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IN THIS ISSUE

Tumes-SENSE Strategies: Commonsense, Effective Methods for Incorporating More Fluid into Your Practice

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Tumescence of all types is commonly used in hair transplantation surgery. But how effective is it really and what solution is best to use? Much like graft holding solutions, most surgeons tend to prefer whatever they used in their training. Unfortunately, our field lacks robust studies about most of our daily practices—including the different uses and types of tumescence. Without a general consensus or a single training source to guide our operative decisions, there are as many different ways to add fluid to a surgical field as there are surgeons.

Tumescence has been used for years, so some commonsense strategies are definitely known and understood. Here are some common ways tumescence can be used effectively in your practice. If you are not yet using tumescence, "how to do it" instructions are included to help you get started. If you are already using tumescence, please share your experiences by taking my short (4-minute) survey at https://www.surveymonkey.com/r/77ZZR79 and see how your practice compares.

TAKE THE ONLINE SURVEY!*
Share your experience at:
https://www.surveymonkey.com/r/77ZZR79
This is the author's own survey; not an ISHRS survey.

DONOR AREA

Linear excision (strip) surgery is improved most by full-thickness tissue turgor. When injected into the donor area prior to making the incision, tumescence improves hemostasis and increases tissue stability/turgor allowing the incision and excision to be more precise. By lifting the tissue off the deeper vascular bed, blood vessel and nerve injuries can be reduced. It also separates the follicles within the strip making follicular unit dissection easier. Linear excision can be performed without any tumescence at all, and many surgeons have found other ways (skin hooks, manual tension) to stabilize elastic tissue, but tumescence can turn a rubbery, slippery case into a smooth one with only even a few milliliters of saline.

How to do it: With a 20-25g needle, quickly add 70-120ml of your favorite tumescent solution until turgor is achieved (see "Which tumescence is best?" section at the end of this article). The area is ready for excision when it feels hard; be prepared to make your scoring incision quickly before the fluid drains into the surrounding scalp. Patients may feel an uncomfortable "pressure" sensation during the process for which you can reduce the speed of injection.

In FUE surgeries, tumescence can be a bit tricky. Similar to linear excision surgery, full-thickness tumescence helps with hemostasis and reduces the risk of nerve and vessel damage, but by making the follicle more rigid within the tissue, it hypothetically increases the risk that a follicle might become transected.

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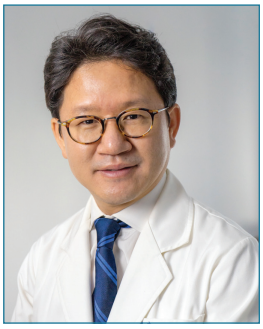

President's Message

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Dear Colleagues,

During my time serving as president of the ISHRS, I have been invited to several national conferences. In early June, I attended the 8th International Congress of the Korean Society of Hair Restoration Surgery. Including this conference, I have attended conferences and workshops in five countries: India, Taiwan, China, Korea, and the United Arab Emirates. At each of the academic conferences, new ideas and procedures were presented. It is evident that many physicians are trying to provide their patients with better medical procedures in a more effective and safer way using better technology. I offer my respect to the many hair transplantation doctors around the world who are working hard for this.

Unfortunately, a few physicians are performing unethical practices and using inappropriate marketing methods. This is disappointing for colleagues who are working hard. According to the doctors in Turkey, many technicians are performing FUE procedures. This is a very serious situation, and if it is allowed to continue, there is the possibility that it could spread to other parts of the world.

Regardless of FUT or FUE, the hair restoration procedure is considered a surgery—and physicians MUST perform surgery. A technician should never perform a surgery. The ISHRS opposes this unethical, unlicensed practice of medicine. Recently, the Ministry of Health and Welfare in South Korea introduced a policy that states the process of inserting hair follicles into the skin is a medical procedure to be performed by a physician, not a nurse, because transplanting a part of skin into the human body is an important procedure.

The Korean government has made it illegal for a nurse to make an FUE donor incision and to insert a hair follicle after a physician has made a slit in the recipient area. I am sure that each country will have different policies but there is no question that it is the physician's responsibility to make the incision in the human skin whether it is a strip incision or an FUE incision. As president of the ISHRS, I strongly encourage you to participate in our campaign, "Surgeons perform the surgery, not technicians."

At last year's World Congress in Prague, we announced a call for volunteers to participate and work on the various committees of the ISHRS. This recruitment for committee volunteers was intended to encourage more members to participate and assist in the important work of the society. This was the first time such a call for committee volunteers was initiated in the 25-year history of the society. I was impressed by and appreciated the magnitude of support and enthusiasm from the applicants and would like to express my deepest thanks and gratitude to all of you who applied. There were far more applications than expected! Since then, I have made sincere efforts to include as many volunteers as possible and was able to place 236 members on 29 committees! If you were not assigned to the committee you requested, it is a reflection of the overwhelming interest among our members to participate, and I encourage you to keep applying. Those who are willing to work when and where they are needed will be given priority for other committee assignments they request in the future. I would also like to express my sincere gratitude to all the committee members who have been serving as committee members for a long period of time.

I would like to share some good news. As I had mentioned in my last column, we have been in the process of developing an e-platform that has a *Forum* search function. We have officially signed a contract with a company to develop this e-platform. We will be able to search for articles published over the past 20 years that our seniors and colleagues worked hard to write. This will be a benefit available only to ISHRS members. I would like to recommend you to encourage your colleagues who are not yet members of the ISHRS to participate. I can't stress enough how grateful I am for the ISHRS staff, led by Dr. Bob True and Victoria Ceh, for all of their hard work on this project.

We are considering a city in the south of Europe for the 2021 World Congress venue. If members would like to recommend a suitable city, the Board of Governors will consider it.

Lastly, the Hollywood World Congress is now a few months away. The World Congress committee has been organizing the entire conference by classifying the abstracts. An e-mail has also been sent about the conference registration and hotel reservation. I would like to ask members to register for the World Congress and make their hotel room reservation as soon as possible and use the ISHRS code to ensure they receive our group rate. My thanks to all of you and I look forward to seeing you soon in Hollywood at the ISHRS's 26th World Congress! ■

Co-editors' Messages

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This issue discusses graft harvesting and graft placing in different articles.

The article by Kuniyoshi Yagyu highlights the importance of donor area management, a subject previously explored by Keene et al. in their article, "Determining safe excision limits in FUE: factors that affect, and a simple way to maintain, aesthetic donor density" (*Hair Transplant Forum Int'l.* 2018; 28(1):1, 7-11). Before planning a repeat FUE procedure, Dr. Yagyu estimates the number of previous excisions by comparing the FU density in an untouched area with the FU density in the previously harvested area. In repeat FUE procedures, it is helpful to examine the donor area pre-operatively as we get closer to the point when thinning becomes visible. In my view, the 50 percent rule of plucked hair does not really apply because it may not be valid when FUs are completely excised. The confluence of gaps leads to visible thinning.

If no untouched area is present for comparison, we can alternatively use digital imaging to measure residual FU density, hair density, gap density, and hair thickness. These measurements are also helpful to estimate the total number and density of previously excised FUs and compare them with the alleged numbers given by the previous surgeon.

I suggest creating an "HT Pass" or "Log Book" to give to the patient after the procedure.

Data included in your log book could be the original donor density, harvested donor area size, and number of transplanted grafts. It still would not include critical information about transection rates, harvesting density, or number of transplanted hairs, which many surgeons do not want to measure in daily routine. But even this data would be helpful information for repeat procedures and could potentially increase the transparency of hair transplantation and honesty in the field.

In his Ethics column, Greg Williams discusses honesty with patients. One of the problems is that patients are being promised unrealistically high graft numbers. The honest surgeon who assesses the donor area and calculates the estimated graft yield, and who keeps grafts in the donor area for the future, has a hard time competing, especially in the increasingly popular "online consultation" or "graft calculator" environment. This is a major problem, ethically and for the "survival" of honest independent surgeons.

Another type of dull implanter is presented by Parsa Mohebi. He calls it an inserter to clearly differentiate it from implanters, which can be sharp or dull. On this occasion, we had a discussion about the terminology of implantation and implanters. Doesn't implantation involve the two steps of incision and placing? Should dull placing devices also be called implanters or will this lead to confusion? Could the important difference of sharp and dull be overlooked?

The ISHRS Board of Governors discussed these questions and decided that these devices should always clearly be described and labeled as sharp (incisional) to be used by the surgeon only or dull (non-incisional). The use of dull devices to insert grafts into sites that have been pre-made by the doctor can be delegated to trained, unlicensed personnel in most countries.

➢ Bottom next column

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For some time, the donor area has been the most popular topic at conferences and has dominated the literature as well. Refreshingly, Sara Wasserbauer explores an important and overlooked topic, tumescence. When used appropriately, tumescence can act as a valuable assistant in the donor and recipient areas by augmenting the anesthesia and vasoconstriction that are necessary for us to be able to perform our craft. Firming up lax or mushy donor tissue during strip and FUE harvesting allows for precision excision, which decreases transection. Vasoconstriction assists us with recipient site creation and atraumatic placing, which improves our results. Of course, each patient's tissue must be assessed as the need for, and solution appropriate for, tumescence will vary. Please take our online survey to add your experience to our knowledge base. Getting your input was Sara's idea and we plan on using it for other topics in future *Forum* issues.

Another popular topic has been surgery performed by unlicensed assistants. Tommy Hwang discusses it in his President's message, Bob Haber mentions it in his Editor Emeritus address, and Russell Knudsen touches on it in his Controversies column. While not mentioned specifically, it is no doubt contributing to the overharvesting and high transection rates seen in Kuniyoshi Yagyu's article on the FUE donor area. Since this practice is illegal in most jurisdictions, it is only logical that licensed mid-level practitioners could replace unlicensed assistants as well as licensed physicians as the professionals patients look to for hair transplants. Someday hair transplantation may be just another procedure offered and performed at medical spas. I'm sure there will be more debate on this topic as it evolves.

Make your plans to visit Hollywood for our 26th annual World Congress in October. The Hollywood Walk of Fame is a mere 0.8 miles from the Loews Hotel where we will be meeting. Many more attractions await you in the Los Angeles area, but remember, it is a very spread out metropolitan area, unlike quaint, compact Prague. Traffic can be terrible, so allow time for travel and avoid peak travel hours. We look forward to seeing you all in California. ■

To better assess all the new devices, we need more objective data. We need to see the differences and advantages compared to established techniques. This is very important to improve our field as my colleagues and I noted in our 2006 *Forum* submission, "Evidence Based Hair Restoration—Designing Clinical Trials" (*Hair Transplant Forum Int'l.* 2006; 16(3):85-89).

Please share your thoughts about these topics in letters to the editors. And if you submit an article, don't forget to provide proof of any claims. ■

Notes from the Editor Emeritus, 2005–07

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It's always something. Smooth sailing in the field of hair transplantation just doesn't seem to happen. Way back in 1994 when I completed my fellowship with Dow Stough in Arkansas, the majority of surgeons were still using large plugs and adamantly defending their use. So we strip harvesters waged our battle and slowly convinced our colleagues of the benefits of leaving plugs behind.

With one battle over, another loomed. Most offices still did not use microscopes, so the microscope users of the world fought hard to bring the field into agreement that slivering and cutting were best done under microscopic control. So was all peaceful then? No, as most of us still believed that large sessions (over 1,000) were ill advised. So the megasession folks battled hard to convince the rest of us that large sessions were safe, and now, of course, no graft number appears to be too large. Yet many doctors still believed in cutting grafts to size, so the follicular unit people then had to fight their battle as well, until the building block of hair surgery was successfully altered.

There was a small battle between those that produced multiple stacked donor scars and those that produced only a single scar, but that was a minor donor scar battle compared to one that started with the introduction of FUE! Strip surgeons were confident that FUE would be a brief experiment doomed to failure, but it did put us on the defensive and it forced us to dramatically improve our scars.

As FUE found its permanent place in our field though, there was an unintended consequence. For all the battles that had come in the decades before, hair restoration always remained fundamentally a bona fide surgical procedure performed by surgeons. No one but a surgeon would wield a scalpel to harvest tissue. But the miniscule scale of FUE changed all that, as wielding a tiny punch could be learned by anyone. And indeed it was. It was cost-effective, albeit often illegal, to allow non surgeons to perform extractions, and that battle unfortunately created a schism between fine people who adhered to different standards of conduct.

But the repetitive nature of FUE extractions produced yet an even more sinister development in the form of automation. Machines, such as NeoGraft® and ARTAS®, which are promoted as requiring minimal training or expertise, have dramatically altered the battle. Whereas before we thousand or so trained hair surgeons battled each other, we now as a group face a potential army of tens of thousands of physicians with no passion whatsoever for hair restoration, but rather for quick economic gain from an alluring business model. These practitioners happily and often ignorantly delegate surgery to unlicensed personnel, and do so while remaining completely out of reach of the sanctions of our society. Unconfirmed estimates conclude that there are more owners of NeoGraft and ARTAS who are not members of the ISHRS than there are total members of the ISHRS.

Indeed, in my own corner of the world, no fewer than three NeoGraft providers have popped up in the past couple of years that have been owned by plastic surgeons with no training, interest, or expertise in hair surgery, and backed by a multimillion-dollar corporate advertising budget. To the best of my knowledge, none of the surgeons are actually operating the machines themselves. The potential for patient harm is immense, and yet there is little to nothing that can be done. The battle has moved to State Medical Boards and State Attorneys General.

And if by grit and good fortune we are somehow able to purge illegal non-licensed operators from the field of hair restoration, still another challenge awaits. "Mid-level practitioners" (MLPs), which in the United States are Nurse Practitioners (NPs) and Physicians Assistants (PAs), are rapidly gaining complete autonomy to practice without supervision. That means an NP or PA can now or soon will be able to open a hair transplant practice with no physician supervision. Violating no laws, and yet not having a membership category in the ISHRS, these individuals may form their own society and compete with no restrictions. I'm not really sure what would happen at that point in time. MLPs complete their training in only a few short years, are thus not encumbered by significant debt, and are typically willing to work for significantly less compensation than physicians.

Once open, Pandora's Box cannot be closed. What battles do we fight, what alliances do we form, to successfully protect the field of hair restoration from these threats? Those of us who have patiently nursed our society and field from its early years into maturity want nothing more than to pass it on to a younger, smarter, and cleverer generation. One that will create surgical results for future patients that exceed our current skills. But who will want to take our place if unlicensed practitioners or, perhaps even worse, licensed non-physicians, dominate the field?

If there is a bright spot, it is the energy and competence of the ISHRS leadership, and the enthusiasm of our newest members. Perhaps they can navigate these waters successfully.

See you all in Hollywood! ■

CONTINUED FROM FRONT PAGE

The most practical use of tumescence during FUE may be very superficial injection for stabilizing the uppermost layers. Similar to a trampoline being stretched tightly, this allows the hair shaft to be stable during the engagement of the punch, while still allowing the hair shaft and follicle below the surface to move into the lumen during punch insertion. With this method, practitioners have reported less bleeding, faster extraction times, and reduced transections with all punch types.[1] It even works well with body hair extractions and mimics the use of hand tension (or use of a tensioner device as with the ARTAS®). (From the author's own experience, it can be helpful even when using a tensioner device in place during robotic surgery.) Full-thickness tumescence has been found to be helpful for patients with extremely lax or mushy FUE donor tissue.

How to do it: Use a 30g needle or similar (but not less than 27g) to inject your favorite tumescence very superficially (~1mm) beneath the surface of the donor area skin. Skin should blanch (even without epinephrine), and minimal ridging should be noted after infiltration. This is most effective when small areas (3-5cm^2) are tumesced at a time. Use deeper infiltration for patients with extremely lax or mushy FUE donor tissue.

