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**There's still
time to register!**



Small details can make a great difference

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"Discovery is seeing what everyone else saw and thinking what no one thought."

*Albert von Szent-Györgyi (1893-1986, Hungary, Nobel Prize in Medicine in 1937
for his discoveries on cell respiration, vitamin C, and chemistry of muscle contraction)*

It is not my intention to teach you how to become "the best hair transplant surgeon," but rather to present some of the small details that I have collected over the years, some of which originated in our clinic and some that I learned from colleagues during my visits to their clinics. I have included the physician's name in parentheses following the pearl that I learned from them so that they are credited for their hard work. I can certainly say that in my visits I always learned some new detail to enhance my ability as a hair transplant surgeon.

Service Excellence

I remember once that I was in a very small hotel here in Brazil. I had arrived around 11 p.m. and went directly to bed. When I awoke the next morning, every employee at the hotel knew my name—at breakfast, at the pool, at the bar. Everyone addressed me saying, "How are you Mr. Antonio? How was last night? Are you enjoying your stay?" I was quite impressed. While the employee from reception might have seen my room number on the key so he would know the guest staying there is "Antonio," how did the others know my name? I also remember that when I was in the pool area or on the beach, they would bring me cold water with mint and lemon slices. The lesson here is that they did not wait until I made a request; they just observed and anticipated my need.

This is "Service Excellence," something so critical today that there is a 2-year MBA program just to teach it. To make an analogy, we are not "a big hotel corporation," but rather more like a bed and breakfast, and yet still I think we can provide this service excellence to our patients. In my clinic, this idea is promoted in the following ways:

1. Every member of my staff must know the patient's name. Before the surgery begins, all team members go to the pre-op room to introduce themselves and their function on the team. We also ask what name or nickname the patient prefers to be called.
2. It is important that we anticipate the patient's needs: Should we wait until a patient says that he is not comfortable during the procedure or until he says that his donor region is hurting? Or until he says that he is thirsty or experiencing neck discomfort? Wouldn't it be much better to ask him every 15 minutes or half hour if he is comfortable or if something might be bothering him? A patient might not complain until we ask him, but this same patient will relate this "check in on" positively when describing his hair transplant experience to others. For many years, we have been giving an evaluation form to all of our patients and I am always surprised by some of the comments and suggestions given. To get feedback, I suggest you do the same: provide a simple evaluation form with a space at the end where the patient can write additional comments.

Patient Consultation

When the patient is inside the consultation room we use a program that personalizes the institutional and educational video, beginning with "Good afternoon, Mr. Smith. Welcome to the Ruston Clinic." It

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President's Message

Edwin S. Epstein, MD Virginia Beach, Virginia esehairmd@gmail.com

In my final President's Message, I wish to thank the membership for the honor of serving as president these past 15 months. The president wears many hats, and I have tried to follow and complete the initiatives directed by the Board of Governors, to be open minded to all sides when issues arise, and to make unbiased and fair decisions and recommendations. I appreciate the support and advice of the BOG, and express great appreciation to the entire administrative staff of the ISHRS.

My goals were simple: maintain our financial security, expand our membership, and create more value in our membership. Despite some early bumps in the economy, we will end the year financially healthy. Our total membership numbers will be slightly higher than last year. The website appearance has been improved and emphasis has been put on marketing our site. We have added more online educational materials including an updated Basics Lecture Series, and the ISHRS Surgical Assistants Training Resources Center is almost ready to be launched.

We sponsored several successful workshops in Denver, Tel Aviv, Orlando, Houston, and Bangkok, and continue to be the world's educational leader in hair restoration surgery. Our members served as faculty for society meetings in Italy, Europe, Japan, and Brazil. In 2010, the AHRS-India will have its second Congress, and the Asian Association of Hair Restoration Surgery was born during the Asian Workshop in Bangkok. The ISHRS is a unique organization: We have a relatively small membership in numbers, but a global representation comprised of physicians from nearly every discipline in medicine. This allows for friendships to develop and encourages an international camaraderie that is rare in most medical organizations.

The theme of this year's Annual Scientific Meeting is "Revolution and Evolution." The common denominator of both is change. A revolution can be an abrupt event, like the formation of the ISHRS in 1993, or an idea, like the use of microscopes to separate grafts. Evolution is a progressive change, and the ISHRS has evolved in many directions. The one constant event in life is change, and we should be open to new ideas, and to new techniques and technology. We must maintain our commitment to the public, as physicians and scientists, to follow standards of evidence based medicine, and to resist the temptation to create a marketing edge using Internet hype that may be inaccurate or that has not passed the test of time or met our standards.

On the note of evidence based medicine, our CME Committee has undertaken an intense project of determining current practices and best practices of our profession in order to identify the practice gap so that future meeting and educational efforts can be focused on teaching to close the gap. This project will include module surveys that will be conducted over the next two years. The first, "Who Does What," has already taken place.

