* Dull needle implanter is loaded.

Secondary Advantages

3. **Smaller incisions.** Usually, we harvest grafts with 0.9mm punches. Because the grafts contract a little, their final diameter is less than 0.9mm. With sharp needle implanters, the size of the recipient incisions is determined by the size of the needles (Lion®: 0.64mm and 0.8mm for singles and 1.00mm for 2- and 3-haired grafts. KNU®: 0.74mm and 0.82mm for singles and 0.96mm, 1.02mm, and 1.14mm for 2- and 3-haired grafts) (Figure 5). One of the most important advantages of the dull needle implanters is that the size of the premade recipient incisions can be much smaller. Smaller incisions allow higher densities and less trauma to the recipient area. For single-hair grafts, we make 0.63mm premade incisions (23g needle) and place the grafts with 0.74mm dull needles (Figure 6). For 2- to 3-haired grafts, we make 0.8mm to 0.85mm premade incisions and use 0.96mm dull needle implanters (Figure 7).
4. **Shorter learning curve.** A surgical assistant requires many months of training to place grafts with forceps.[5] Training one to use implanters requires just a few days. This makes it easier to replace staff when the need arises.
5. **Less expensive.** Implanters with dull needles can be resterilized and used over and over again. We sand off the edge and point of regular needles. We prefer needles of steel without plastic hubs, which can be sterilized more effectively in a longer autoclave cycle. We have found modification of the KNU implanters rather than the Lion implanters preferable for this reason (Figure 8).
6. **Harvest and place at the same time.** With the patient lying on their side, the surgeon can harvest grafts while the assistant places with implanters.
7. **More accurate.** With premade sites, the angle and depth of incisions are better controlled, whereas with stick-and-place (with forceps or sharp needle implanters) there is more variability resulting in uneven final results.

Figure 5. Lion implanters *(left)* and KNU implanters *(right)*

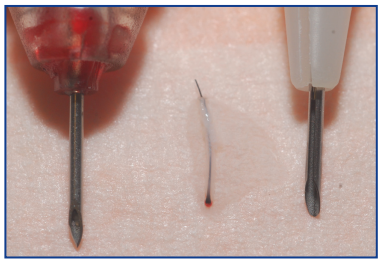

Figure 6. 23-gauge needle, trimmed single hair graft, and 0.74mm dull needle implanter

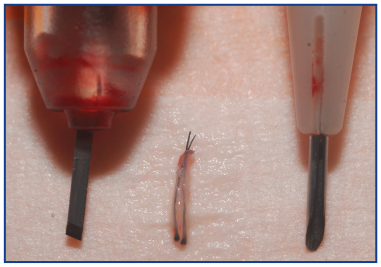

Figure 7. 8mm chisel micro blade, 2-haired graft, 0.96mm dull needle implanter

Figure 8. KNU needle (only steel), Lion needle (with plastic hub)

Figure 9. Grid for uniform graft placement

8. **Precise density.** Pre-making sites facilitates creating a predetermined density of recipient sites. We tattoo the entire recipient area and mark a grid of 2cm×2cm squares (4cm^2) and make an even number of sites per area based upon the calculated desired density (Figure 9).[6,7] This approach can also be used with forceps placement, but not with stick-and-place.
9. **No replacement during surgery.** With sharp needles, the implanter's efficiency and speed are slowed as the needles get dull and must be replaced, but with dull needle implanters, these are not constraints, efficiency is maintained, and time is saved.

Disadvantages

1. **Slower.** In our hands, grafts are placed at slower speed when compared to sharp needle implanters, and when compared to two or three technicians using forceps simultaneously. However, as we are gaining experience, we can have two staff placing at the same time and the process is becoming more efficient.
2. **Bleeding and popping.** In some cases, there is more bleeding and popping when compared to sharp needle implanters.
3. **Extra care.** Extra care is required to clean and sterilize dull needles for safe reuse.