RECIPIENT AREA

Whether you are placing grafts in a brow or on a scalp, properly executed tumescence can make your day easier. Not only does it effectively induce hemostasis by protecting the vascular bed (along with depth-controlled incisions), but it also allows for making sites more precisely and closer together than non-tumesced skin would permit. Native hairs can also be avoided more easily in this way. After making incisions and placing grafts, the tissue returns to its unstretched baseline and the grafts draw closer together leaving a denser outcome than would be possible otherwise.

The only drawback of recipient-area tumescence is the potential post-op facial swelling when gravity pulls the extra fluid through the lymph channels surrounding the recipient area. For most scalp surgeries, this can result in forehead swelling on post-op day 2 or 3, and the effect lasts 2-3 days. Strategies for reducing this appearance include the following:

- Putting foam tape or an elastic bandage across the forehead for the immediate post-op period to re-channel the fluid down the sides of the forehead
- Sleeping at a 45-degree angle the first 3 nights
- Taking steroids: oral, IM, and/or in the "Abbasi solution" (see "Which tumescence is best?" section)
- Self-massaging of the forehead in a mid to lateral motion
- Avoiding adding sodium bicarbonate (buffering) to tumescent solutions

How to do it: Use a 27-30g needle in any direction or an 18-20g needle in the direction sites will be made (since the bigger needles will effectively create a graft site) to inject 50-150ml of your favorite tumescent solution into the recipient area. Wait roughly 10 minutes until hemostasis is achieved and then start making sites. For especially elastic skin, progress across the recipient area in stages, tumescing as you make recipient sites to take full advantage of the turgor created.

WHICH TUMESCENCE IS BEST?

All forms of tumescence have their place in hair transplantation surgery. From saline alone to complex custom mixtures with anesthesia and epinephrine, different solutions accomplish different tasks.

Chilled saline is a solid standby for the beginning hair transplant surgeon. Without epinephrine or additional anesthesia, it is the safest (it's hard to overdose on normal saline!) and easiest to monitor; 50-200ml titrated to effect in the donor or recipient area will reduce bleeding and widen the inter-follicular distance for either FUE or linear excision surgery. Its effects wear off quickly, however, and a few minutes should be allotted for it to take effect, so the window of usefulness is short. If chilled saline isn't available, room temperature saline can be used, but the colder it is, the greater the vasoconstrictive effect it will have.

Saline plus small amounts of epinephrine (1-2ml or 1:1000 epinephrine in 250ml of saline, which creates a 1:125,000 to 1:250,000 solution) can significantly reduce bleeding across both the donor and the recipient areas within minutes and can prevent washout of local anesthesia, thus reducing the overall total amount of anesthesia (and reducing the risk of toxicity).

Overuse of a higher concentrated "superjuice" solution (loosely defined as a concentration of epinephrine between 1:10,000 to 1:50,000) can reduce blood supply and at least theoretically induce shedding or poor graft survival, so caution must be used with mixtures of adrenaline and small amounts of saline alone. Systemic epinephrine effects (tachycardia, elevated blood pressure, tremors, and nervousness) can occur. Be especially careful using superjuice in patients with preexisting cardiovascular disease. Tiny brisk "bleeders" that occur in FUE donor areas, and sometimes during site-making in recipient areas, are the perfect target for limited use of this type of tumescence. An option to manage the risks of epinephrine overuse when tumescence is used over a larger area is, staggered dosing, but to be fair, these risks are reported to be rare and clinical trials regarding safety, efficacy, and calculating overall risk are lacking.[2]

Saline plus anesthetic agents such as lidocaine or bupivacaine make the ever-helpful "tumescent anesthesia." Common in liposuction procedures where large volumes of dilute solutions are used, tumescent anesthesia has been shown to reduce pain and improve hemostasis even with higher total doses of anesthesia, all while reducing the incidence of toxicity.[3] Gillespie anesthetizes the donor area with 0.2% lidocaine with 1:500,000 epinephrine and uses a tumescent solution of 0.1% lidocaine with 1:500,000 epinephrine for both the donor and recipient areas.[4]

The tumescent anesthesia suggested by Abbasi can be used in both the donor and the recipient areas for anesthesia and tumescence, making it a popular choice for surgeons.[5] It is unbuffered and thus may be slightly more painful to inject, but it reduces the incidence of post-operative edema with the addition of triamcinolone acetonide, induces hemostasis, and reduces the total amount of anesthesia needed with epinephrine, all in a saline/lidocaine mix. Like Gilles-

pie's mixture, Abbasi's solution has published study data for its use, which allows advanced hair transplant clinics to base their anesthesia decisions on tangible data.

CONCLUSION

These are merely general suggestions in a universe of tumescence options. After reviewing all of the different possibilities for donor or recipient tumescence over the years, it became clear that the only unwise tumescence choice is undiluted anesthesia and/or a high concentration of epinephrine, since the risk of toxicity is highest. Because data is the lifeblood of our treatment decisions, and because the best practices of tumescence are not well documented, please take a moment to add your voice and opinion by taking the survey found at https://www.surveymonkey.com/r/77ZZR79.

References

1. Personal email communication with Drs. Robert True and James Harris. Instruction during ISHRS FUE Regional Workshop in Denver, Colorado; October 2-3, 2009.
2. Wolf, B.R. Overview of anesthesia. In: W. P. Unger, et al. *Hair Transplantation*, 5th edition. Chapter 8: Anesthesia. Marcel Dekker: New York, 2011; p. 234.
3. Morganroth, P.A., et al. A randomized, double-blind comparison of the total dose of 1.0% lidocaine with 1:100,000 epinephrine versus 0.5% lidocaine with 1:200,000 epinephrine required for effective local anesthesia during Moh's micrographic surgery for skin cancers. *J Am Acad Dermatol.* 2009; 60(3):444-452.
4. Gillespie, J.D.N. Tumescent anesthesia in hair transplantation. In: W.P. Unger, et al., *Hair Transplantation*, 5th edition. Chapter 8: Anesthesia. Marcel Dekker: New York, 2011; pp. 235-237.
5. Abbasi, G. Hair transplantation without post-operative edema. *Hair Transplant Forum Int'l.* 2005; 15(5):149, 158. ■

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A Brief Study Examining the Variability of PRP with Different Preparation Systems

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ABSTRACT

The use of platelet-rich plasma (PRP) as a means to improve hair growth and limit hair loss has been advocated by numerous hair restoration doctors. Many clinicians and investigators feel that some of the various growth factors attached to platelets can promote hair growth and reactivate senescent hair follicles. Based on various reports in the scientific literature, the response to this type of treatment has been inconsistent at times.

While clinicians use the acronym PRP for all versions of concentrated platelets, it may be that not all PRP preparations are equal. It is conceivable that some of this variation in response may relate to differences in the concentration of platelets produced depending on the PRP system being employed.

In this brief study, the authors evaluated the concentration of platelets produced by four different commercially available systems. The platelet counts in the PRP were compared to whole blood concentration of platelets in each patient. The results demonstrated wide variance in platelet concentrations among the different systems.

INTRODUCTION

The use of PRP for wound healing has been well documented. It has been used for problems ranging from orthopedic injuries to dentistry. In 2005, Uebel reported on the use of PRP as a treatment for hair loss.[1,2] Other physicians elected to try this therapy for androgenetic alopecia, as well as other types of alopecias, with varying success.[3-7] Recently, Puig et al. used PRP for the treatment of androgenetic alopecia in women.[8] The results of that study did not show significant improvement in hair growth.

At the same time, other physicians reported success for male and female pattern androgenetic alopecia. Such variation of response prompted an interest in trying to ascertain what parameters might account for the differences in results. Such parameters include injection method, types of cells included in the preparation, protocol for injection (i.e., frequency of injection, amount injected at each site, micro-needling, or injection directly into the scalp) as well as other factors.

One obvious factor is the concentration of platelets achieved with the system used to create the PRP. In this brief report, the authors analyze the concentration of platelets obtained with four different PRP preparation systems.

MATERIALS AND METHODS

Four systems for obtaining PRP were evaluated: Arthrex ACP® Double Syringe System (Arthrex Inc.; Naples, Florida), Eclipse PRP® System (Eclipse Aesthetics LLC; The Colony, Texas), Selphyl® System (Factor Medical LLC, Langhorne, Pennsylvania), and generic yellow-top tubes that were spun to provide platelets.

For each system, four or five patients provided whole blood. The blood was centrifuged and prepared for PRP as instructed per each manufacturer's system and its proprietary centrifuge. Once the PRP was prepared, approximately 1cc of the highest concentrated PRP from the lower part of the plasma was put into an appropriate tube and sent for evaluation at the same independent lab. A Coulter counter was used to provide the platelet concentration.

RESULTS

The platelet count results are listed in the table below. Looking at the table, you'll note that marked differences were observed in the systems tested. The Eclipse System averaged 3.23 times the whole blood concentration of platelets. The Selphyl System averaged 1.16 times the whole blood concentration of platelets. PRP made from blood placed in a yellow top tube averaged 1.67 times the initial concentration. The Arthrex System gave concentrations that averaged 6.34 times the starting platelet concentration.

PRP Prep	Whole Blood	PRP Conc.
Eclipse	238	298
Eclipse	356	789
Eclipse	243	1,548
Eclipse	169	524
Selphyl	215	309
Selphyl	213	288
Selphyl	222	238
Selphyl	133	190
Selphyl	219	119
Yellow	230	307
Yellow	265	419
Yellow	186	391
Arthrex	266	1,781
Arthrex	262	1,171
Arthrex	428	2,053
Arthrex	239	2,128
Arthrex	181	1,252

DISCUSSION

The concentration of the PRP obtained from different commercial systems can vary markedly. Some systems do not seem to concentrate the platelets to any significant extent.

A major difference between the systems is the amount of

collected whole blood. While most systems require around 15-22cc of blood, the Arthrex System uses over 120ml of blood. This typically yields more PRP and may also have led to a higher concentrated, less diluted sample.

It is important to note that one could cite several concerns in such a study. Obviously, the sample size is quite small. The author suggests that others undertake similar studies to demonstrate concentrations achieved with their chosen system(s) and not rely on manufacturers' claims.

It is possible that the samples provided were not optimal for testing with the Coulter counter used. Although the lab did not note clumping, it is possible that clumping of platelets could account for lower concentrations of measured platelets. One might expect such clumping to occur with the other preparations as well if that were the case.

In spite of showing that some systems concentrate platelets to a greater degree than others in this study, one could ask whether platelet concentration is a key determining factor in efficacy for treatment. There is the question of how platelet concentration may relate to growth factor concentration, release, and action etc. Other questions to be answered are, what is the optimal concentration of platelets and is there an inhibitory concentration of platelets.

As for treatment response, we have noted increasing successes with PRP treatment for androgenetic alopecia. Nevertheless, it is unclear as to how often patients should be injected, how much should be injected, or even how PRP should be injected. Some physicians have advocated the use of ACell's MatriStem® (ACell, Inc.; Columbia, Maryland) to enhance the effect of PRP. We have used it with PRP and have observed a positive response.

As a final word of caution, some clinics are preparing PRP by simply spinning down the blood in a laboratory tube used for *in vitro* testing. Clinicians should be aware that such tubes are not designed for *in vivo* usage and the FDA has indicated that use of such tubes is illegal. The tubes often have substances that could be dangerous to a patient if injected.

In future studies, it would be helpful for investigators to discuss the important parameters for harvesting PRP and injection techniques so that we are better able to compare systems and results. When comparing systems, techniques, and results, it may be helpful to measure the actual platelet concentration and not rely on the manufacturers' claims.

References

1. Uebel, C.O. A new advance in baldness surgery using platelet-derived growth factor. *Hair Transplant Forum Int'l.* 2005; 15(3):77-84.
2. Uebel, C.O., et al. The role of platelet plasma growth factors in male pattern baldness surgery. *PRS.* 2006; 118(6):1458-1466.
3. Greco, J., and R. Brandt. Preliminary experience and extended applications for the use of autologous platelet-rich plasma in hair transplantation surgery. *Hair Transplant Forum Int'l.* 2007; 17(4):131-132.
4. Schiavone, G., D. Raskovic, and J. Greco. Platelet rich plasma for androgenetic alopecia: a pilot study. *J Dermatol Surg.* 2014; 40(9):1010-1019.
5. Gentile, P., et al. The effect of platelet-rich plasma in hair regrowth: a randomized placebo controlled trial. *Stem Cells Transl Med.* 2015; 4:1317-1323.
6. Li, Z.J., et al. Autologous PR: a potential therapeutic tool for promoting hair growth. *J Dermatol Surg.* 2012(Jul); 38(7):1040-1046.
7. Singh, B., and L.J. Goldberg. Autologous platelet-rich plasma for the treatment of pattern hair loss. *Am J Clin Dermatol.* 2016; 17(4):359-367.
8. Puig, C.J., R. Reese, and M. Peters. Double-blind, placebo-controlled pilot study on the use of platelet-rich plasma in women with female androgenetic alopecia. *J Dermatol Surg.* 2016; 42(11):1243-1247. ■

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How to Avoid Overharvesting During Repeat Follicular Unit Excision Sessions by Calculating the Number and Density of Previously Excised Grafts

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INTRODUCTION AND OBJECTIVE

Donor area alopecia has become an issue after follicular unit excision (FUE). Even though the size of each FUE scar is small, a large number of scars can result in thinning of the hair in the donor area.[1-5] In order to reduce thinning in the donor area, overharvesting of follicular units (FUs) should be avoided.

Sometimes after FUE at another clinic, a patient visits our clinic for a second session. To avoid overharvesting of FU grafts, it is necessary to know the total number of excisions, excision density, and hair follicle transection rate that occurred during the patient's previous session. However, it is usually difficult to obtain precise information about the graft transection rate from other clinics. In response to this concern, this author developed methods to calculate the excision density from previous surgery and to determine the safe excision density for future sessions.

PATIENTS AND METHODS

This study included five patients who visited our clinic for a second session of FUE. Each patient had undergone his first FUE hair transplantation in the frontal area at another clinic. Transplantation was carried out using a motorized FUE machine, a suction-assisted motorized FUE machine, or a robotic FUE machine. For their second session at our clinic, all patients requested strip excision surgery (FUT) to increase density in the frontal area.

Hair in the safe donor area was clipped before the FUT session. The number of FUs per square centimeter was counted using Vario Plus (Eschenbach) at three points: the parietal, the mastoid, and the mid-occipital areas. The average FU density at each point was measured in areas with and without FUE scars.

The baseline FU density in the area without FUE scars and the residual FU density in the post-FUE area were compared. The difference of the data gave us information about the excision or scar density. By measuring the surface area of FUE and multiplying it by the excision density, we then can calculate the number of excisions.

If we know (and can rely on) the number of grafts reported to have been transplanted, we can then estimate the percentage of "lost grafts" during the previous FUE harvesting, which we consider equal to the total transection rate.

RESULTS

1. Ratio of FUs in the donor without hair regrowth (scars) to pre-op density

The first patient, a 23-year-old male, had undergone 1,300 grafts at his first FUE session. His baseline FU density was 56 FU/cm^2 and his residual donor FU density was 43 FU/cm^2. Therefore, his density of excisions was 56 – 43 = 13 FU/cm^2. His ratio of scars to pre-op density was 13/56, or 23%.

The second patient, a 33-year-old male, had undergone 400 grafts at his first FUE session. His baseline FU density was 63 FU/cm^2 and his residual donor FU density was 48 FU/cm^2. Therefore, his excision density was 15 FU/cm^2 and his ratio of scars to pre-op density was 15/63, or 24%.

The third patient, a 44-year-old male, had undergone 1,600 grafts at his first FUE session. His baseline FU density was 68 FU/cm^2 and his residual donor FU density was 39 FU/cm^2. Therefore, his excision density was 29 FU/cm^2 and ratio of scars to pre-op density was 29/68, or 43%. (See Figure 1.)

FIGURE 1. FUE scars in the occipital area in the third patient.