The foundation of the ISHRS is its members, and the success and growth of the Society relies on their dedication and voluntary contributions to the annual scientific meeting, the workshops, and the numerous committees, which implement the many projects of the Society. The Scientific Committee headed by Paul McAndrews has put together a fantastic and diverse conference, and I congratulate them. I wish to commend and thank those members who have served on our numerous committees, including several ad hoc committees that I appointed this year to work on various current issues. The Pro Bono Committee, headed by David Perez-Meza, oversees OPERATION RESTORE and has had a busy year with revamping and improving the application process. In addition, the Media Relations Committee has continued its non-stop efforts to promote our Society and specialty to media outlets all over the world. Finally, I want to recognize the superb efforts of our retiring *Forum* editors, Paco Jimenez and Bernie Nusbaum, who have followed the footsteps of past editors by continuing to raise the educational content bar of the *Forum*, and congratulate Nilofer Farjo and Bill Reed, who will take over as editors.



Edwin S. Epstein, MD

Co-editors' Messages

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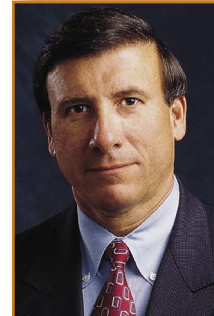
One of the most valuable learning experiences can be a visit to a colleague's clinic. Most of us would agree on the basic fundamentals of follicular unit transplantation, but I can assure you that such visits often result in the discovery of innovative ideas and techniques, some of which may well end up enhancing your practice. The leading article by Tony Ruston is an example of the quest for perfection. Tony's idea of asking other colleagues for their contributions was an excellent one, and led to his receiving an unexpected number of interesting ideas. For instance, after reading this article, I would like to try the oxygen tube connected to the prone pillow, and I will have another look at humidifiers, a concept that Jerry Cooley postulated several years ago. I showed this paper to my technicians for discussion and guess which idea most attracted their attention: yes, the weekly 20 minutes shiatsu massage to each member of the team performed by a professional massage therapist.

There are other interesting articles in this issue: tattooing the donor scar (Dr. Yates); a case report on the use of low level laser therapy in chemotherapy-induced alopecia; and a basic science interview on scarring alopecia with Dr. Matthew Harries, a young but highly regarded investigator working in Manchester with Ralf Paus.

Finally, it is always a pleasure to read a paper from possibly the best writer in our field, Dr. Richard Shiell. His more than 40 years of experience and critical thinking guarantee the wisdom and judgement behind his comments. In this issue he addresses key points to avoid problems in hair restoration

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To date, I have attended a total of 15 ISHRS Annual Meetings and also have served as Program Chair for one of them (San Diego). I can frankly say that I am thoroughly impressed with the upcoming Boston conference that Paul McAndrews and the Scientific Committee have put together. I encourage all of you to look through the program as you might agree with me that this year's meeting is truly "over the top." I can't really find anything that is missing and, without question, there is something for everyone, regardless of level of expertise. If you want to know what's going on with "cloning" or bioengineering of the hair follicle, you should not miss the "Emerging Therapies" session. If you have been wondering about the use of growth factors, PRP, or novel storage solutions, the latest information will be presented. Ever thought you might have transplanted a patient with an unusual alopecia? Well, in Boston, you will be able to polish your hair loss diagnosis skills as well as make sure that you are current on all the most recent technical pearls to elevate your talent in the operating room. There is the not-to-be-missed Complications Panel, the latest data on laser therapy, as well as debates between the most experienced, and opinionated, surgeons in the field. It doesn't end there, as you will personally witness results at the popular Live Patient Viewing and sit and have intimate breakfast sessions with the experts.

All this and more makes up an unprecedented educational experience. Boston, by the way, is a fantastic destination with much to do and plenty to see. Along with the camaraderie

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

- 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.
- If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail.
- Articles submitted with the sole purpose of promotion or marketing will not be accepted.
- Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
- Trademarked names should not be used to refer to devices or techniques, when possible.
- 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.
- Once the manuscript is accepted, it will be published as soon as possible, depending on space availability.
- All manuscripts should be submitted to both drnusbaum@yahoo.com and jimenezeditor@clinicadelpelo.com.
- 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.
- 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).
- We **CANNOT** accept photos taken on cell phones.

Submission deadlines:

October 5 for November/December 2010 issue
 December 5 for January/February 2011 issue
 February 5 for March/April 2010 issue

Dr. Jimenez's Message

from page 143

surgery. In the introduction, he states that "almost every technique that I tried produced mostly happy patients (as well as a small percentage of those who were dissatisfied with their results)." Even in the hands of one of the most experience and respected hair transplant surgeons in the world, 100% satisfaction can never be guaranteed. Following Richard's rules as he describes them, however, may well mean we have to face that unfortunate fact on fewer occasions.

Paco Jimenez, MD

Dr. Nusbaum's Message

from page 143

and networking that are the hallmarks of our meetings, Boston should be the "best ever."

I look forward to seeing you there.

Bernard Nusbaum, MD

Female Hair Loss Workshop Video



Dear Hair Restoration Surgeon,

The International Society of Hair Restoration Surgery (ISHRS) organized a workshop that was devoted exclusively to female hair loss and restoration.