Discussion

Since we started using this method, surgery has become less tiring. In FUT, the work is shared with a big team, but in FUE, the physician has much work to harvest grafts. Delegating the placement is crucial for big sessions. Because the use of forceps can more easily injure the skinny FUE grafts, the best possible solution seems to be the dull needle implanters. Since adopting them, we have seen that many hairs just don't shed and keep growing post-operatively; something that rarely occurred when we used forceps for placement. Operating with the patient lying on his or her side is most comfortable for the patient and the entire team, and it is the most efficient as only with this positon can we harvest and place grafts simultaneously. When the patient is lying in a face up position, the physician rests while the assistant(s) place as fast as 15-20 grafts per minute each. With either approach, grafts are placed in the shortest period of time possible avoiding lengthy time out of body.

Description of the Surgical Video

Link to video:
https://onedrive.live.com/redir?resid=BF3822866506D80D!15553&authkey=!AFud6rgGrOpWJpQ&ithint=video%2cmp4

The best way to understand the technique is to view the linked surgical video. In the online version of the *Forum,* simply click the link. In the print version of the *Forum,* either copy the link for your browser or scan the QR image above.

In the video, we show our routine doing FUE with dull needles implanters. We use the suction-assisted Trivellini Mega FUE Machine® to harvest grafts. (*Editors' note:* Dr. Trivellini's device is described in detail in a companion article in this issue of the *Forum.*) A 0.9mm sharp punch is our most common choice for scalp harvesting; for beard and body hair, 0.8mm is the most used. Superficial anesthesia is applied in order to get vasoconstriction and reduce the donor wound cross-section and surface area of the scalp wound.[8] Punch rotation can be changed as necessary (five possible speeds). We prefer the lowest possible speed in order to harvest the grafts without damaging the bulb. When the shafts are parallel and close together in the follicular units, the punch can be inserted deeper (4mm), but when they split, 2.5 or 3mm is the deepest advisable in order to avoid transection. We punch the skin in two steps. First, the punch cuts the skin while rotating, and second, the handpiece is pressed down while the punch is not rotating in order to release the attachments and minimize transections. This makes it easier to extract the grafts with two forceps.

The suction-assisted machine has some advantages:

- In case of transection, it often sucks the graft and "tells" the physician that the punch is at the wrong angle providing the surgeon the opportunity to adjust the angle, speed, and, sometimes, diameter of the punch early in the procedure, rather than discovering the transections after hundreds of grafts have been harvested.
- As it sucks the blood continuously, the field is kept clean and fewer interruptions are necessary.
- It frees the grafts for easier extraction at shallower punch insertion depths

Whenever possible, we punch, extract, and place grafts simultaneously, with the patient lying on his or her side. If not possible, we harvest a few hundred and then place in order to avoid long time out of the body. Our team includes two physicians and three technicians, but for smaller sessions, the work can be done by one physician and one technician.

Recipient sites can be done with needles or blades. For singles, 23g needles work well as we trim these grafts in order to have higher density in the hairline at minimal trauma. Only with this technique is it possible to place grafts into very small incisions without injuring the bulb. Incisions are always smaller than the needle diameter as the skin opening can be stretched with the dull needle. For 2- and 3-haired grafts, needles also can be used to make sites, but in our hands, blades work better. Sagittal or coronal incisions can be done. For beard transplantation, eyebrow, and temporal area, we prefer coronal, but behind the hairline, we usually prefer sagittal orientation.

The depth of recipient site incisions is exactly the length of the grafts, so before pre-making sites, we harvest test grafts in order to check their length and to make sure they fit well in the implanter and into the recipient sites.

Again, smaller incisions are done when compared to forceps and standard sharp needle implanter techniques. If the skin is elastic, 0.8mm incisions can be done for 0.96mm implanters. For more rigid skin, 0.85mm incisions are preferred.

Conclusion

In conclusion, implanters with dull needles are ideal for placement of FUE grafts because they optimally protect the grafts during insertion, can be used by assistants to place into premade sites, can be used with the smallest recipient sites, are inexpensive, and have a short learning curve to proficiency.