The fourth case, a 21-year-old male, had undergone 720 grafts at his first FUE session. His baseline FU density was 62 FU/cm^2 and his residual donor FU density was 35 FU/cm^2. Therefore, his excision density was 27 FU/cm^2 and ratio of scars to pre-op density was 27/62, or 44%. (See Figure 2.)

FIGURE 2. FUE scars in the occipital area in the fourth patient.

The fifth patient, a 37-year-old male, had undergone 1,700 grafts at his first FUE session. His baseline FU density was 65 FU/cm^2 and his residual donor FU density was 40 FU/cm^2. Therefore, his excision density was 25 FU/cm^2 and ratio of scars to pre-op density was 25/65, or 38%.

2. Total transection rate

In the first case, the FUE surface area was 136cm^2. The estimated total number of excisions was 13 × 136 = 1,768. The availability of intact FUE grafts was 1,300/1,768, or 74%. The total transection rate was 100 – 74 = 26%.

In the second case, the FUE surface area was 48cm^2. The estimated total number of excisions was 720. The availability of intact FUE grafts was 56%. The total transection rate was 44%.

In the third case, the FUE surface area was 100cm^2. The estimated total number of excisions was 2,900. The avail-

ability of intact FUE grafts was 55%. The total transection rate was 45%.

In the fourth case, the FUE surface area was 80cm^2. The estimated total number of excisions was 2,160. The availability of intact FUE grafts was 33%. The total transection rate was 67%.

In the fifth case, the FUE surface area was 160cm^2. The estimated total number of excsions was 4,000. The availability of intact FUE grafts was 43%. The total transection rate was 57%.

3. Cross section of the scalp tissue

The donor strip was slivered during the FUT session. Cross sections of the donor scalp revealed that scar tissue occupied the full thickness of the scalp from the epidermis to the subcutaneous adipose tissue at each FUE excision. (See Figures 3, 4, and 5.)

FIGURE 3. Cross section of the donor scalp in the first patient. Arrows indicate FUE scars from the epidermis to the subcutaneous adipose tissue.

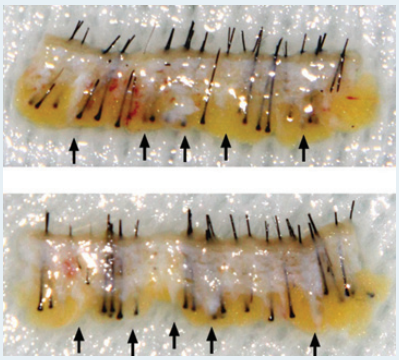
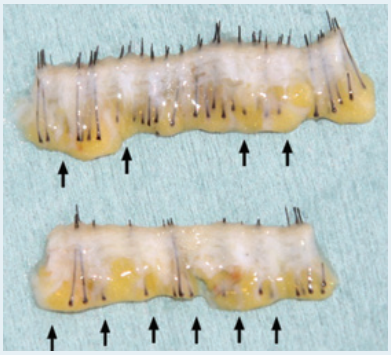


FIGURE 4. Cross section of the donor scalp in the fourth patient. Arrows indicate FUE scars.

FIGURE 5. Cross section of the donor scalp in the fifth patient. Arrows indicate FUE scars.



DISCUSSION

In repeat FUE cases, it is usually difficult to obtain precise information concerning excision density and graft transection rate that occurred at the first FUE surgery at a previous clinic. In order to avoid visible thinning in the donor area after subsequent sessions, we need to assess the safe excision density to maintain cosmetic residual density in the donor area.

Visible donor area scarring and low cosmetic density will occur if too many FUs are excised from the donor area. Patients tend to consider that it is the last doctor seen who is responsible for the visible thinning and donor area alopecia. The initial doctor, who harvested too many grafts at the first FUE session, is usually not accused as long as the patient does not notice the thousands of FUE scars without hair regrowth in the donor area.

In order to avoid thinning of the donor after repeat FUE sessions, we need a guideline for safe excision limits during repeat sessions. The donor will look noticeably thin if more than 50% of the original terminal hair is harvested after one or more FUE sessions. We need to limit the total number of FU grafts harvested to less than 50% of the baseline FU density. If cosmetic residual density, in general, should be more than 40 FU/cm^2 in the donor area,[5] the safe excision density will be less than 40% of the baseline density in a patient with a baseline density of 56-68 FU/cm^2 in this study.

In repeat FUE cases, we should measure the ratio of residual density and baseline density before the session to calculate the excison density; that is, we need to determine what already has been harvested. Then, we can calculate the percentage of FUE excisions in the donor area, and we will be able to estimate the safe excision density for the next FUE session to avoid overharvesting. Other patient characteristics such as hair color and thickness and desired hair length should also be considered. It is also important to consider different FU densities and excision densities in various parts of the donor area.

Donor hair will be lost if hair follicles are transected during FUE. Lifetime donor availability is limited in hair transplantation. There are often not enough donor follicles to cover a wide area of hair thinning in a patient with type VI and VII male pattern hair loss.

We have to try to avoid transection during hair transplantation. Even if some percentage of hair follicle transection is inevitable during FUE, it is important to keep the follicle transection rate as low as possible during the procedure. If the given numbers of transplanted FUs were correct, then the calculated total transection rates in the patients studied were unacceptably high. Another reason for these high numbers of "lost grafts" could be partially transected FUs that were discarded or buried grafts.

It is not the purpose of this study to compare the quality of various kinds of FUE machines. When used properly, various FUE instruments have their own excellent quality. However, if a machine is not used properly, the hair follicle transection rate will increase.

If an FU graft is totally transected during FUE, the transected graft doesn't grow terminal hair after implantation in the recipient area or in the original donor area. This is the reason why it is important to minimize total graft transection and even follicle transection (partial graft transection) during FUE.[6]

The ratios of lost grafts mostly due to total graft transection were high in patients 3, 4, and 5. Many FU grafts were destroyed and lost during the first FUE sessions in these cases. This may have been due to poor technique, improper instrumentation, or difficult patient characteristics. Performing FUE in a test area in these patients may be a good idea. If the safe excision density should be less than 40-50% of the baseline density, further FUE graft harvesting would be unsuitable in the previously harvested area. Possibly, more FUE grafts can be harvested in other safe donor areas in future FUE sessions in these patients.

If one hair had regrown from a 2- to 3-hair FU graft, it was counted as a 1-hair FU and it was not counted as FU without hair regrowth in this study. This means that the real number of punch holes and the actual (total plus partial) graft transection rate may have been higher than the estimated total graft transection rate in this study.[6]

Usually, many of the 2- to 3-hair FUs with thick hair had already been harvested at the previous FUE session, and

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many of the residual FUs are 1- to 2-hair FUs with thin hair. This means that an excision density of 50% may be too high and a safe excision density will be less than 40% of the baseline density after repeat FUE sessions.[5] If the patient wants to wear a short hairstyle in the future, the safe maximum excision density should be less than 40% of the baseline density.

FUE scars occupy the full thickness of the scalp from the epidermis to the subdermal adipose tissue, and thousands of FUE scars can be distributed in the occipital area. This means that nearly half of the occipital area could be transformed into full-thickness scar tissue after repeat FUE sessions. It is different from an FUT scar, which results in a full-thickness linear scar ideally 1-2mm wide, leaving most of the donor scalp intact without scar tissue.

CONCLUSION

In order to avoid overharvesting of FU grafts and thinning of hair in the donor area in repeat FUE cases, the physician needs to know how many FUs had already been harvested during the previous session. Depending on various factors, the calculation of the previous number of excisions, excision density, and rate of totally transected grafts will provide the physician with useful information to maintain a safe excision density during repeat FUE sessions.

References

1. True, R., et al. FUE roundtable. *Hair Transplant Forum Int'l.* 2016; 26(4):134-159.
2. Jimenez, F. Musicians as a source of inspiration for surgeons. *Hair Transplant Forum Int'l.* 2012; 22(2):41-44.
3. Knudsen, R,. Ethics and follicular unit extraction. *Hair Transplant Forum Int'l.* 2016; 26(4):133.
4. Cole, J.P. Status of individual follicular group harvesting. *Hair Transplant Forum Int'l.* 2009; 19(1):20-24.
5. Keene, S., et al. Determining safe excision limits in FUE: Factors that affect, and a simple way to maintain, aesthetic donor density. *Hair Transplant Forum Int'l.* 2018; 28(1):1-11.
6. True, R. Graft quality index: a morphologic classification of follicular unit excision (FUE) grafts. *Hair Transplant Forum Int'l.* 2018; 28(2):45-53. ■

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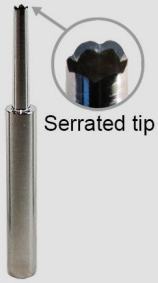

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A Novel Device to Insert FU Grafts into Premade Sites

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Disclosure: The Mohebi Inserter was invented by Dr. Parsa Mohebi. Dr. Mohebi receives royalty from the manufacturer.

INTRODUCTION

Hair transplantation surgery has dramatically improved over the past decade thanks to the emergence of new techniques of follicular unit transplantation (FUT) and follicular unit excision (FUE) allowing for greater efficiency and improved safety.

Sharp implanter devices have been developed because in some countries both the recipient site incision and also the graft insertion has to be performed by the surgeon personally. The popularity of FUE hair transplantation has provoked the development of more advanced devices that potentially increase the speed of the hair transplant procedure. We are now able to perform larger FUE procedures in shorter timespans. Multiple options regarding punch devices have evolved in addition to progress in implanter technology.

The reduction in the size of the punch and the extraction part of the procedure both result in more fragile grafts versus those grafts obtained via strip harvesting. As a result, careful handling of the FUE grafts with forceps may be difficult or too slow. Many surgeons think that implanters may minimize injury to these delicate grafts while also increasing the speed of the procedure.

Problem

Over the past few years, great strides have been made to expedite and enhance the FUE process. As the number of patients seeking FUE continues to grow, many hair transplant surgeons recognize the need for this technique while also embracing its current shortcomings and developing more advanced technologies.

Standard handling includes forceps to hold and insert robust strip FUT grafts. However, handling fragile, skinny FUE grafts and placing them using forceps, in my opinion, could jeopardize the growth of the grafts by applying unnecessary stress upon them. The solution was to develop a method of excision and placing that would minimize a graft's time out of the body. With the advent of simultaneous graft handling, grafts could be excised, counted, sorted, and placed via a rapid continuous circular flow. This method necessitated that sites be made by the surgeon prior to graft excision. The serial excision and placement loop began with the surgeon creating recipient sites and then harvesting grafts, so the placing team could insert them into the premade sites using a new type of dull, non-incisional implanters shortly thereafter. This method potentially minimized the time the grafts remained out of body.

Sharp implanters were initially widely used but they required a team of one or two technicians to manually load the grafts into the implanters before the surgeon could simultaneously incise the skin and implant the grafts. This resulted in the procedure becoming even more dependent upon the surgeon as use of the sharp tip required the surgeon to incise the skin and insert grafts personally. Despite potentially reducing the overall time of the procedure, this device increased the time the surgeon had to spend in the operating room. To reduce the common problem of buried grafts, Dr. Tommy Hwang invented the sharp Hwang Implanter, which also had a depth control that facilitated the controlled insertion of grafts by the surgeon.

Next came dull implanters, introduced by Mauro Speranzini. Dull implanters possessed a distinct advantage over sharp implanters because they did not require the surgeon to insert the grafts. In most countries, graft placing into premade sites can be done by technical assistants. Instead, incisions were carefully premade in advance by the surgeon allowing one or two technicians to load the grafts while others inserted them. This setup still required two groups of technicians with one group as loaders and another group as placers.

In an effort to reduce the number of technicians and steps involved in placing the grafts, Sajeev Vasa's SAVA® Implanter and Koray Erdogan's KEEP (Koray Erdogan Embedding Placer) offered a simple twist to the dull implanters by combining the benefits of a blunt tip with a single tech loading mechanism. This compact, easy-to-handle device allowed each technician to load and place their own grafts into premade sites created by the surgeon, just as they would do traditionally with forceps placing. Once in the site, each graft was guided along the length of a narrow groove with the aid of forceps.

The KEEP furthered the concept of minimizing the number of technicians encircling a patient's head. It allowed for simultaneous excision and placement of grafts into premade sites. One drawback to the KEEP compared to forceps placing alone or pre-loaded implanters, though, was that each technician still had to use both hands because the placing person needed to hold the device in one hand while guiding the graft with a forceps held in the other hand. Despite using the KEEP, the area around the patient's head was still a crowded field as it did not allow more than one placer to insert the grafts into premade sites while the surgeon and his or her assistants were simultaneously harvesting grafts.

To further improve this concept, we developed a graft inserter that could be loaded and deployed with only one hand by the same technician (Figures 1 and 2). We decided to call it "inserter" to further emphasize that it is a dull, non-incisional device and not a surgical instrument to make incisions such as a sharp implanter. Therefore, in most countries, it can be used by assistants.

FIGURE 1. The Mohebi Inserter

FIGURE 2. Close-up of tip

The development and

design advancement of the inserter took into account that the area around the patient's head is premium space. The compact Mohebi Inserter allows for reduced elbow room. Thus, the excising surgeon, the graft-extracting technician, and two placers equipped with the Mohebi Inserter are able to perform their task in limited space. This inserter allows technicians to do the following:

- Load their own grafts (Figures 3 and 4).
- Use only one hand for inserting the grafts into pre-made sites (Figures 5 and 6).
- Comfortably switch hands depending of the angle of the sites.
- Keep their distance from the patient's head allowing for simultaneous graft excision and placing into premade sites.

FIGURE 3. Technicians arrange the grafts on their gloves *(left)*. Grafts are arranged all in one direction *(right)*.

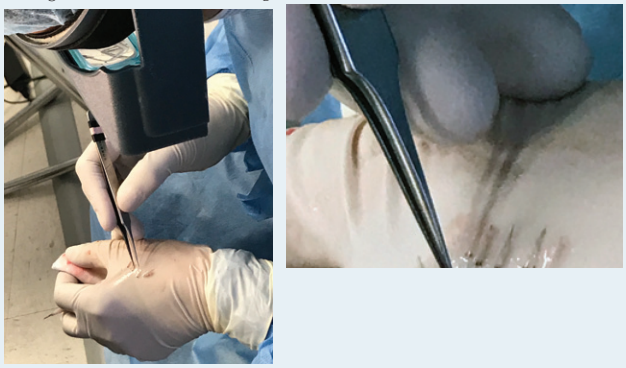


FIGURE 4. Inserter orientation *(left)*. Inserter slot is placed over the bulb of the graft *(center)*. Inserter is retracted so the graft gets inserted into the lumen *(right)*.

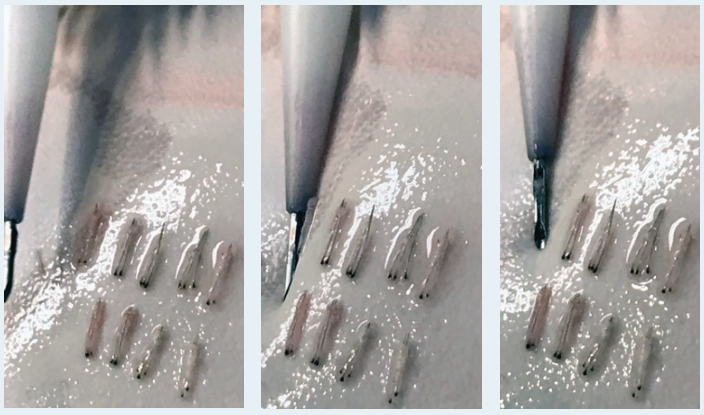


FIGURE 5. The tip of the inserter is inserted into the incision *(left)* and the inserter is advanced into the incision *(right)*.