*Because of the **extremely high value** of the contents this workshop was recorded and is now available as a 4 DVD Set.*

Now you have chance to get this exclusive DVD set, showing all presentations and surgeries performed during this workshop.

The design and techniques for treating female hair loss with transplant surgery are unique. This educational video will let you **learn from the top worldwide recognized experts** the newest techniques and solutions in female hair loss diagnosis and treatment, so that you may adapt it in your local practice right now.



Get it now at:

www.ISHRS.org/chopin

Limited number of copies available!

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Notes from the Editor Emeritus

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We Emeriti have the unique privilege of being allowed to periodically expound upon matters we feel relevant. Whatever has recently pleased or irked us can find its way onto this page. I for one find myself in the midst of some important transitions. I entered my second half century this year, and for me that was a challenge, causing me to evaluate my progress in life, and thus hopefully to nudge

it in the right direction. My son will be starting college in a few weeks, and while he is ready and eager to begin his next phase of life, I find myself far from ready to let him go. And my practice, while healthy and thriving, has been suffering from conflicts within my staff.

So what to do? Michelangelo was once asked how he could sculpt such an extraordinary work of art as his famous statue of David. He replied that you start with a block of marble, then chip away everything that doesn't look like David. The key is that Michelangelo was able to see exactly what his finished work was supposed to look like. I've recently come to realize that I can use a similar philosophy to sculpt my life. In my first half century, I trained and built and acquired, and arrived where I am now. But during much of that time I was too busy to exert control over my direction. I now must use clear vision to see what kind of life I want, and chip away everything that doesn't fit. I don't have a little boy anymore. I have a son who's taller and smarter than me, and I know that the part of me that's trying to hold on has to be chipped away.

I am as dependent upon my assistants as any hair transplant surgeon can be, and each individually has great skills. Yet I finally came to the conclusion that if peace and tranquility were to be achieved in my office, the status quo had to be chipped away, and so this week I made the very difficult decision to dismiss one of my senior assistants. The repercussions of that decision will take some time to come to fruition, but I'm confident that a healthier work environment will exist. And importantly, I have made it clear that I am in charge of our destiny. Other aspects of my practice that don't fit my vision are coming into focus, and I will carefully continue chipping away the parts that are keeping the ideal from taking shape.

I recently returned from the Second Annual Hair Restoration Surgery Hands-On Cadaver Workshop held July 23–25 in St. Louis. Organized again by Sam Lam and Emina Karamanovski, the workshop was a great success. A succinct mix of didactic lectures and hands-on training on foam heads, melons, and fresh cadaver heads, it served as an excellent introduction to the field of hair restoration surgery for both novices as well as those with some existing skills. If Sam and Emina had been present when I learned that I was assigned five lectures I had never given previously, there would have been two additional cadaver heads for the participants to practice on, but, fortunately for them, they were several states away.

While educationally top-notch, the workshop brought into focus everything that was both great and terrible about our field. Great was the availability and willingness of a group of experienced surgeons to take time away from our practices to teach our craft. Great was the expert surgical assistants also present to teach novice technicians their special skills. Great was the respect that most of the attendees showed for the complexity of our field, and the understanding that it is not a procedure to be added flippantly to one's repertoire.

Terrible (in my opinion) was the glaring absence of a single dermatologist amongst the attendees. The undisputed experts in the workings of the skin and hair, and the significant majority of practitioners of hair restoration at one time, my colleagues seem to be abandoning the field, and I believe this is very unfortunate. Terrible is the difficulty of training assistants to allow a newcomer to the field to perform large sessions. A newcomer must either stumble along with slow and unskilled assistants for a time until skills are improved, risking bad outcomes, or hire traveling assistants to run the show, or attempt to "steal" trained assistants from other offices. None of these are desirable. At this workshop, as at most meetings, job offers were made to assistants who had been brought to teach.

Terrible (in my opinion) was the glaring absence of a single dermatologist amongst the attendees. The undisputed experts in the workings of the skin and hair, and the significant majority of practitioners of hair restoration at one time, my colleagues seem to be abandoning the field, and I believe this is very unfortunate.

Terrible was the belief by too many of the participants that automated FUE machines were a great way to avoid the previously stated problems regarding assistants. If we don't figure out a way for newcomers to train assistants, we may see a flood of FUE disasters, and a subsequent backlash against all practitioners of our field.

What to do? We need a clear vision of where we want our field to be in ten years. Then, while we actively promote all the great stuff, we have to diligently chip away all the parts that keep it from being a masterpiece. ✧

Small details

from front page

may sound silly, but a patient wants to feel that he or she is unique and valued, so we try to treat each patient in a personalized manner.

The more informed the patient, the more realistic his or her expectations will be and therefore the higher the chance for satisfaction. We must educate our patients in respect to our techniques and to our limitations. When our patients are laymen, we must use laymen's vocabulary.