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FUE Placement *from page 55*

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Commentary on "FUE Graft Placement"

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I enjoyed reading this article by Dr. Speranzini, and I think it is quite important. It describes a very useful modification of an already good device, which may broaden the appeal of implanters to include practices that use premade sites. I tried sharp implanters several years ago and was immediately impressed. They quickly became my placing technique of choice in eyebrows and temple peaks where grafts must be angled very flat relative to the skin or scalp. I have always found graft placement with traditional forceps technique difficult in these areas and the implanters made it easy. However, when used as designed, the recipient site incision is made by the implanter at the moment of its insertion and this limited its use in my practice to me alone. I prefer to have graft placement done by my assistants as well, and thus the implanters had an important, but limited, role.

I have tried using sharp implanters to place grafts into premade sites, but discarded this idea quickly for two reasons. First, the sharp cutting tip of the implanter frequently catches on the inside of a premade site during insertion, slowing down insertion as the user carefully redirects the tip to follow the site angle. Second, if this is not done, the implanter can cut its own new path into the scalp, changing the insertion angle of the graft. Thus, I felt that sharp implanters couldn't be used by assistants in premade sites without risking angle changes. If these devices were to be useful in the hands of my assistants, the sharp tip had to go.

So, I did what Dr. Speranzini did: I made the tip dull. I did this with a fine sharpening stone under a dissecting microscope by gently sweeping the tip across the stone, taking care to preserve the shape of the tip, until it was dull enough that it would not penetrate the epidermis of my finger. At this point, the implanter was dull enough that it would not cut the scalp, or catch inside of a premade site during insertion. Now, the duller implanters could be used to do stick-and-place with hypodermic needles by me, or in premade sites made with needles, blades, or micro punches by my staff.

I believe that implanters are the easiest way for beginners to safely, gently, and accurately place grafts. At the ISHRS St. Louis Hair Transplantation course in 2015, I taught a lab station on graft implantation with the dull implanters. Every single one of the attendees who came through the station was easily placing 2- to 3-hair FUGs into 20g needle sites with stick-and-place technique. This was impressive as with standard forceps technique, most struggled to put these same grafts into 16g and 18g sites. In my own experience, I found I was quickly able to learn to use implanters with both hands. I am right-hand dominant and struggle to place on the patient's left side. Implanters have made this much easier for me.

There are two key advantages of these instruments not mentioned in the article: increased safety and ease of graft rotation. The use of implanters means transfer of the devices between loading and implanting staff constantly. Standard sharp implanters mean risk of needle stick injury, and vigilance and strict adherence to safe procedure are essential. Dull implanters are much, much safer. Whether sharp or dull, implanters make graft rotation in the site much easier than with forceps. If hair is left 5-8mm long on the grafts, curl direction can be clearly seen with the graft loaded in the implanter barrel (Figure 1). The implanter is rotated in situ until the curl orientation is as desired and then the plunger is depressed.

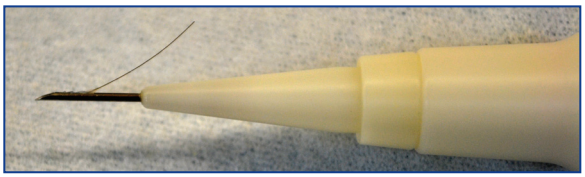

Figure 1. Curl direction can be clearly seen with the graft loaded in the implanter barrel.

I agree that the implanters seem to be the safest way to deliver FUE grafts with their typically naked bulbs into the recipient sites. In my experience, they are clearly the preferred device for recipient sites where graft angles must be very flat, such as the temple point and eyebrow. Dulled implanters are less costly to use, safer, and enable rapid implanter use in premade sites without risk of site angle changes being made by staff. In my hands, they allow graft placement into smaller sites than those needed for traditional forceps placement techniques.◆