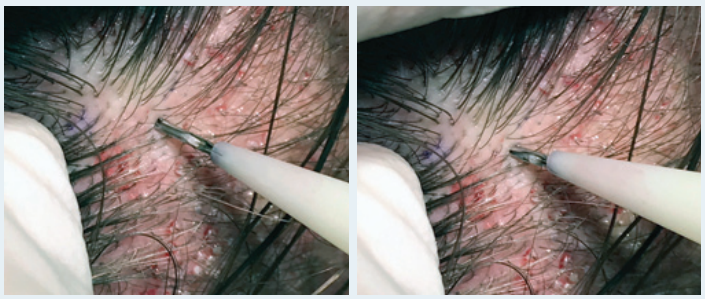
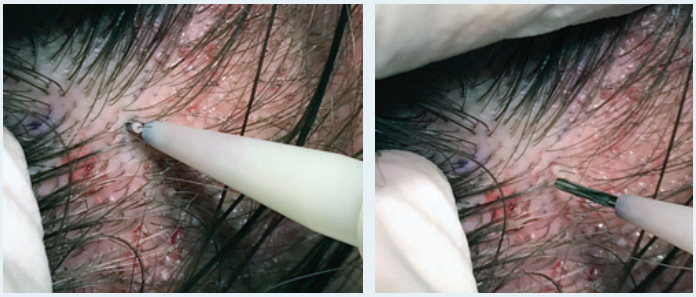


FIGURE 6. The inserter's plunger is pushed to implant the graft *(left)* and the graft is implanted and the inserter is removed *(right)*.



Solution

The Mohebi Inserter possesses a narrow slot through which technicians may load their own grafts before placing them just by rolling the inserter over the grafts. Previous devices either had to be pre-loaded or required the use of two hands. Simple modifications, such as using loupes with a long focal point, allow for an adequate distance from the patient's head during placement. Maintaining an arm's-length working distance and the use of a single-hand implanter have given way to allowing for simultaneous excision and placement into premade sites. With its one-person, one-hand design, the Mohebi Inserter offers increased space around the patient and makes inserting more efficient.

HOW THE MOHEBI INSERTER WORKS

Loading

The Mohebi Inserter has a unique loading system that can accommodate grafts of varying sizes. During graft loading, the technician holds the device in the dominant hand while grafts are arranged in a tidy row over the other hand. A brief pre-sorting on the front end helps expedite loading the grafts into the inserter. The inserter shaft has a unique tear-drop-shaped slot on one side that is rotated downward to hover over the bulbs of the follicles. The inserter is then lowered so the bulbar ends of the grafts enter the opening. The next step is to gently push down and pull the inserter back, so that the grafts can smoothly enter the lumen of the inserter. A correctly loaded inserter has the bulbar end of the graft lying well protected within the lumen of the inserter while the graft's epidermal side can be out and visible.

Placing

After loading a graft, the dull tip of the graft inserter is gently inserted into the incision previously made by the surgeon without deploying the plunger. The technician can insert the entire dull needle of the inserter into the incision in order to identify the track of the premade incision before deploying the plunger. The other option would be to insert only the distal 1mm of the inserter tip before deploying the plunger.

When the inserter is positioned properly inside the incision, the plunger is deployed directing the graft swiftly inside the incision. The opening on top of the inserter is held upward during deployment of the plunger so the technician can visualize the location of the graft and be assured of the graft's proper deployment. Once the graft is in position, the technician needs to rotate the inserter such that the skin

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cap lies parallel to the scalp. Depth control (designed by Dr. Tommy Hwang) prevents the grafts from being buried. The graft skin cap must be oriented parallel to the skin and slightly above the surface. This allows the curvature of the grafts to follow a natural curve of the hair follicle in the area.

Advantages

The Mohebi Inserter has many benefits by virtue of its easy-to-master technical aspect; tight space, single-person design; and compact handle. This inserter is designed to deliver consistent and reliable results. One of the most important issues is minimizing the space that every technician needs around the patient's head. Given that the Mohebi Inserter can be loaded and deployed with only one hand, the predicament of limited space becomes inconsequential as the fight over elbow room and workable space is not an issue.

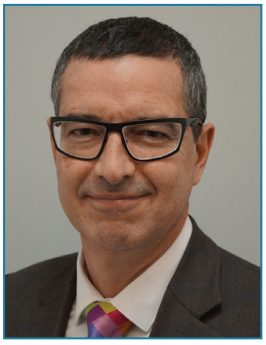
SUMMARY

The Mohebi Inserter is a dull implanter designed to potentially reduce the manipulation of the hair follicles during the placement process into premade sites. See our instruction video at: http://parsamohebi.com/resources/dr-mohebis-innovations/inserter. Having premade sites allows two technicians to start placing while the surgeon and a technician harvest the grafts. One-handed placement of the grafts with the Mohebi Inserter allows the technicians to further distance themselves from the patient while decreasing the space to perform placement around the patient's head. This much needed space is crucial in maximizing the number of placers that can fit around the patient's head, and this is particularly true during the simultaneous excision and placement process.

The Mohebi Inserter was developed in response to the need for a device that could load and deploy grafts into premade recipient sites by a single user. This inserter borrows its plunger from the traditional sharp implanter, exhibits similarities to the Vasa and KEEP graft placers, and uses a similar mechanism for depth control as the Hwang Implanter. The inserter has a short learning curve, which allows new technicians to quickly become efficient. The Mohebi Inserter may become a useful addition to the arsenal of tools needed to successfully perform an FUE procedure.

Editor's note: This is an interesting new device combining and improving ideas from other placing instruments. We are seeing more and more instruments for FUE harvesting and placing. However, many claims have not been proven. We rarely see long-term results. For harvesting instruments, we need transection rates and data about the graft quality. For placing devices, we need data regarding cosmetic outcome and survival rates. Does increased speed and simultaneous harvesting and placing impair the quality of the procedure? Is there really such a thing as a one-hand device? Are grafts injured or squeezed during loading and placing? Is the use of implanters actually an improvement over forceps placing? What are the survival rates and complications compared to forceps, which allow the placer to feel the recipient site and see the graft while placing?

Many users of forceps have developed great skill to place grafts. They like the fact that it allows them to rate and choose the graft and place it into the most appropriate area according to the cosmetic preferences. They also like that the grafts can be grasped and put in the desired direction without major manipulation or twisting. Is this possible with other placing instruments? —AF ■



Medical and Professional Ethics

Gregory Williams, MBBS, FISHRS | *London, England, UK* | dr.greg@farjo.com

Spotlight on Honesty with Patients

The second paragraph of the ISHRS Code of Ethics states: *"The member acknowledges that he or she is in a position of trust and will not betray that trust."* Patients put their trust in us as private practice doctors to do several things: to look after their health and well-being, to do no harm, to advise what is in their best interest both for the short term and for the long term, and to have the skills to do the procedure they are paying us to perform.

As hair transplant surgeons, patients trust us to be honest, to do what we have agreed pre-operatively to do, and to tell them what we have actually done. When we have not been able to achieve what we set out to do, or when there has been a complication, we ought to be truthful and tell them.

In the United Kingdom, this is referred to as the Duty of Candour and is spelled out in a document by the General Medical Council called Openness and Honesty When Things Go Wrong: The Professional Duty of Candour (www.gmc-uk.org/-/media/documents/DoC_guidance_englsih.pdf_61618688.pdf). The principle within this guidance is that every healthcare professional must be open and honest with patients when something that goes wrong with their treatment or care causes, or has the potential to cause, harm or distress. This means that healthcare professionals must

- tell the patient when something has gone wrong;
- apologise to the patient;
- offer an appropriate remedy or support to put matters right (if possible); and
- explain fully to the patient the short- and long-term effects of what has happened.

How are these principles relevant to hair restoration surgery? There are some situations common to, and some unique to, the strip follicular unit transplant (strip FUT) and follicular unit excision (FUE) methods.

When planning a strip FUT procedure, the hair transplant surgeon makes a prediction of the number of grafts that will be harvested. What is the correct course of action if this number is not achieved? Should patients be given a refund for grafts not achieved? This will be partly dependent on how the patient has been counselled pre-operatively, what they are expecting, and the fee structure that has been agreed upon. It is important for patients to clearly understand the difference between "follicles" and "grafts," and that a graft is usually equivalent to a follicular unit not a follicle. Some hair transplant clinics charge per follicle, some per graft, and some per "session." If charging by graft then, if there is a shortfall, the planned number can be artificially manufactured by splitting grafts. Is this being honest since it does not in fact increase the number of hairs transplanted? What if too many grafts were harvested? If specific arrangements have not been made, should the patient be charged extra, should the grafts be discarded, or should they be "gifted" to the patient?

Reflective Question: Do I make it clear to my patients pre-operatively what the arrangements will be post-operatively if I have not achieved the graft numbers I was expecting to get or if I harvested too many grafts with the strip FUT method, and do I clearly record in the operation notes and tell patients exactly what has transpired especially with FUE surgery?

When performing FUE, there will be an inevitable partial graft transection rate, total graft transection rate, and follicle transection rate. Should patients be told these statistics since they might have implications for planning future FUE procedure graft numbers? They might also impact on the amount of scarring that has occurred in order to achieve the intended graft numbers and therefore limit further FUE graft harvesting. There is a greater expectation with FUE that the exact number of grafts paid for will be delivered since there is not the same mass harvesting of follicles as with the strip FUT method. So, if the surgeon is not able to harvest the required number of follicular units, should some be split in order to be able to tell the patient that the required number of grafts were achieved even though this doesn't change the actual numbers of follicles harvested or transplanted?

One of the idiosyncrasies of hair transplant surgery is that patients will never know exactly how many follicles/grafts were harvested and transplanted. Only the staff will know this and even then, only if there is strict quality control will this be accurately known.

The third paragraph of the ISHRS Code of Ethics states: *"The member will not take emotional or financial advantage of patients."* Hair transplantation in the private sector is, by definition, done for financial gain. However, there is a difference between patients being aware of the billing arrangements and agreeing to them, and patients thinking they have paid for something but not actually having this delivered because of dishonest behaviour.

I have been told by colleagues who worked for large commercial clinics that the non-clinical managers of these organisations expected that every patient who booked in for a consult would have surgery recommended to them. Making a judgment on what is the safe donor is a key element of the patient examination and the more experienced hair transplant surgeons will know that some patients are just not suitable for hair transplantation. Taking into account the current, and future, donor : recipient ratio and advising patients when a hair transplant is not in their best interest is a hallmark of an ethical consultation. Just because patients think they are suitable for a hair transplant procedure or request one, doesn't mean it should be recommended to them. Financial gain should never be put ahead of patient welfare. ■

Controversies

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Losing Our Patients

Technology continually changes the way we operate and also the way we advertise for, and communicate with, patients. Gone are the days of Yellow Pages business directories where there was some control over advertising content in that "truth in advertising" regulations applied. "Fluff" was allowed (e.g., "we are the best clinic in the world," which only qualifies as exaggeration), but outright deception could be challenged.

The arrival of the internet has changed everything. Not only websites and optimising "Google searches," but also the arrival of social media where there is virtually no control over posted content. As a result, unscrupulous, dishonest advertising has flourished and non-physicians (i.e., businesspeople) have begun flocking into our marketplace. The result is that many "illegal" clinics (non-physicians illegally performing FUE transplants) in many countries have resulted in a price war that sees a race to the bottom in pricing. The advantage to patients with limited funds is clear. They are now more able to access a service previously beyond their budget. The problem is that it now seems to them to be a simple, common product.

Two recent emails from patients made me take notice. The first email said: "I am prepared to pay $3,000 for 1,500 FUE grafts. Are you interested?" This is product shopping as clearly the price is the most important factor. The second email was more troubling: "Hi. I am a patient of yours from 5 years ago and am happy with the result of the transplant. I have lost more hair and I notice on the internet there are much cheaper options than you. I hope you would be charging a discount rate because, let's face it, it's not rocket science." So, it appears I have a happy patient who respects my work but doesn't respect the procedure?

The fact that FUE doesn't seem, to many patients, to be surgery has allowed this false impression to take hold. To its credit, the ISHRS has taken a stand against non-physician performed surgery and expects its members to follow the regulation. However, in our own practices, we now need to combat the dishonest and illegal marketing that the internet allows. In fact, it could be argued that Google reviews, for example, encourage dishonest content with fake reviews literally flooding the market but enhancing the credibility of the dishonest advertiser.

What are we to do in the face of this onslaught? Cosmetic medical tourism is only interested in performing the surgery as a one-time visit. Medical management and follow-up are usually nonexistent. Who amongst us has not had the experience of being asked to manage the follow-up of a "patient" (actually more accurately described as a "client") returning from an overseas surgery? Herein lies some of the answers to the problem. We have to encourage a personal dialogue and ongoing relationship with our prospective and actual patients. If you use consultants, make sure you actually introduce yourself to the patient at that first visit. Encourage a holistic approach to hair loss with proper discussion of the medical therapies that may be useful to the patient.

As well, we have to acknowledge that there is a segment of the patient marketplace that completely underestimates the complexity of the surgery and therefore expects to pay very little for the surgery. These were never our patients and we should not chase them using the offer of ever-lower pricing. If we don't respect our services, why should patients? They have no idea of the cost of provision of modern transplants with use of bio-enhanced solutions, etc. We cannot make it uneconomic for ourselves and survive long term in the field.

We should continue to provide quality service at a fair price and to educate our patients (via website, social media, consultation, etc.) that we are not just providing a simple product but rather a comprehensive service.

In Australia, it appears the number of patients having hair transplants is increasing but that most of the increase is being exported via medical tourism. This has to be partly expected via the democratisation of the internet marketplace, but it should not be a cause for panic by quality providers. There are many people who are interested in being educated about their options, both medical and surgical. We should continue to provide quality service at a fair price and to educate our patients (via website, social media, consultation, etc.) that we are not just providing a simple product but rather a comprehensive service. The care and skill of an experienced physician is crucial to the outcome and patient satisfaction. ■

Literature Review

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Endocrine Induced Alopecia with Breast Cancer

Freites-Martinez, A., et al. Endocrine therapy-induced alopecia in patients with breast cancer. *JAMA Dermatol.* 2018; 154:670-675.

In a recent case report from Memorial Sloan Kettering Cancer Center, researchers examined the role of endocrine therapies including aromatase inhibitors (anastrazole, letrozole, leuprolide with lestrozole, and exemestane) and selective estrogen receptor modulators (tamoxifen, raloxifene, toremifene) in women developing alopecia while being treated for breast cancer. The study excluded those who had undergone cytotoxic chemotherapy or who had a previous diagnosis of alopecia or any scalp condition. They identified 112 females with hair loss who were seen between 2009 and 2016. Participants answered the Hairdex questionnaire (used to assess impact on QoL) and clinical photographs were taken to obtain an alopecia score. The researchers attributed alopecia to aromatase inhibitors in 75 patients (67%) and to tamoxifen in 37 patients (33%). Improvement with minoxidil was seen in 80% of the 46 patients who were treated.

Comment: We have all heard of CIA, chemotherapy induced alopecia, but now we are learning that EIA, endocrine-therapy induced alopecia, may also exist. This study is the largest number of patients with EIA described in the literature to date. It reminds us that estrogens and androgens both play a role in hair loss. When endocrine receptor activation and pathway signaling is blocked, DHT levels can increase and may help create an AGA-like picture in susceptible women. This study is especially important in light of recent class action litigation blaming single chemotherapeutic drugs like Taxotere (docetaxel) for hair loss in breast cancer. This study is limited by its retrospective nature and possible selection or recall biases that may be associated. More research is needed. ■

Don't miss Featured Guest Speaker at the 2018 World Congress in Hollywood:

Mario E. Lacouture, MD
Dermatology Service, Department of Medicine
Memorial Sloan-Kettering Cancer Center, New York, USA

Lecture: "Chemotherapy Induced Alopecia and Endocrine Therapy Induced Alopecia"

New Guidelines on PSA Screening

U.S. Preventive Services Task Force. Screening for Prostate Cancer: U.S. Preventive Services Task Force Recommendation Statement. *JAMA*. 2018; 319:1901-1913.