A short 3D animation may clarify a long explanation, in addition to better illustrating an idea that we are trying to convey. For example, I might use a 3D animation to try to encourage a patient to accept a design with a more accentuated temporal recession.

Another important detail during the evaluation is to show similar cases to the patient. For this reason, a database organized by density, hair type, etc., greatly facilitates locating similar cases.

During the microscopic analysis of the patient's scalp, permit the patient to interact, showing the difference in terms of hair thickness, the different follicular units, the miniaturization of the hairs, etc.

Take pictures from different angles to show your patients. They are always surprised by the extent of their baldness from the top view.

Pre-Operative

1. **Succinctness:** Too much information regarding pre-operative care may result in the patient not reading it or not paying attention to what is truly important. One suggestion is to be succinct regarding this care, calling your patient's attention only to those issues that are really important. In addition, telephone every patient one or two days prior to the procedure, asking if they have any concerns.
2. **Anxiety relief:** Every patient arrives to surgery feeling anxious so we provide anti-anxiety medication (alprazolam 1mg) for the patient to take on the eve of his surgery. This provides a peaceful night of sleep and reduces anxiety, thus minimizing the adrenaline charge and improving the bleeding during surgery. We also give alprazolam 1mg when the patient arrives for surgery.

Donor Area

Here are many details that we have adopted in regards to the donor area:

1. **Correct marking:** We make sure to mark not too high, and not too low, always thinking about future sessions.
2. **Laxity measurement:** It takes one minute and helps a lot in preventing excessive tissue removal, consequently creating tension when closing (sometimes using the Mayer-Pauls device)
3. **Massage:** I use a powerful massage device on the patient's back and shoulders during the donor anesthesia (see Figure 1). (Dr. Bernard Nusbaum)
4. **Trichophytic suture:** Another magnificent detail. We believe it is indisputable that the scar quality is much better and far less perceptible when we adopt this closure.



Figure 1. Massage in the back and neck regions during donor anesthesia

5. **Absorbable suture:** Eliminating suture removal is a great relief to the patient and one less follow-up visit for the doctor. We use it in primary cases, with no tension.
6. **Good night suture:** Inverting the knots reduces discomfort in the donor area. It can be done only if you use an absorbable suture. (Dr. Marcelo Pitchon)
7. **Shaved area:** Avoid shaving beyond the area that will be removed so that short hairs or the scar are not apparent after closing.

Pain Management

After visiting Dr. Bob True and seeing the effectiveness of The Wand®, we started to use it on the slow speed (on the high speed the pain is the same as with the insulin syringe). It takes time but is worth it. Additionally, for years we have used a vibrating massage device to reduce the pain and it has truly shown to be effective (Dr. Bill Parsley).

In the post-operative period, we know that pain occurs only in the donor area. After a brief survey that I did with several colleagues, I reached the conclusion that a combination of infiltration of bupivacaine at the end of the surgery, intramuscular toradol, and paracetamol with codeine in the first 48 to 72 hours is the most effective post-operative pain management. We also give an anti-anxiety pill to take on the first night following surgery.

Graft Placement

1. **Stick-and-place:** I believe that we should all practice the stick-and-place technique so that we are not so dependent on our surgical teams. Further, it significantly reduces the surgical time. I have been using a mixed technique: pre-made incisions in the frontal area and stick-and-place for the rest.
2. **Tattoo:** To make it easier for the assistants and to avoid confusion with the areas already transplanted, we mark the areas with a tattoo using green ink and a 1 mm blade, to clarify this transition as well as the transition between the areas with 1 and 2 hairs. This greatly facilitates visualization and the tattoo fades by the end of the procedure or after the first wash.
3. **Gentian violet:** In the frontal area (pre-made incisions), we have been using gentian violet to tattoo. (Dr. Ron Shapiro) This greatly facilitates visualization at the time of placement and it is much easier to remove in comparison to methylene blue or similar (Figure 2).
4. **Comb:** We developed a comb that facilitates the manipulation of the hair and can be sterilized. It can be found at www.mediquipsurgical.com/shco.html.



Figure 2. Green tattoo separating areas with 1-hair FUs, 2-hair FUs, and stick-and-place; Gentian violet staining, which enhances slit visualization

Post-Operative Care

1. **Spray:** We have given our patients a saline spray to squirt on the transplanted area every hour until the hair is washed the following day. This has significantly reduced the scabs.
2. **Detailed information:** Clear and detailed information helps with patient understanding and reduces post-operative doubts.
3. **Phone call:** A simple phone call the night of the surgery or the following morning helps the patient feel more secure.
4. **Complete post-operative kit:** We give our patients all of the medication that they will need (even an anti-anxiety pill for the first night), special shampoo, an appropriate cap (like a baseball cap), and, more recently, a DVD showing how to correctly wash their hair (which can be found at this link: www.youtube.com/watch?v=QC5uXy4eEKI).
5. **Gel forehead compress:** After introducing this into my practice, I have had no cases of swelling (Figure 3). It should be used as soon as possible, 3- to 4 times a day, for 4-5 days. It should be kept in the refrigerator and 10 minutes before use should be placed in the freezer. The patient can apply it until the cold sensation is gone.