The U.S. Preventive Services Task Force (USPSTF) has issued a recommendation statement on PSA (prostate-specific antigen) screening for men. They analyzed the data from 3 of the largest randomized clinical trials, each with at least a decade of median follow-up: the U.S.-based Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial, the European Randomized Study of Screening for Prostate Cancer (ERSPC), and the Cluster Randomized Trial of PSA Testing for Prostate Cancer (CAP). For men aged 55-69, they recommend the decision to undergo screening be an individual one. Patients should discuss the potential benefits and harms with their physician to decide. Men can receive false positive results that may require additional testing or prostate biopsy. Incontinence and erectile dysfunction can occur as a result of unnecessary invasive procedures. Clinicians should not screen men who do not express a preference for screening (C recommendation). The USPSTF recommends against PSA screening for prostate cancer in men 70 years and older (D recommendation).

Comment: The lifetime chance of being diagnosed with prostate cancer is approximately 13%, and lifetime risk of dying from it is 2.5%. That being said, the median age of death from prostate cancer is 80 years. Men of African ancestry have a lifetime incidence that is 4.2% versus 2.9% for Hispanic men and 2.3% for white men and 2.1% for Asian and Pacific Islander men. This article is relevant because we discuss PSA screening with our patients in the context of finasteride use. We explain that their clinicians must double the PSA in order to get the true value. However, many men may not even undergo routine PSA screening given these new guidelines. We should not assume that all patients will be tested for PSA. ■

Hair's the Question

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*The questions presented by the author are not taken from the ABHRS item pool and accordingly will not be found on the ABHRS Certifying Examination.

Tumescence is a component of many hair surgeries and is used in different ways for different purposes. For novice or intermediate skill level hair surgeons, learning the nuances of when to use tumescence can be a game changer. For instance, does tumescence assist graft extraction with FUE or help post-operatively? Does tumescence cause graft popping during placement or help avoid graft popping? Challenge your knowledge of the uses of tumescence with these questions.

Tumescence

1. According to an article by Dr. Abbasi Gholamali (Hair transplantation without post-operative edema. *Hair Transplant Forum Int'l.* 2005; 15(5):cover page, 158), the "Abbasi Solution" for tumescence is composed of which of the following?
   A. 100cc normal saline with 1cc epinephrine (1/1000) and 1cc Triamcinolone (40mg/ml)
   B. 500cc normal saline with 5cc 1/1000 epinephrine
   C. 1cc Triamcinolone (40mg/ml) with 50cc 1% lidocaine and 250cc normal saline
   D. 250cc normal saline with 10-20mg triamcinolone, and 50cc 2% lidocaine

2. What advantages are associated with the use of the "Abbasi Solution" in the RECIPIENT area?
   A. Reduced post-operative edema and telogen effluvium
   B. Reduced post-operative pain
   C. Decreased bleeding from the donor area for either FUT or FUE
   D. Faster healing

3. Tumescence in the DONOR area during an FUE surgery is generally suggested to be
   A. placed deep (i.e., 3-4 mm) and in larger volumes in order to produce turgor and tamponade bleeding within the tissue.
   B. placed superficially (i.e., just below the epidermis) in order to stabilize the entry of the punch.
   C. avoided completely since it can cause grafts to splay within the tumesced fat.
   D. used only with body or beard hair FUE transplant.

4. Tumescence in the DONOR area during an FUE surgery is generally suggested to be
   A. 0-3cc, but only in the area of immediate harvest.
   B. 5-10cc.
   C. 10-20cc placed as superficially as possible and simultaneously over the entire donor area.
   D. composed of 50% epinephrine + 50% normal saline.

5. You are performing a hair transplant with a large number of grafts over a large area of bald frontal and mid scalp (either FUT or FUE—for this question, it does not matter). Which of the following is a consequence of recipient area tumescence with 60cc chilled normal saline?
   A. Increased risk of necrosis in the post-operative phase
   B. Increased graft popping from the increased pressure within the tissue
   C. Decreased risk of facial edema as long as the saline is chilled before injection
   D. Sites becoming closer together once the tumescence drains away leaving a more densely packed result

6. Prior to graft harvesting, you tumesce your patient's scalp with a chilled mixture containing normal saline, triamcinolone, epinephrine, and 1% lidocaine. Which of these ingredients raises the risk for post-operative necrosis?
   A. Normal saline
   B. Triamcinolone
   C. Epinephrine
   D. 1% Lidocaine

7. During FUE harvesting, a graft becomes buried. How might tumescence help in this situation?
   A. A targeted injection of tumescent solution will help stop the brisk bleeding associated with the buried graft.
   B. A targeted injection of tumescent solution may help pop the graft out.
   C. Tumescence will not help and likely caused the graft to become buried in the first place.
   D. Tumescence will help widen the harvest site so that the graft can be visualized and removed.

8. During body hair FUE harvest, it has been advocated (by Dr. Robert True via personal communication) to use small amounts of superficial tumescence using diluted lidocaine with scant epinephrine and normal saline in parallel lines ~1cm apart. This technique may assist the surgeon in what critical way?
   A. It stabilizes the very elastic cheek and neck skin if beard hair is being harvested.
   B. It straightens the usually curly/wavy single-haired FUs beneath the surface.
   C. It reduces bleeding, delineates the areas to be harvested, and provides additional surface tension/traction as the punch is inserted.
   D. It acts as local anesthesia without risk of lidocaine toxicity or an anaphylactic reaction.

9. During FUT harvest, which of the following is NOT an advantage of using tumescence of the strip area to be harvested?
   A. Stabilization of the tissue in very tight (i.e., inelastic) scalps
   B. Stabilization of the tissue in very elastic scalps
   C. Lifting of the grafts off the vascular bed and nerves potentially allowing less transection of these structures
   D. Easier slivering with less potential damage to the follicles by staff since the graft units become spread apart and easier to identify

10. During FUT harvest, you want to add tumescence for additional hemostasis and to reduce the risk to the vascular and nerve structures. Your planned strip size is 25cm × 1.2cm (20% elasticity). You want to achieve a reasonable amount of turgor. Which of the following is an appropriate amount of tumescence to expect to use?
   A. 10-50cc
   B. About 50cc
   C. About 100cc
   D. About 200cc

11. Which of the following could be a possible risk of moderate- to significant-volume tumescence during an FUE scalp surgery using blunt punch dissection instrumentation?
   A. Larger scar sizes post-operatively
   B. Wider spaces between hairs of the same FU leading the surgeon to mistakenly take portions of FUs instead of the whole unit
   C. Lifting of the FUs off of the vascular bed causing decreased blood flow and lower survival rates
   D. Follicular rigidity within the tissue as the punch is advanced leading to increased risk of transection

➤ ANSWERS ON PAGE 154

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*In a clinical study by Dr. Harris in over 150 patients and more than 100,000 harvested grafts. General user transection rates may differ.

CONTINUED FROM PAGE 153

Answers

1. **A.** There are a few variations of this (mine adds 1% or 2% lidocaine), but all have the benefit of tumescence and this is the original recipe as written by Dr. Abbasi himself.
2. **A.** Edema is reduced likely due to the use of steroids in the solution. Decreased DONOR area bleeding does not result from use of the Abbasi solution in the RECIPIENT area.
3. **B.** Keeping the skin tension at the surface helps all punches to incise the epidermis and allows the surgeon to be more accurate (i.e., reduces the movement of the target). If you answered C, you have a point—see questions 8 and 11.
4. **A.** D is incorrect since this would generally be considered too much epinephrine (depending on the volume given of course). 50-10cc is too simplistic to be accurate. 10-20cc simultaneously over the entire donor area would not last the duration of the surgery and is therefore incorrect.
5. **D.** This is one of the big advantages of using tumescence in the recipient area. Any tumescence, no matter what the initial temperature at the time of injection, can increase post-operative dependent edema (which is why many practitioners have their patient's sleep at an upright or 45-degree angle the first 3 nights post-op). Graft popping is more likely to be a consequence of additional tumescence being added AFTER graft placement has occurred (or when sites are placed too closely together in the first place).
6. **C.** Lidocaine by itself does not increase the risk of necrosis, but abundant use of lidocaine that is premixed with epinephrine will—due to the addition of the epi!
7. **B.** This answer can be serendipitously discovered for yourself by trying answer A. To my knowledge, no study has linked the use of tumescence with increased rates of graft burial. Neither does tumescence widen the harvest site or improve visualization for removal.
8. **C.** This type of tumescence can be used in the scalp and beard as well, but it does not straighten hair that has wave/curl beneath the surface. Nothing in this question/answer set reduces the risk of lidocaine toxicity or an anaphylactic reaction. Lidocaine toxicity risk can be reduced by using low doses with or without epi to reduce the amount used. Dr. Bob True commented that "the other reason I use this is that it keeps the total dose of local anesthesia well below toxic threshold, which is important when we are anesthetizing large surface areas. The anesthesia also lasts several hours without reinforcement."
9. **A.** This answer is the exception, and therefore the correct pick. It is backward and poor question-writing to word a quiz this way, BUT now readers understand three of the advantages of using tumescence during FUT (strip) harvest: stabilization, vascular and nerve sparing, and follicular protection.
10. **C.** This is correct for an average case size with average elasticity. For the data in this question, I tracked this number (amount of tumescence) for over 3,000 strip surgeries and 90-120cc of tumescence was the final range in my practice. Incidentally, if you really want to do well on my little quizzes (and who wouldn't?), a trick you might have noticed is to do them in reverse order, since I often leave little clues to each question in the subsequent ones.
11. **D.** Although no direct study has been conducted that I know of, this answer makes sense and can be verified in practice on your next FUE case. Tumescence does lift the FUs off the vascular bed, but this does not cause decreased survival rates. Additionally, larger scar sizes post-operatively are not related to the level of tumescence, but to the size and type of punch used. Wider spacing between FUs would generally help decrease transection. ■

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RESTORATION ROBOTICS

Cyberspace Chat

Robin Unger, MD | *New York, New York, USA* | drrobinunger@yahoo.com

Correction of Large Defects in Children

There were recently several cases presented that involved children with larger areas of alopecia. The causes of the alopecia ranged from burns to radiation to mycotic infection resulting in scars. The challenges in these children are complex. First, there is the question of how they will tolerate any surgical procedure. Areas of concern include the length of the surgery, the preparation needed, any potential temporary deformity, and the recovery period. The second major concern is how the results will age with the patient if the area to be treated is an area destined to be affected by androgenetic hair loss in the future.

Opinions varied amongst several experts. The two main approaches were the use of expanders with excision of the scars and hair transplantation. As expected, the surgeons with extensive experience in the use of expanders/excision favored that approach, while others varied in their responses.

The major benefit in using expanders and excising the scars is that the results are seen very quickly and the surgical procedure itself is fairly short in duration. Furthermore, precious donor hair is not being depleted. However, there are drawbacks as well. The use of expanders is daunting for many young people because of the temporary deformity and the associated discomfort. If the area is a region that will be affected by future hair loss, the scars from the excision may become visible as they age. The scar sometimes is visible after the excision and hair transplantation may be required in a second procedure to camouflage the scar.

Alternatively, hair transplantation can be utilized to cover the scar with hair. Transplanting into scar tissue can be difficult, depending on the vascular supply. If the tissue is particularly atrophic and fibrotic, the blood supply may be limited and this can limit the density that can be achieved in a single surgery. If the density of sites exceeds the limit, there may be poor survival of grafts. In many cases, a second hair transplant procedure is required to achieve acceptable density. In addition, scalp micropigmentation (SMP) can be used to create the illusion of more coverage. There are other concerns with utilizing hair transplantation for covering scars in children. First, the procedure is fairly long and this may be difficult for the child to tolerate and/or to remain still. Anesthesia can help, but it also carries additional risks. Second, limited donor hair is utilized and will be unavailable for other alopecia that could develop in the future. Third, if the area is destined to be affected in the future by androgenetic patterned alopecia, it may result in an island of permanent hair being surrounded by alopecia. Using FUE from surrounding areas was suggested by Sebastian Yriart at the ISHRS meeting in Prague. Doing this has several benefits in that the surrounding areas are somewhat "thinned" while moving the FUE to the scar, so the relative difference in density is somewhat lessened. Also, as the surrounding alopecia develops with age, it will similarly affect the grafts in the scar. The main drawback to this method, however, is that the scar will become exposed once again as future male patter baldness (MPB) develops; if it was concerning to the patient as a child, it might likewise be distressing to have it reappear during their 20s or 30s.

The photos in Figure 1 are of a 12-year-old boy who I transplanted three years ago after he had been treated for rhabdomyosarcoma with chemotherapy and proton beam radiation three years prior. I did counsel the patient and his mom regarding the possible advantages of expanders and excision. However, the mother was concerned that more "months of his life" would be affected at this important juncture. She also didn't want him to have more significant scars than he already had—or other possible nerve damage (he already had a left facial palsy from his previous treatments).

We performed hair transplantation with 1,109 FUs to the area (with intra-operative PRP) and the results are shown below. There were a few areas of decreased vascularity encountered during surgery and those areas were transplanted with lower density. Although they were very happy with the results, we recently performed SMP and a second smaller procedure to provide increased density in those areas.

FIGURE 1. Post-radiation hair transplantation

The exchange amongst colleagues started with **Vincenzo Gambino** presenting an interesting case:

A dermatologist referred an 11-year-old boy to me. He had two large bald patches diagnosed as cicatricial alopecia after a mycotic infection. In 2015, he had a biopsy that showed the mycotic infection and the presence of a kerion. He

FIGURE 2. 11-year-old with cicatricial alopecia following mycotic infection

was treated and as the picture shows, some hair did grow back. The dermatologist suggested that he is now ready for FUE transplantation. Both his father and the boy would like me to fill in the bald areas because he is very self-conscious.

Have any of you had similar cases? What are your thoughts?

Jerry Cooley responded first:

I did a couple of cases like this many years ago, similar aged children post-fungal infection. Can't find the photos, but results were good. I had one case of a very large area of scarring alopecia from fungal infection; I referred this to Tony Mangubat, who did a great job with an expander. I think your case should be fine for FUE.

Tony Mangubat added:

Agree, hair transplantation would work well. Jerry's patient had a longer, more irregular defect more suitable for expanders and she also had several surrounding areas of alopecia that were excused with the expanded flap. This child, if motivated, would do well with FUE/FUT.

James Vogel added:

I have had several cases like this in adults with similar scarring alopecia problems.

Yes, grafts can provide excellent coverage, but in some cases the graft survival is lower than expected. We have used PRP to pretreat the scar tissue and have also used it during the transplant to enhance more robust growth.

Melvin Mayer suggested another approach:

I agree that 1-2 sessions of FUE would be the simplest way to cover these two areas, and it certainly seems that they have been stable for over 2 years. The concern would be if MPB would occur over the years and leave a patch of unsightly hair.

A few months ago I had a patient, conjoined male twin at the scalp. The other twin did not survive at birth and my patient had no skull defect on CT. He had several class VI male relatives and along with his RN mother, we chose to do a "lazy S" SR. Fortunately, it closed with very little intraoperative closure tension. It has turned out quite well.

Antonio Ruston helped address the concern that surrounding hair may be lost secondary to MPB:

I agree, Mel. Sebastian Yriart, our colleague from Argentina, showed in Prague a very interesting approach. In these cases, he extracts the FUs from adjacent areas with the same tendency for MPB. Very clever

The second case presented was somewhat similar. **John Gillespie** sought advice on how best to treat a 10-year-old boy who had a severe scalp burn when he was 18 months of age. He wrote:

Please see the photos of 10-year-old who burned his scalp at age 18 months (Figure 3). He is now getting bullied. His mother is interested in hair restoration. I have not seen the child in person. His father and paternal grandfather have excellent hair. His maternal grandfather is thinning but not bald. He has no uncles. What do you think would be the best approach? I am thinking that 2 sessions of transplants would give fairly good coverage, but worry a little about how he would look long term if he becomes bald as an adult. Do any of you think that expanders would be a better idea?

FIGURE 3. 10-year-old with alopecia secondary to burn

Jerry Wong responded with his opinion:

This boy needs both his frontal and temple hairline restored. Only transplants can do both at the same time and maintain the correct angulation for both the top and temples and be able to transition the hair from the top to the sides. It is not that big of an area to transplant and an expander will add another surgery that really is not needed and will not look as natural as going with transplants alone.

Bill Parsley replied:

I tend to agree with Jerry in that after a single session of hair transplantation, the results will look more natural. The worries about a boy his age holding still are legitimate. I recollect two young people that I have grafted. An 11-year-old girl with radiation damage from a brain tumor did quite well. Then I had a 16-year-old girl who required 3 sessions. She wanted to leave at noon each time but we talked her out of it. On the third session, she really looked like she was going to leave but we talked her into a few more minutes. During those minutes, I gave 2mg of Versed into the scalp and the rest of the surgery went smoothly.

Since the patient presented is a boy, I would get a thorough history of alopecia in the family. If there is a high likelihood of future MPB, I would only transplant the temple.

The motivation of this child also needs to be assessed. If it is primarily the parents who are concerned with camouflaging the scar, I doubt that I would do a hair transplant. But if the child is the one really motivated, then it is likely the procedure will go smoother. Also, I would use occipital hair on the temple and probably the frontal scalp as well. With age, however, the frontal grafts would be at higher risk for looking unnatural.

Antonio Ruston added:

I would say expanders. He will have really good density and coverage.

Tony Mangubat had a similar (more aggressive) case that he brought to our meeting in Vancouver. I remember meeting the patient in the pool during the meeting (very happy kid). I also had a similar case but the patient was a little older.

I would recommend the use of an expander followed by hair transplantation into the scars and frontal hairline as a touch up.

➤ PAGE 158

CONTINUED FROM PAGE 157

Tony Mangubat, who has a lot of experience with expanders, suggested:

This boy is a challenge because we do not know what his final adult pattern of alopecia will look like. Reconstructing his temples now will likely look odd as an adult. If the existing hairline were advanced 2-3cm, he could do the rest with styling as shown below. This distance may not require an expander. I suspect his scalp is elastic enough to do it in one surgery. Even if you don't get all of the advancement you want, a smart hair stylist could do the rest.

Depending on laxity, an expander will result in a procedure involving 1-2 hours of anesthetic, will take care of his immediate bullying problems, and will preserve his existing scalp/hair direction for future adjustments.

Sheldon Kabaker, who also has years of experience using expanders, offered the below:

I strongly agree with John and Tony (with respect to their concerns about his final adult pattern of alopecia).

The scalp laxity is an essential issue as is anesthesia on a 10-year-old. Not many anesthesiologists would sedate or anesthetize a 10-year-old without intubation. And this scenario does not belong in the typical hair transplant facility. A facility that is licensed or accredited for pediatric general anesthesia has to be used.

A one-hour scalp advancement procedure (depending in the laxity), which can quickly be converted to an expander insertion, would be the least morbid way to go. If an expander is used, a later advancement procedure can be 6 weeks later. A less than perfect result should allow this boy to progress in life. Finesse work with grafts can be done later in life. ■

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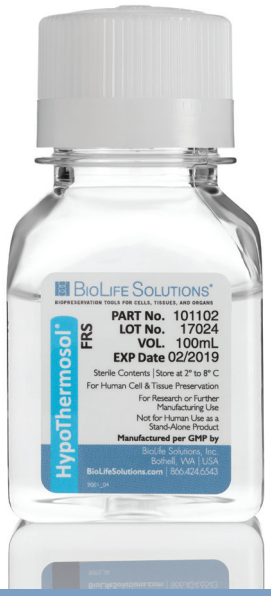

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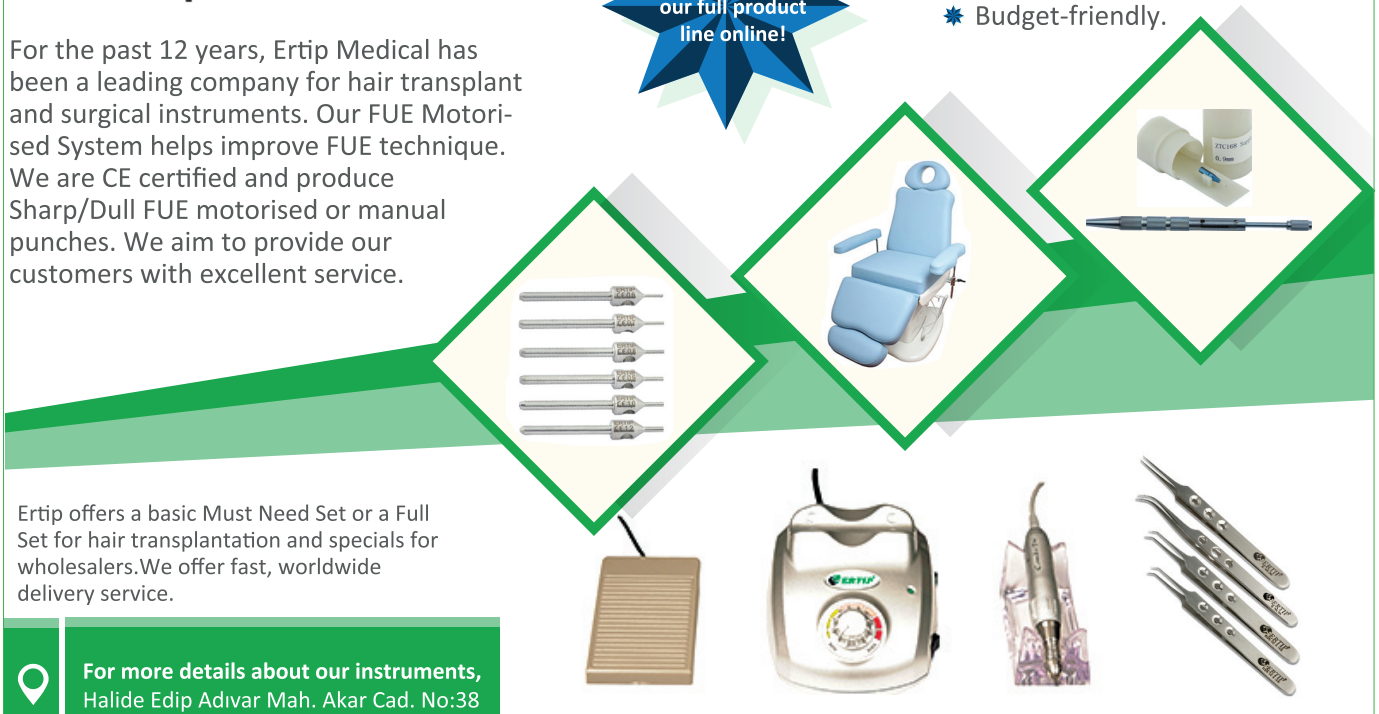

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Message from the ISHRS 2018 World Congress Program Chair

Parsa Mohebi, MD, FISHRS | *Encino, California, USA* | info@parsamohebi.com

The World Congress is almost here! Over the past few months, I have traveled to several regional hair restoration workshops and meetings. This has allowed me to view the best lecturers in action featuring the brightest minds in our medical field. In May, I attended the Asian Association of Hair Restoration Surgery Meeting and Live Surgery Workshop in China where I got to meet many rising stars. We are lucky that we can have some of them joining us at the October ISHRS World Congress in Hollywood.

I also attended the Paraguayan Society of Hair Restoration Sugery's Latin American FUE workshop in beautiful Guatemala City. Many novel ideas were presented there that we will also review at the World Congress. Following the meeting, as I am sure you most of you have heard, the volcanoes around Guatemala City erupted. That happened just one week after several of us climbed those mountains. It is deeply saddening to know many of those beautiful areas are now covered with ashes and that many lives were lost.

It is amazing what we have in our field. A diverse group of doctors from different specialties with a single goal: changing people's lives through quality hair restoration. This dream comes closer with each passing year thanks to the innovative techniques and devices being invented and shared by our colleagues in the field of hair restoration. They are generous enough to share what they have learned with everyone.

The World Congress will include a comprehensive program this year. We will spotlight novel ideas and techniques in our field as well as provide an "A to Z" review of most main categories for users at all levels.

Our field is constantly evolving. At times, it seems hard to keep up with the rapid pace of these changes. Fortunately, our members are committed to sharing their experiences and this is always one of the highlights of our congresses.

As you can tell from my comments above, our World Congress in Hollywood this year will be unlike any other meeting we've had so far. Considering the fast-paced evolution of hair restoration, it would be unfair to our patients if we didn't keep ourselves up-to-date through the variety of educational events that occur across the globe. Of course, the premier educational event for all hair transplant surgeons is the World Congress.

This year, we plan to make this learning experience even more fun. In Hollywood, we know how to learn and celebrate festivities!

Los Angeles is home to countless television and movie stars. We want you to look and feel like a celebrity during this event. Our glamorous gala and award ceremony will give everyone the chance to look and feel like their favorite star. Let your imagination run wild and get ready to have fun while being part of the biggest change that our industry has experienced so far.

I believe we should never forget the pioneers who helped advance our field by sharing their thoughts and knowledge. They have passed the baton and it is now our turn to pass it to the new doctors in our profession. In Hollywood, we will be witnessing many novel ideas and will also get to see and work with new devices which have made hair restoration more efficient while producing better results.

I invite all of my friends and colleagues to the City of Angels and to our World Congress in beautiful, and sunny, Hollywood, Los Angeles in 2018. ■


Aileen Ullrich


Deanne Pawlak

Message from the ISHRS 2018 Surgical Assistants Chair & Vice Chair

Aileen Ullrich, MA, Chair | *Portland, Oregon, USA* | aileen@gabelcenter.com
Deanne Pawlak, LPN, Vice Chair | *Calgary, Alberta, Canada*

All of our planning is starting to come together and we are getting very excited for this year's ISHRS Surgical Assistants meeting in Hollywood, California. Hollywood is home of the American film industry and boasts many well-known attractions including Universal Studios Hollywood, The Hollywood Sign, Hollywood & Highland, Hollywood Walk of Fame, Griffith Observatory, Dolby Theatre, The Sunset Strip, and Rodeo Drive. If you have not already done so, mark your calendars for October 10-14 and make plans to do some sightseeing while there.

Our 2018 ISHRS World Congress is going to be packed full of interesting information as well as useful tips and tricks that you won't want to miss. We will begin the meeting on Wednesday morning with our Surgical Assistants Core Skills Workshop. This course explores the basics of assisting in hair restoration surgery, with a focus on developing the associated fundamental skill sets of a surgical assistant. The workshop starts with lectures on hair anatomy and physiology, graft preparation, and graft placement. Participants will then work closely with highly experienced faculty from around the world as they rotate through various practical hands-on stations. At each station, innovative materials will be used to provide a realistic yet challenging opportunity to learn and develop core skills and to practice techniques.

In the afternoon, our focus will shift from fundamental skills and principles to more advanced topics as assistants from over ten different countries share practical tips and innovative ideas during our Surgical Assistants Program. The program is formatted as a series of presentations with an emphasis on visual content, in particular, video. We will examine what a typical surgery day is like in various clinics from throughout the world, extract pearls from our colleagues during the section "New or Improved," examine thought-provoking scientific topics, get inspired with interesting cases, and engage with each other as we hone our eye toward quality control and improvement.

No matter your experience or skill level, this program is sure to deliver a plethora of practical tips, information, and ideas. We are confident that you won't want to miss this year's Surgical Assistants meeting, so don't forget to mark your calendars and plan to attend. See you in Hollywood!
—Aileen ■

FORUM ePUB

COMING SOON!

Hair Transplant Forum International (aka, the *Forum*) is getting its own dynamic journal website. We are moving the *Forum* to an ePublishing platform similar to those you have seen with other medical journals.

The new platform will have a robust and user-friendly search function of past articles. ISHRS members will have easier access to past issues, the current issue, and other exciting new features that are being developed. We anticipate "**FORUM ePub**" to be available in about 6 months.

We look forward to reporting more about the progress of this project at the Hollywood World Congress.

Note: The current Forum Article Search that resides in the Members Only section of www.ISHRS.org will only be available until August 10, 2018.

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY ISHRS

Review of the 6th AAHRS Annual Scientific Meeting and 3rd CAHRS Annual Congress May 11-13, 2018 | Beijing, China

The Asian Association of Hair Restoration Surgeons (AAHRS) and the Chinese Association of Hair Restoration Surgery (CAHRS) held a joint meeting to introduce state-of-the-art hair transplant techniques into China. There were 27 overseas and 4 local speakers invited who joined the 497 attendees, 30 posters, and 47 exhibitors at the International Convention Centre in Beijing.

THE DRAGON AWAKES

Richard C. Shiell, MBBS | *Melbourne, Australia*

It is not just in building and business that the Chinese excel, but they also are making a remarkably rapid and adept entry into the fields of cosmetic surgery and hair transplantation. There were over 600 attendees at the joint meeting of the Asian and Chinese. Considering it was only the 3rd annual meeting of the CAHRS, and that they did not have the expertise of our ISHRS Victoria Ceh and her experienced team to help run such a large meeting, the results were quite remarkable.

More than 25 HT experts from Australia, Belgium, Canada, India, Iran, Italy, Japan, Korea, Pakistan, Spain, Taiwan, Thailand, and the USA were invited as speakers and Session Chairs. The proceedings in the main auditorium were translated simultaneously into Mandarin and English. In addition, a separate meeting on operative technique was conducted in Mandarin at an adjacent auditorium that began May 10 and continued for part of each day thereafter.

Apart from the high standard of individual presentations, there were more than 20 excellent poster presentations, some 44 exhibitors, and a number of excellent displays of FUE surgical results. There were 5 live surgery demonstrations.

Invited speakers were treated to an outstanding Chinese banquet of at least a dozen courses on Thursday night, and there was a social evening for all participants on Friday night with a splendid demonstration of Chinese music and dance and more great food.

We were very impressed with the hospitality of our Chinese hosts and the standard of surgery that they have achieved in a remarkably short time. Hearty congratulations to all.

FRIDAY/MAY 11, 2018

Damkerng Pathomvanich, MD, FISHRS | *Bangkok, Thailand*

YiLin Cao, ShuZhong, and Guo and Bin Zhang hosted the opening ceremonies. AAHRS president, Kenichiro Imagawa, and CAHRS president, Jufang Zhang, presented the welcoming speeches.

The Guest of Honour Lecture

Walter Unger gave a 30-minute talk on what he has learned over 50 years working in hair transplantation. He referred to the safe donor area and estimated that the number of lifetime follicular units in a 30-year-old Caucasian Norwood Type V is 4,900-7,900 grafts, and in a Type VI, the number is 4,200-6,600 grafts.

Dr. Unger commented that both FUE and FUT have their advantages. It was suggested that FUE has better wound healing and meets the public demand towards minimally invasive surgery. With FUT there is a lower transection rate, resulting in more growth of the transplanted hair, and a very fine linear scar can be achieved by using his two-layer closure. He summarized that the best approach is to use FUT in the first session. In subsequent sessions, FUE can be used to obtain more grafts from the scalp and/or beard to further improve the result, especially in the very young and those with poor prognosis.

Dr. Unger emphasised that the incision angle should follow the angle of existing hair, not the angle of grooming. Hair anterior to the vertex transition point should point forward with the angle becoming more acute as it moves anterior. At the hairline, the hair should lie horizontal to the ground, regardless of the slope of the forehead.

Due to their limited supply, it is always important to preserve follicular units for future use. This can be achieved by lowering the recipient site density in the hope of improving graft survival rates. Dr. Unger does not recommend "dense packing" of more than 35 FU/cm^2 and feels this density provides good cosmetic results.

Richard Sheill reminded us that some patients with Body Dysmorphic Disorder (BDD) will not be happy with anything the doctors have done.