Figure 3. Forehead gel wrap to reduce swelling

6. **Emergency cell phone:** For many years I have provided a cell phone number to reach me. I always joke that they can contact me 23 hours and 45 minutes a day because I haven't found a waterproof cell phone (believe it or not, they rarely call).

Team

1. **Ergonomics:** Analyzing and investing in making ergonomic improvements for the surgical team yields big results. Once a week we have a massage therapist perform a shiatsu massage for about 20 minutes on each member of the team (during surgery, on a rotation basis, outside the surgical suite) (Figure 4). Additionally, we are always re-evaluating the posture of our assistants, adapting their work spaces, height of their chairs, and arm positions, and, from time to time, we contract a Global Postural Re-education specialist who goes comes to the surgical suite and evaluates the posture of each team member. Never underestimate a complaint related to posture (or muscle pain or tension) because the more comfortable your surgical assistant is, the greater his or her motivation and productivity will be.

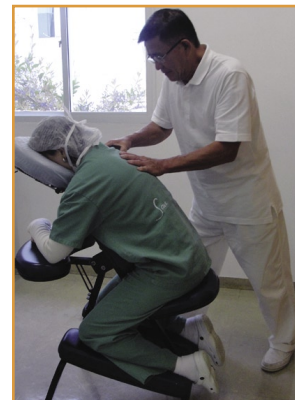


Figure 4. Shiatsu massage on the surgical team

2. **Assigned tasks:** Detect natural skills in each member of your team and assign them specialized tasks such as graft supervision, customer service, adapting new technologies, patient comfort, entertainment, etc.
3. **Monthly meeting:** Each month, the entire team comes together to discuss operational details, quality of patient care, etc.

Patient Comfort

1. **Movie:** Watching a movie reduces the perception of time and also distracts the patient.
2. **Position:** The positions in the neck and lumbar regions are very important, because if the patient is uncomfortable, he or she will shift positions regularly and become restless, making the surgery more difficult and increasing its duration. To manage this, we have different pillow types and sizes.
3. **Overall comfort:** Remember to always ask your patient how he or she is feeling at different times during surgery.
4. **Surgical environment:** This should be conducive to relaxing the patient (appropriate music and illumination, massage, etc.).
5. **Oxygen:** We connect an oxygen tube to the prone pillow and put in 5 liters during the donor area removal. The tip of the tube is near the patient's nose, next to the opening of the pillow (Figure 5). This not only improves safety but it also improves the patient's well being and reduces the sensation of claustrophobia.



Figure 5. Oxygen tube in the prone position and lumbar support

Small details

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Follicular Units

1. **Graft supervisor:** Make one person responsible for supervising the follicular units, especially those with 3 hairs and those trimmed by new assistants. This will help make the grafts more homogenous, hence facilitating their placement and reducing the scab period. Subsequently, feedback should be given.
2. **Humidifier:** We use four humidifiers, which increases the humidity of the surgical environment by 30-35%, especially with the air conditioner turned on. (Dr. Jerry Cooley)
3. **Length of the hair:** I believe that a good length of hair is between 1.5-2cm. At this length, it is not too long to interfere during placement and there is an immediate result helping to hide the scabs, thereby creating a positive impact on the patient (Figure 6).

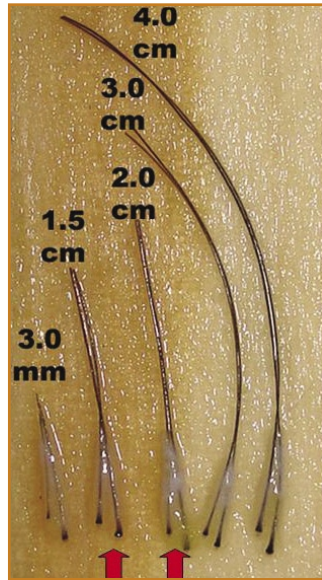


Figure 6. Different hair lengths

Additional Tips from Our Office

1. **Ultrafines for the front line:** The use of very fine hairs randomly in the front greatly improves the naturalness of our results.
2. **Number of grafts:** Showing the number of the grafts on a large whiteboard inside the operating room not only

	FLA	JU	PRI	ELI	MARI	AMALIA	BETE	
I	62	20	105	52	90	80	35	12
II	62	17	100	44	90	30	1	22
III	20	3	33	15	26	14	6	49
IV	16	14	8	7	43	1	2	567
	3				4	1	2	1251
								394
								927
								318
								5516

Figure 7. Whiteboard for easy visualization with the final number of grafts and hairs in the lower right corner

facilitates visualization for the surgeon but also allows the patient to follow the number of grafts yielded while also giving credibility to the total number of grafts and hairs (Figure 7).

3. **Show grafts and blades:** We always show our patients their FUs. We put one of each on a spatula and also show the size of the blades (preferably the smaller ones) and the forceps used in the procedure. We also offer our patient the opportunity to look through the microscope.