Basic Science Session

Francisco Jimenez talked about how to isolate eccrine sweat glands from the follicular unit, although the role of the eccrine gland in hair transplantation is presently unclear. Ratchathorn Panchaprateep spoke on hair regeneration using autologous scalp tissue suspension and showed many nice results. LuJun Yang spoke on using the supernatant from human umbilical stem cells (HuMSCs) cultivated in stratified status for hair loss treatment. Qian Qu spoke on how to identify functional patterns of androgenetic alopecia using transcriptome profiling in distinct locations of hair follicles. He summarized that the self-assembled stratified 3-D structure, HuMSCs, presented an elevated growth factor

secretion profile when compared with monolayer culturing. These elevated growth factors along with the nutrients in the supernatant might have contributed to normal hair growth.

Kuniyoshi Yagyu spoke about pre- and intra-operative care in hair transplantation. Physicians were advised to manage cardiovascular risk by continuing any maintenance drugs, such as antihypertensive and anti-arrhythmic drugs, vasodilators, or sedatives, in order to keep hemodynamic parameters stable. An operation should be postponed when the heart rate is > 140 and < 50; systolic BP > 180 and < 90mmHg.

Medical Management of Hair Loss

Ken Washenik's talk on emerging therapy for treatment of AGA discussed follicular cell culture, autologous fat transfer, prostaglandins, topical androgen blocker's, JAK inhibition, finasteride, and minoxidil. Mario Marzola spoke on reversal of miniaturization of the hair follicle by using minoxidil, finasteride, stromal vascular fraction, and fat transfer. Jennifer Martinick spoke about the role of low level light therapy (LLLT) in hair loss and post-operative treatment.

Hair Line Design in Asians

The panel consisted of Bertram Ng, JinRan Lin, Parsa Mohebi, and Piero Tesauro. Four patients had their hairlines drawn by each member of the panel the day prior. Before and after pictures were taken and then voted upon. JinRan Lin won the best hairline design by majority vote.

John Cole gave a brief talk on ways to verify hairline symmetry. Carlos Puig spoke about future applications for cryopreserved hair follicles. The morning session closed after Wen Yu Wu talked about what was new in hair transplantation in china.

FUE Session

Parsa Mohebi talked about Dynamics of FUE. Robert True spoke on different types of punches noting that many punch designs exist, and some are superior to others. The ability to use different types is desirable to achieve optimal results for the widest range of patients. Jean Devroye presented his FUE donor management techniques. Kapil Dua talked about FUE efficiency and how to get better results, and showed his FUE harvesting technique. Wei Wu spoke on her 10-year clinical experience using FUE for eyebrow and eyelash transplants.

Free Paper Presentation

Mohmand discussed the Impact and limitation of FUE Harvesting on the Donor Area. John Cole introduced his new implanters and demonstrated how he used devices for rapid harvesting and placing. Dr. Tangjaturonrusamee reviewed how dermoscopy can help diagnose different types of hair loss. Thomas Tham gave different perspectives of hair transplants in Asia, with emphasis on Southeast Asia. Ray Hon Chang spoke on microscopic non-shaven motorized FUE using an operating microscope. Ratchathorn Panchaprateep talked about combining fractional 1,927nm thulium fibre laser and PRP in the treatment of androgenic alopecia. The results were impressive.

Video Presentation

Jean Devroye shared his tips and tricks for successful FUE harvesting using his trumpet punch and the efficient placement of grafts. Mohammad Mohmand showed how to do a strip harvest with minimal transection. Kapil Dua demonstrated his blunt punch for non-shaven FUE. Sanusi Umar spoke about his Intelligent FUE punches providing less transection. Wei Guan presented the effect of scalp fibrosis on hair transplantation. Dae Young Kim showed his technique in tapering tips of the transplanted eyelash hairs using an eyebrow trimmer to maintain a more natural looking result. Dr. Tangjaturonrusamee showed how scarring and non-scarring alopecias can mimic androgenetic alopecia and tips were given on how to make the differentiation.

Management of Female Pattern Hair Loss (FPHL)

Carlos Puig highlighted the importance of making the correct diagnosis when treating FPHL. Jennifer Martinick elaborated on the physical examination. She commented that consultation time is the most valuable time that one should spend with the patient. Ask, look, and feel the hair; develop trust; educate the patient, and offer all options. Walter Unger talked about controversies in female transplants. He noted that many women are in fact good candidates and discussed techniques for making recipient sites in FPHL.

Russell Knudsen discussed surgical management of non-FPHL, such as traumatic alopecia (burns and injury), scarring alopecia (i.e., LPP, FFA, folliculitis decalvans, traction alopecia, trichotillomania, congenital triangular alopecia, radiation alopecia).

Piero Tesauro suggested FPHL is related to a form of estrogen deficiency, and thus it has a different pathophysiology than male AGA. The use of topical estrone+hydrocortisone+ethanol 3 times a week has shown promising results.

JuFang Zhang reviewed the evolution of scalp and eyebrow transplantation in China. The current trend is towards

FUE. Chih Lu Han compared the punch depth (PD), coring depth (CD), and coring force at different levels of donor zone during robotic (ARTAS®) FUE.

SATURDAY/MAY 12, 2018

Bertram M. Ng, MBBS, FISHRS | *Hong Kong*

FUT Session: Why FUT should be Available for the Patients

The panel included Bertram Ng, Carlos Puig, Wen Yi Wu, Walter Unger, Russell Knudsen, and Jerry Wong. Each panel member had 3 minutes to present their point of view. There was heated debate during the open discussion from the audience. The majority of surgeons offer only FUE in their practices. In the end, when asked to vote by hand, 80% of the audience believed that FUT will be extinct in a few years.

Body Hair Transplantation

Jae Hyun Park demonstrated eyebrow transplantation using long hair, extracted by his open-window NS-FUE punch. The hair was trimmed to 1-2cm to maintain the natural curl, giving better orientation for insertion. PeiHua Liu spoke about eyelash transplantation, while Kapil Dua discussed his moustache transplantation technique. As occipital scalp hair diameter is less than that of moustache, he prefers to use 2-hair FUs or to pair 1-hair FUs with coronal incisions. Umar Sanusi showed a video on body hair transplant using his U-punch and FUE swipe technique.

Management of the Difficult Cases

The panel members included Walter Unger, Carlos Puig, Russell Knudsen, Piero Tesauro, and Richard Shiell.

Five difficult cases were presented for discussion and included scarring alopecia from tinea capitis, a severe case of post-operative folliculitis, the impressive effect of oral minoxidil on a Norwood Class VI patient, and the loss of transplanted hair due to Trichorrhexis Nodosa.

Combination FUT/FUE

Akaki Tsilosanani shared his experience in combination FUT/FUE. The use of hyaluronidase for FUT donor wound closure was not recommended due to an increased risk of necrosis. Tension could be reduced by extracting 30% of the required number of grafts using FUE above and below, leaving an untouched area just below the FUT closure for a future FUT procedure.

John Cole conducted a study on combined FUT/ FUE surgeries that concluded the FUE scars would contract, creating tension on the FUT wound, giving rise to a 50% wider scar than FUT alone.

The Recipient Site

Tommy Hwang discussed factors to consider when designing the recipient area, depending on the patient's race. Russell Knudsen commented on the appropriate role of micropigmentation in the recipient area. Mario Marzola spoke on the importance of adjuvant therapy in the long-term management of AGA. In his office, no surgery will be offered unless the patient agrees to take medication when indicated.

Robert True described how the recipient site incision size and density, graft diameter, and incision size ratio and depth can affect graft survival in different races. He offered some tips to determine the depth of incision by examining the bulbs of the extracted grafts. Piero Tesauro demonstrated how to avoid misdirected hairs when drawing the hairline.

Graft Storage Solutions, Conditions, and Additives for Hair Transplantation

Parsa Mohebi spoke about solutions used in post-operative care including shampoos. Carlos Puig presented on behalf of Jennifer Martinick. No difference in graft survival was noted between those grafts stored in chilled or room temperature saline. Robert True reported no statistically significant difference in graft survival when using HypoThermosol® as a storage solution.

Francisco Jimenez commented that there is no scientific evidence that one intra-operative storage solution is superior, providing the out-of-body time is under 6 hours. In fact, chilling of grafts might do more harm than good. Should the grafts not be reinserted within 8 hours, HypoThermosol was preferred.

Carlos Puig favored the use of ATP as both a graft holding solution and as a post-operative spray. With his protocol, 25% of patients never experienced post-op shedding in the recipient site, while 35% showed new growth at 4 months.

Robert True discussed the Graft Quality Index for FUE grafts. This categorizes the grafts into 4 classes according to the degree of damage and could prove to be an invaluable tool in comparing FUE techniques and devices.

How to Avoid Inadequate Growth

The panel members—Walter Unger, Richard Shiell, Francisco Jimenez, Tommy Hwang, and Carlos Puig—expressed their opinions on some cases presented with poor growth.

Potpourri

Kenichiro Imagawa discussed scalp micropigmentation (SMP) in Asian patients. He recommended spacing the dots 1mm apart, at a depth of 0.5mm, with 100-150 cycles per second. The use of inorganic ink was preferred as it would not interfere with MRI. Xing Dong Li spoke on his experience in managing extensive hair loss in Chinese. Russell Knudsen discussed how to put the art into ARTAS. Hong Tao Bo talked on the application of SMP in hair modification. Yu Chong Chen commented that follicles with an injured bulb by FUE could grow normally after transplantation. Survival, however, was reduced when the mid- section was transected. He postulated that this might disturb communication between the bulge and the dermal papilla for normal follicular regeneration. He further suggested that mid-section transected grafts should not be used as their survival rate was shown to be only 13.3% to 53.3%.

Robert True elaborated on the post-operative care following FUT and FUE transplantation, with special comments on the treatment of MRSA.

Cicatricial Alopecia

Francisco Jimenez discussed how transplantation of follicles into non-healing body wounds could promote wound healing. The stem cell reserve in the bulge may have a role in encouraging epithelialization. Hair-bearing skin grafts reduced the wound area by 75.15%, while non-hair-bearing graft reduced by 33.07%.

Yu Yan Wang spoke on how tissue expansion combined with FUT can treat cicatricial alopecia. Kristine Bunagan shared her management approach and therapy for LPP/FFA. She recommended not to biopsy areas without active hair loss. Ali Abbasi compared HRS results in inflammatory versus traumatic cicatricial alopecia. Inflammatory alopecia usually had disappointing results after HRS. In case of doubt, a skin biopsy should be performed.Qing Liu discussed the combined use of self-adipose tissue with hair transplantation to repair cicatricial scarring.

The two most interesting abstracts from the poster review session were decided upon by Walter Unger, Richard Sheill and Francisco Jimenez. Tsung-Hua Tsai's poster, "Androgenic Alopecia Treated with 1064nm Picosecond Laser," and Akiko Kaneko's poster, "A New Classification of Early Female Pattern Hair Loss," were selected.

SUNDAY/MAY 13, 2018

Damkerng Pathomvanich, MD, FISHRS | *Bangkok, Thailand*

Room 1 (FUT Surgery): Pierro Tesauro, Jinran Lin, and Yanshuang Bai

The male patient had Norwood Class III loss. Dr. Tesauro demonstrated his modified open donor excision technique. He dissected the wound edges with minimal graft transection and bleeding. He also demonstrated the use of the Haber spreader, which seemed to have more bleeding. The time for using the two techniques were the same.

Dr. Tesauro showed his modified trichophytic technique, leaving behind more hairs between the wound edges before approximating with staples. In the recipient area the incisions were made with sapphire blades and marked with methylene blue.

Room 2 (FUE): Kapil Dua

The male patient had bilateral axillary scarring alopecia secondary to a burn. He extracted the grafts using his blunt punch. Kenichiro Imagawa made incisions on the right axilla, Wei Gua on the left. The grafts were placed with forceps. The lack of elasticity with scarring caused difficulty in placing the grafts.

Room 3 (FUE): Fei Zhu

Eyebrow transplantation using stick-and-place technique was demonstrated, and grafts were harvested from the post-auricular area.

Room 4 (FUE): Pei Hua Liu

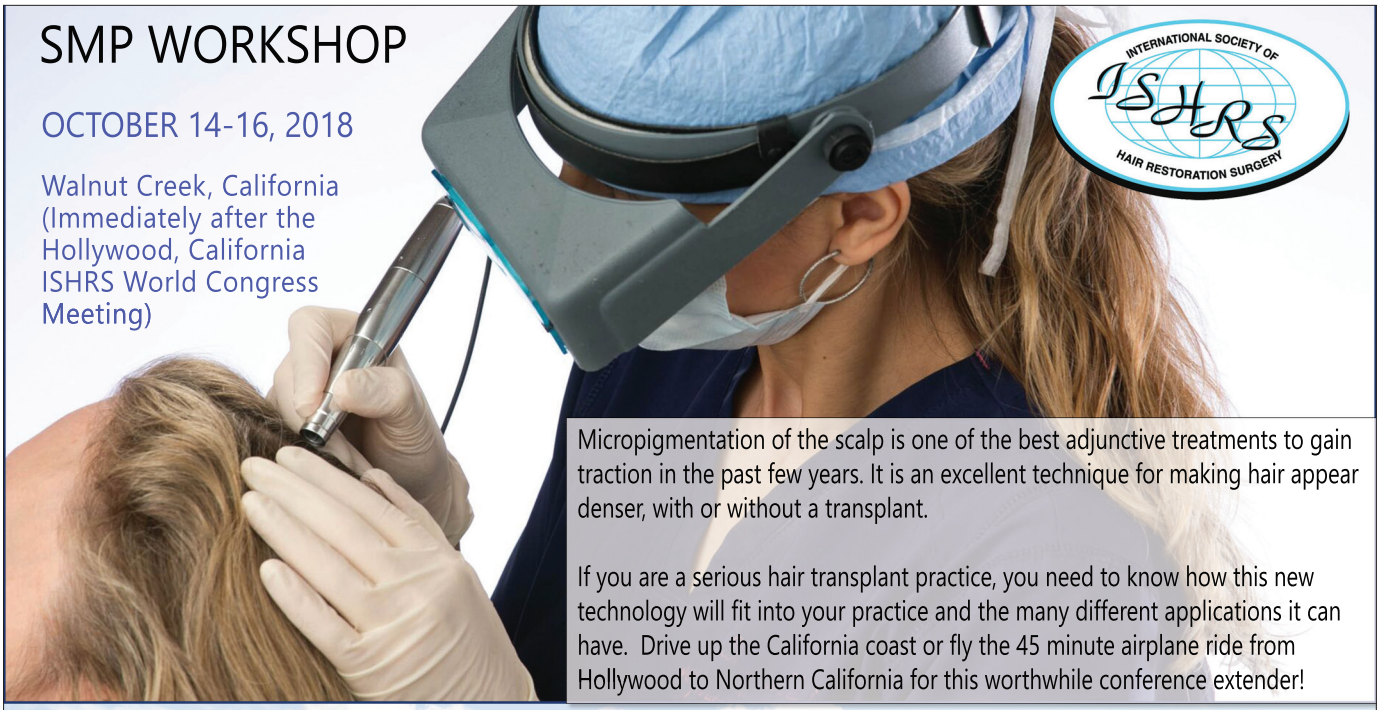
Eyelash transplantation was performed. Long hair was removed from the nape and sides of neck via sharp punch FUE. The grafts were then placed into the existing eyelashes in two rows. The final result was very impressive.

All surgeries went well except for some lack of communication between the audience and operating teams. Overall the meeting was rated satisfactory by the majority of faculty and attendees. ■

SMP WORKSHOP

OCTOBER 14-16, 2018

Walnut Creek, California
(Immediately after the Hollywood, California ISHRS World Congress Meeting)



Micropigmentation of the scalp is one of the best adjunctive treatments to gain traction in the past few years. It is an excellent technique for making hair appear denser, with or without a transplant.

If you are a serious hair transplant practice, you need to know how this new technology will fit into your practice and the many different applications it can have. Drive up the California coast or fly the 45 minute airplane ride from Hollywood to Northern California for this worthwhile conference extender!