To conclude, I would like to comment that in the competitive world that we work in today, our patients do not depend on us. We depend on them. Each one has individual interests and the option to choose someone else. When we pay attention to the vast number of small details, they make a great difference, not only in the quality of our results, but also in the satisfaction and loyalty of our patients, as well as the motivation of the surgical team. ✨

Additional pearls from my colleagues

As I was finishing this article, I thought to myself: I have visited many clinics and colleagues, but certainly not all. And, of course, some colleagues who I had already visited have since developed something new, as we always do in our practices. So, I wrote to many colleagues (and I apologize to those who did not receive my email) and asked them to share some pearls that have made a difference in their practices. I received so many that we (the editors and I) decided to include what we thought were the most interesting ones at the end of this article. I am sure that these pearls will be useful to all of us.

1. We have those patients who are willing and interested to look under the microscope (the teaching microscope with the dual lens) to watch their grafts being dissected and to see the strip and the already cut grafts in the Petri dish.
2. We always try to go at least 30-50 grafts OVER what we agreed to give and charge the patient for. That way, if a graft or two falls out, the patient will reason that it was one of the FREE ones!
3. If the patient has some residual native hair on top, we will offer a sample of Toppik or DermMatch camouflage agent after the surgery and explain how to use it, in order to help keep the secret of having had the surgery.
4. We use a mail-order pharmacy that pre-delivers to us each individual patient's meds. We give each patient sealed bottles of prednisone, lorazepam (for sleep), and Tylenol #3 with codeine to take home so they don't have to stop at the drugstore.
5. When first-time patients leave the office, we give them a sheet entitled "Expectations," and tell them it is very important and to read it over. It basically tries to lower patients' sky-high expectations so that they aren't expecting a full head of hair or even a difference at 5 months, for instance, and it emphasizes that, for many patients, it isn't until 12-15 months that they will appreciate the full growth of the most recent session.

Michael Beehner, MD

Recently I've been putting in an interrupted single stitch in the mastoid area, and running the stitches on either side in the temporal and occipital areas. The donor area is like a 3-sided box, and putting these single anchoring sutures in the corners seems to help stabilize these corners.

Jerry Cooley, MD

I got this tip from Tony Mangubat: When injecting tumescence, first bend the needle with two 90 degree angles so it looks like a stair, make the length of the last part about 4-5mm so when you place the needle into the scalp it will only go into that depth. It works great.

Mark DiStefano, MD

1. In many Asians as well as others with spiky hairs in the back of the head that tend to grow more outwards than downwards, be aware of the greater risk of a visible donor site scar even if it heals as a fine line.
2. When transplanting beards/goatees, in those with thick dark donor hairs, stay away from the "soul patch" and chin mound (that area extending down the center aspect of the lower lip onto the actual chin), otherwise, you risk getting small bumps in the area.
3. Don't ever denigrate a colleague, rather be as positive as possible, because for every unhappy patient one of your colleagues have, you are likely, even with your very best work, to have your share.
4. It's all about the angulation of the recipient hairs—the surgeon cannot over-angle the recipient sites so that the hairs grow as narrowed angled off of the surface of the scalp.
5. African American hair recipient sites should be shallower than Caucasian sites so that the hairs do not fall into the sites and get buried.
6. In procedures larger than 2,000 or so grafts, to reduce the time spent *ex vivo* by the donor hairs, remove the strip in two parts—not removing the second part (which is typically anticipated to provide one-third of the total grafts) until most of the grafts from the first part have been planted.
7. Placing adhesive tape (Microfoam tape) across the forehead for the first 3 days really does help reduce the incidence of post-procedure peri-ocular swelling.

Jeffrey S. Epstein, MD

I personally call every patient the evening of surgery to inquire about pain or to clarify any post care instructions. The patient is always amazed the surgeon is calling personally and this reinforces our level of care.

Bob Haber, MD

1. When we prepare donor harvesting, patients are in the prone position for 30-50 minutes. At this time, they may have anxiety or feel uneasy because they cannot see anything and they fear the operation. To minimize this uneasiness, I usually let patients listen to music to reduce sound related to donor harvesting and the assistant nurse pats the patient on the back and/or grasps the patient's hand to help him feel more comfortable.

2. After surgery, when the patient stands up after a long operation, some may have syncope. To reduce or prevent it, I usually let the patient do leg exercises on the operating table (such as cycling) before standing up and it makes the venous valves on the legs work well and the blood in the legs goes up to the right atrium decreasing the chance of syncope.

Tommy Hwang, MD, PhD

I have found it phenomenal to use an Apple TV in the lobby to continuously rotate and show my before and after pictures, and I use my iPad to show before and after results on the fly.

Sam Lam, MD

1. I prefer a selection of neck rolls from soft to hard. They can be increased in diameter with a towel wrapped around for those with long necks.
2. I tell patients at the beginning that they are "king for the day" and will have a "world-class experience." This reinforces to the staff what is expected of them.
3. I ask patients what they would like for lunch.
4. I make sure patients have proper lumbar support with a pillow under their knees (and a blanket to snuggle into).
5. I break every 2 hours for patients to eat, drink, and move around. The staff breaks too.
6. I cover patients' eyes to protect them from sharp instruments. This also stops direct light and encourages sleeping.
7. I offer relaxation/classical music, and we only talk quietly except when we want the patient to wake up.
8. I routinely follow-up with a phone call the next day.

Jennifer Martinick, MBBS

1. We have added to our surgical table a Tempur-Pedic 4" memory foam cushion that we bought and cut to the size of the table. Patients don't complain of being uncomfortable while in the prone position or in the reclining position.
2. We use an Oxygen Concentrator for our patients (because it is supposed to reduce infection by 50%). We use a nasal cannula at 5 liters after we turn the patient over in a supine position. Patients state it makes them feel better.

Mary Ann Parsley, RN

1. For anesthetic, I like to use marcaine and lidocaine, but I never mix them; if you mix them, the effect is not the same. I also use low amounts of epinephrine (1:200,000 or more) for the donor and recipient areas.
2. Placing in the crown area, my techs and I prefer to plant the grafts with the patient face down. In this position, we can reach the site's angulation much better.
3. If a complication exists, we always give "SUPPORT" to our patients, and we try to avoid the following three mistakes: 1) deny that the complication exists; 2) do not be inaccessible to the patient; and 3) do not act angry toward the patient.

David Perez-Meza, MD

Small details

from page 149

1. After John Gillespie introduced bi-level anaesthesia, 0.2% lidocaine with 1:100,000 epinephrine has become my workhorse local anaesthetic agent. When given slowly with vibration, I can keep discomfort to no more than 2-3/10 and I don't need to use sedation. It works just as well as 1% lidocaine and I rarely need more than half of the maximum recommended safe dose of lidocaine for a 3,000-graft case.

2. I will do a trichophytic closure if the edges overlap easily after the deep sutures are done. The deep sutures help hold the bottom edge while cutting a shallow ledge.

To cut a trichophytic ledge I use a broken 15 blade in an adjust-a-depth handle so that about 1.5mm of the tip protrudes. After scoring the bottom edge, I use strabismus scissors to trim off the ledge at the epidermal-dermal junction.

Cam Simmons, MD

1. When transplanting in females, choose carefully the area of greatest cosmetic significance and keep the region small enough that you are sure to make a real difference in density. Resist putting just a "few grafts here also" as patients may try to convince you. They won't affect any real change and it minimizes the effect in the primary area.
2. I have started instructing my staff to make the grafts "extra chubby," which is really just the "old" chubby. I found that as sites got smaller and closer, I was just not getting the growth I expected, and part of the problem I think was that technicians were making the grafts skinnier to minimize difficulty in placement.
3. A recent survey I did of female patients showed 97% had none to minimal post-operative telogen effluvium as judged by the patient. I think several technical aspects help in getting these results. I inject minimal epinephrine in the area, and rather use saline injected very superficially to control bleeding, if needed. I am meticulous about following hair direction. I make sites at densities of 15-25 in most areas utilizing 1-hair FUs mostly only in the hairline, and have found this results in great cosmetic improvements despite the trend towards higher densities.

Robin Unger, MD

1. We have a half-body massage pad that fits onto the chair that our patients rave about and has enabled even those patients with really bad back conditions to make it through the second half of surgery easily and pleasantly. It is actually designed for a car seat or for a desk chair, but it has vibration and shiatsu and all that stuff like an expensive massage chair. You can find them for about \$100-\$150 and they are well worth the investment (www.brookstone.com/sl/product/5059-shiatsu-massaging-seat-topper.html). When patients are face down for strip removal, we also place a round pillow under their ankles to take the pressure off the low back.
2. We use ice to reduce the pain of needle insertion for local anesthetic, but we have found that a metal coffee

press (it looks like a tiny barbell—you can see them at Starbucks—that is used to tamp down the coffee grounds when making an espresso) works better than straight ice (which melts anyway) or an ice pack. You can autoclave them since they are just metal (http://cgi.ebay.com/RSVP-Terrys-Tamper-Espresso-Coffee-50-55-mm-NEW-/270581879437?cmd=ViewItem&pt=Small_Kitchen_Appliances_US&hash=item3efffd28d) and they stay very cold for longer than an ice pack.

3. To control bleeding at the corners of my strip incisions, I unfold a 4 × 4 and place the tip in the corner. The liquid tension holds it in place so you do not need an assistant holding the gauze there and it wicks away bleeding making it easier to work in that area. Similarly, a hemostat will hold gauze under its own weight either at the corners or along the middle. These are my favorite ways to free up staff to start cutting right after taking a strip.