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What You MUST Know If You Are Performing Hair Transplantation Surgery

FREE VIEWING FOR ISHRS PHYSICIANS

- Over 3.5 hours of lectures and discussion
- Recorded at the ISHRS 2017 World Congress Prague
- No CME credits issued for watching this course
- Internet/online video files.

LEARNING OBJECTIVES

Upon completion of this course you will be able to:

- Describe many hair loss disorders as well as common scalp dermatologic conditions that the hair transplant surgeon may encounter.
- Discuss the diagnosis and treatment of many non-androgenetic alopecias.
- Recognize when hair restoration surgery is indicated.

COURSE DESCRIPTION

The course covers all aspects of hair loss diagnoses, classification, treatment, and management. An emphasis is placed on understanding the anatomy and the hair growth cycle to better understand the pathologic consequences of hair loss. The course includes an in depth review of male and female pattern hair loss as well as diagnosing and managing cicatricial forms of alopecia. Common inflammatory scalp conditions is also reviewed to insure participants have a better understanding of managing scalp disorders as well as recognizing benign and malignant scalp tumors that may arise in the consultation process. An emphasis on recognizing alopecia areata and managing hair loss in women is discussed as well as understanding PRP and its therapeutic indications.

COURSE OUTLINE — running time

Welcome & Opening Remarks Ricardo Mejia, MD	06:01
Hair Loss Diagnosis, Anatomy and Classification René Rodriguez, MD	20:01
Alopecia Areata, Diagnosis and Management Ivan S. Cohen, MD, FISHRS	22:29
Cicatricial Alopecias Nicole E. Rogers, MD, FISHRS	29:08
Inflammatory Scalp Disorders/Lumps and Bumps Jennifer Krejci, MD	24:08
Q&A All Panelists	13:25
Dermoscopy/Trichoscopy Lessons Learned Aron Nusbaum, MD	20:12
Diagnosing Hair Loss in Women Neil S. Sadick, MD	36:01
Scalp Cancers Ricardo Mejia, MD	13:55
PRP Basics Neil S. Sadick, MD	24:10
Q&A All Panelists	11:04

www.ishrs.org

Hair Transplant 2018
Pre-Congress Course 12 SEPTEMBER

The ISHRS is pleased to present this Pre-Course on September 12th at the

4TH INTERNATIONAL CONGRESS OF THE AESTHESTIC ACADEMY OF EGYPT (AAEgy)

13-14 September 2018 • The Nile Ritz Carlton Hotel • Cairo, Egypt

The ISHRS is pleased to participate with the Aesthetic Academy of Egypt to organize a full-day pre-congress course on HAIR TRANSPLANTATION on 12 Sept. 2018, which is the day prior to the AAEgy Congress.

COST OF THE PRE-CONGRESS COURSE		
EARLY BIRD *Until 1 July 2018*	$200	*BEST DEAL*
REGULAR *Until 1 Sept. 2018*	$250	
After 1 Sept. 2018	$300	

For those registered for HT Pre-Congress Course, you may choose to attend the full Congress on 13-14 September for additional $50 registration fee.

PRELIMINARY PROGRAM

9:00AM-1:00PM Overview and the Basics

- Opening and Welcome Introduction
- About the ISHRS
- Overview of Hair Restoration Surgery: History, Terminology
- Follicular Unit: Macro and Microscopic Anatomy for Hair Surgeons
- Anatomical Landmarks in Hair Transplantation including Safe Donor Zone and Density in Donor and Recipient Area
- Anesthesia of the Donor and Recipient Area
- Hairline Design in Males and Females

COFFEE BREAK

- Strip FUT (Follicular Unit Transplantation): Overview
- FUE (Follicular Unit Excision): Overview
- Graft Placement Techniques including Implanters
- Discussion Panel: Candidate Selection Strip vs FUE

LUNCH BREAK

2:00PM-5:30PM Advanced Topics

- Differences in the Devices Used in FUE (sharp, blunt and hybrid punches, robotic devices)
- Recipient Sites: Special Considerations
- Female Hair Loss: Special Considerations
- Transplanting into Scars and Scarring Alopecias
- Transplanting the Eyebrows

COFFEE BREAK

- Body Hair Transplantation
- Tips and Tricks in HT of Curly Hair Candidates
- General and Most Common Complications in HRS
- Discussion Panel: Getting Started—How to Get Training and Setting up a HT Practice

Francisco Jimenez, MD

Ahmed A. Noreldin, MD

Francisco Jimenez, MD, FISHRS | Spain
Chair, HT Pre-Congress Course
Executive Committee Member, ISHRS

Ahmed A. Noreldin, MD, FISHRS | Egypt
Co-Chair, HT Pre-Congress Course
Chair, AAEgy Congress

ESTEEMED FACULTY

Conradin von Albertini, MD, FISHRS | Switzerland
Konstantinos K. Anastassakis, MD, PhD | Greece
Jean M. Devroye, MD, FISHRS | Belgium
Shady El-Maghraby, MD, MSc | Egypt
Francisco Jimenez, MD, FISHRS | Spain
Ahmed A. Noreldin, MD, FISHRS | Egypt
Ahmed A. Youssef Ibrahim, MD | Kuwait

REGISTRATION AND INFORMATION http://www.aaegy.org/

Classified Ads

Seeking Hair Transplant Physician and Technicians

Anderson Center for Hair in Atlanta, Georgia is looking for a full-time hair restoration physician and full-time technicians. We are a state-of-the-art, brand-new boutique center. We perform one procedure per day, with emphasis on quality, ethics, and natural results…not quantity. On-the-job training available for physicians. Technicians will require experience, with references required. Outstanding, friendly working environment, salary, benefits, insurance, 401k, vision, dental, etc.

Please email your résumé to jobs@andersonhsc.com.

Hair transplant surgeons, technicians, consultants & other experts welcomed

Vinci Hair Clinic is one of the worlds largest hair restoration clinics with 40 locations worldwide. We are always looking for new collaborators that are passionate about hair loss treatments, surgeons, technicians, and consultants looking for a new carrier, both full-time and part-time openings available.

We are also open to discussing new partnerships in areas we don't currently operate in. You can see a full list of our locations on our website at www.vincihairclinic.com.

Please email your CV and/or information to info@vincihairclinic.com.

For Sale: Hair Transplant Practice – San Diego County

Established FUE/FUT facility well equipped. Turn-key, fully staffed—could be satellite office! Serving San Diego, Orange and Los Angeles Counties. Plus a strong fly-in patient base from Northern California.

Contact Randal McKenzie Associates – Bruce C. Keller: bruce@randahlmckenzie.com or 1-760-815-4767

Non-Disclosure Agreement required.

For Sale: 2015 ARTAS with Chair

2015 ARTAS for sale with chair. Used 3 times. Perfect condition. Originally $250,000. Asking $125,000 or best offer. Here is your chance to own a mint robotic hair transplant device at a substantial savings!

Email: artasforsale@gmail.com

FUE Punches—New and Sharpened!

We are able to re-sharpen your used FUE punches so they are almost new and usable again. We also sell new punches with/without coated tips.

Contact us at: tsmantse@gmail.com or call 00-36-70-297-4757

Calendar of Hair Restoration Surgery Events

http://www.ishrs.org/content/upcoming-events

DATES	EVENT/VENUE	SPONSORING ORGANIZATION(S)	CONTACT INFORMATION
SEP 12, 2018	Pre-Congress Course on Hair Transplantation *The Nile Ritz, Cairo, Egypt* At the 4th International Congress of the Aesthetic Academy of Egypt (AAEgy), Sept. 12-14, 2018	Organized by the International Society of Hair Restoration Surgery	www.aeegy.org info@aeegy.org
* OCT 10-14, 2018	26th World Congress of the ISHRS *Hollywood, California, USA*	International Society of Hair Restoration Surgery www.26thannual.org	info@ishrs.org
OCT 14-16, 2018	ISHRS Regional Workshop: Scalp Micropigmentation *Walnut Creek, California, USA*	International Society of Hair Restoration Surgery Hosted by: Sara Wasserbauer, MD, FISHRS	info@californiahairsurgeon.com
MAR 26-29, 2019 MAY 14-17, 2019 (JUN 26—Exam)	University Diploma of Scalp Pathology and Surgery *Paris, France*	University of Paris VI Coordinators: P. Bouhanna, MD, and M. Divaris, MD www.hair-surgery-diploma-paris.com	Dr. Pierre Bouhanna, Course Director sylvie.gaillard@upmc.fr
APR 24-27, 2019	11th World Congress for Hair Research *Sitges, Barcelona, Spain*	European Hair Research Society	www.barcelonahair2019.org

*2018 meetings that qualify for the ISHRS member educational maintenance requirement

REMINDER

ISHRS full **Members** and **Fellow Members** are required to attend 1 ISHRS-approved meeting every 3 years to maintain their member category.

ISHRS WORLD CONGRESS SCHEDULE

26TH WORLD CONGRESS	27TH WORLD CONGRESS	28TH WORLD CONGRESS
October 10-14, 2018 Hollywood, California I USA	November 13-17, 2019 Bangkok I Thailand	October 21-25, 2020 Panama City I Panama

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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Ad Hoc Committee on PRP | Carlos J. Puig, DO, FISHRS
Ad Hoc Committee on Regulatory Issues | Paul T. Rose, MD, JD, FISHRS
Subcommittee on European Standards | Gregory Williams, MBBS, FISHRS
ISHRS Representative to CEN/TC 403
Task Force on Finasteride Adverse Event Controversies | Edwin S. Epstein, MD, FISHRS

Global Council of Hair Restoration Surgery Societies

Membership proudly includes:

American Board of Hair Restoration Surgery
American Society of Hair Restoration Surgery
Argentine Society of Hair Recovery
Asian Association of Hair Restoration Surgeons
Association of Hair Restoration Surgeons–India
Australasian Society of Hair Restoration Surgery
Brazilian Society of Hair Restoration Surgery (ABCRC)
British Association of Hair Restoration Surgery
French Hair Restoration Surgery Society
German Society of Hair Restoration Surgery
Hair Restoration Society of Pakistan
Hellenic Academy of Hair Restoration Surgery
Ibero Latin American Society of Hair Transplantation (SILATC)
International Society of Hair Restoration Surgery
Italian Society for Hair Science and Restoration
Japanese Society of Clinical Hair Restoration
Korean Society of Hair Restoration Surgery
Paraguayan Society of Hair Restoration Surgery
Polish Society of Hair Restoration Surgery
Swiss Society for Hair Restoration Surgery
Thai Society of Hair Restoration Surgery

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 forumeditors@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:
October 5 for November/December 2018 issue
December 5 for January/February 2019 issue
February 5 for March/April 2019 issue

Please note new submission address:
forumeditors@ishrs.org

Classified Advertising Guidelines for Submission

To place a Classified Ad in the *Forum*, email cduckler@ishrs.org. In your email, include the text of what you'd like your ad to read. You should include specifics in the ad, such as what you offer, the qualities you're looking for, and how to respond to you.

Classified Ads cost $100 per insertion for up to 75 words. You will be invoiced for each issue in which your ad runs. The *Forum* 2017 Advertising Rate Card can be found at the following link:

http://www.ishrs.org/content/advertising-and-sponsorship

Submit your Classified Ad to:
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MEETING OUTLINE

As of July 13, 2018

Wednesday/October 10, 2018

Basics Course (full day, hands-on)
Advanced/Board Review Course (full day, lecture and discussion)
Trichoscopy Course (morning, lecture and discussion)
Surgical Assistants Core Skills Workshop (morning, hands-on)

Mini Courses Morning

Mini Course are 3 hours each, small group, intense learning, and limited to approximately 18 students. Extra fee.

- Scalp Micropigmentation (hands-on)
- Decision-Making in Difficult Cases (discussion)
- Experiencing Manual and Motorized FUE Devices (hands-on)

Mini Courses Afternoon

- Scalp Micropigmentation (hands-on)
- Decision-Making- FUE vs FUT vs Combination (discussion)
- Trichoscopy (hands-on)

Board of Governors Meeting (full day)
Ancillary Meeting: ABHRS Recertification Exam (evening)

Thursday/October 11, 2018

Newcomers Orientation

General Sessions

1: Opening Session
2: Hair Follicle Physiology and Growth Factors: New Discovers & Better Understanding *FEATURED GUEST SPEAKER
3: Graft Survival and Graft Preparation
4: Diagnostic Methods *FEATURED GUEST SPEAKERS
5: Body Hair, Eyelash, and Eyebrow

Exhibits
Posters
Welcome Reception

FEATURED GUEST SPEAKERS

Cheng-Ming Chuong, MD, PhD | USA
Professor of Pathology
University of Southern California,
Los Angeles, CA, USA
Pulling Hair and Hair Restoration

Mario E. Lacouture, MD | USA
Dermatology Service, Department of Medicine
Memorial Sloan-Kettering Cancer Center,
New York, USA
Chemotherapy Induced Alopecia and Endocrine Therapy Induced Alopecia

Marsheila DeVan, MBA | USA
Communication Specialist
How to Present for Medical Professionals

Apostolos Pappas, PhD | Switzerland
Head of Program, Nestle Skin Health – SHIELD
Luasanne, Switzerland
Understanding the Importance of Lipid Pathways for the Existence, Health, and Development of the Hair Follicle

Carolyn Goh, MD | USA
Assistant Clinical Professor of Dermatology
Director of Hair and Scalp Disorders Clinic
David Geffen School of Medicine
University of California, Los Angeles
Pattern Hair Loss or Not, That is the Question: Identifying Alopecia Areata and Other Non-Scarring Alopecias

Antonella Tosti, MD | USA
Fredric Brandt Endowed Professor of Dermatology
University of Miami, USA
Trichoscopy: Why, When, and How

ACCME ACCREDITED WITH COMMENDATION

CME CREDIT The International Society of Hair Restoration Surgery is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.
The International Society of Hair Restoration Surgery designates this live activity for a maximum of 34.0 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Friday/October 12, 2018

Discussion Table Topics

General Sessions

6: Hairline & Implanters
7: FUE Instrumentation & Surgical Techniques *FEATURED GUEST SPEAKER
8: Difficult & Challenging Cases

Workshops First Bank

One workshop in each bank comes with the price of congress registration. Some workshops are limited to physicians only. The workshop occurring in the general session room will have simultaneous interpretation.

101: Non-Surgical Adjunctive Treatments: PBM, Minoxidil, Finasteride, Microneedling, Nutraceuticals
102: Train the Trainer: Tips on Giving Excellent Medical Presentations *FEATURED GUEST SPEAKER
103: Avoiding Poor Techniques, Poor Planning, Poor Growth, and Bad Results (physician only)
104: Transgender Patients (physician only)
105: PRP for Hair Restoration [simultaneous interpretation]

Workshops Second Bank

111: Donor Area Limits in FUE: Taking it Too Far
112: Train the Trainer: Tips on Giving Excellent Medical Presentations *FEATURED GUEST SPEAKER
113: Implanters
114: Social Media, Reviews, Photos, Consents, Filming Surgery
115: Hair Care Products and the Science Behind Them [simultaneous interpretation]

Exhibits
Posters
M&M Conference (evening)

Saturday/October 13, 2018

General Sessions

9: Chemotherapy Induced Alopecia & Female Pattern Hair Loss *FEATURED GUEST SPEAKER
10: Medical Treatments for AGA
11: Pulling Hair and Donor Area *FEATURED GUEST SPEAKER
12: Organization & Quality Assurance

Live Patient Viewing
General Membership Business Meeting
Exhibits
Posters
Red Carpet Gala

Sunday/October 14, 2018

General Sessions

13: Anesthesia
14: Selection of Interesting Topics
15: Open Microphone: Congresses Best Topics

11:00AM Congress Adjourns

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HAIR TRANSPLANT FORUM INTERNATIONAL
International Society of Hair Restoration Surgery
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