Sara Wasserbauer, MD

1. My staff must place their grafts in small telfa "packets" (cut pads folded over) that are kept in chilled solution on ice with their NAMES on each packet. This keeps everyone accountable no matter how much experience one has. It is a quality assurance method as well as a great training tool for monitoring graft preparation as well as suitability for placement.
2. The most important pre-op photos are the ones I take personally in the operating room with my markings outlining the proposed and patient agreed upon (noted in chart) treatment boundaries, hairline placement, and priority zones. I hand the patient the camera to see that they agree prior to starting surgery. (It is a different perspective than just the mirrors.) This prevents any confusion or misunderstandings in the follow-up months to come.
3. My routine follow-up regimen and contact with the patient is as follows: a) hair wash next day; b) in-office, low level laser treatment or loaner laser comb without bristles 3 times per week for 2 weeks; c) suture removal at 10 days.

This gives me and the patient at least 5 brief interaction opportunities during the immediate post-op period. This is followed by a 4-month, 8-10 month, and 12-15 month in-office follow-up (Skype if out of town or country). Patients are then called annually for an invitation to an in-office follow-up.

5. I give patients a detailed daily post-op calendar for their fridge that takes them through everything they need to do or take from day 1 to day 14.
6. All patients receive a post-op bag that includes everything they need for post-op: all meds, hot/cold pack, personalized airplane neck pillow to help them sleep, after-hours practice contact information, instructions and calendar, and Graftcyte® kit.
7. When I close the donor area with a running suture, I leave a 1-2mm gap between the knot and the skin on each end. This prevents the knot from getting buried, and makes removal easy for the nursing staff and painless for patient.

Craig Ziering, DO

Donor scar camouflage using tattooing in African Americans

William D. Yates, MD Chicago, Illinois yates7579@yahoo.com

In my experience, many African American patients post-operatively will opt to style their hair uniformly closely cropped. With such short hair, even the best of donor closures may appear to be unacceptably visible. While some patients will not be bothered by the scar even though it will be clearly visible to others, the majority, however, will voice some degree of displeasure with the scar's appearance even after the elaborate pre-operative admonishing.

I have found that these patients' displeasure with the donor area scar will taint the noteworthy results of the recipient area. The donor area is just as important as the recipient area to achieve maximum patient satisfaction.

To improve upon the scar quality/visibility, I have personally closed several African American patients using the trichophytic technique. However, in my hands, the benefits of this specialized closure still does not allow for hiding of the donor scar when the hair is worn very close to the scalp.

Several strategies are available to camouflage and/or improve the appearance of the donor scar. Surgical options include scar revision and grafting hair into the scar, which appears to work well but still allow the scar to be visible with closely cropped hair. Nonsurgical options include makeup, Toppik-like products, and tattooing of the scar area.

Tattooing allows for natural, immediate results and is virtually maintenance free. Of course, the tattoo is permanent and must be done by a tattoo artist familiar with the correct technique and the variability associated with donor scars.

The process of tattooing takes between 1-3 hours and may require a touch-up yearly to keep the tattoo crisp, as scars normally do not hold ink as well as healthy tissue. The tattoo strokes are done to match the pattern of hair growth and the proper ink must be used to match the hair color and prevent fading to an unacceptable color tone. Complications from tattooing are minimal and, of course, results are immediate. If not done properly, the tattoo ink can migrate and appear to have a bluish or greenish hue over time further necessitating the need for an experienced tattoo artist.

In conclusion, donor scar tattooing can be an excellent method for permanently camouflaging the donor scar, which allows African American patients to wear short hair styles (Figure 1). Expert tattooing appears to give cosmetically superior results to surgical revision or placing hair in the scar. Tattooing also allows maintenance-free care unlike the makeup solutions that are applied.

The results associated with tattooing the scar are operator dependent. At present, I have found one center in the United States located in Atlanta, Georgia, that specializes in this discipline (Artistic Hair Loss Solutions). All the donor tattoos in my African American patients have been done by Cheryl Rosenblum.

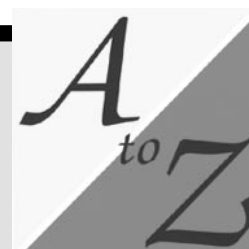
It is also important to note that the follicular unit extraction technique is also a good technique to allow African American patients to wear their hair closely cropped without the traditional donor area scar. I have employed this technique in African American patients and patient satisfaction has been good.



Figure 1. A: Thick donor scar in African American patient; B: after donor scar tattooing.

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Problem avoidance in hair transplant surgery

Richard C. Shiell, MBBS Melbourne, Australia hairman@mira.net

When I look back over the past 43 years since I commenced performing hair transplant surgery, I realize that almost every technique that we tried produced mostly happy patients (as well as a small percentage of those who were dissatisfied with their results). The vast majority of patients are happy when they get a little more hair.

The purpose of this paper is to point out key points that are likely to produce satisfaction while at the same time providing tips on how to avoid well-known traps that can lead to dissatisfaction. There is nothing new here, but like re-reading the Scriptures, it won't do you any harm to read them again:

- Take a careful case history and be clear in your mind what bothers the patient most about his or her hair. It is not always the same as what you consider to be important. If you cannot adequately address the patient's problem, it is best to avoid surgery altogether.
- Take good pre- and post-operative photographs and have good records of all subsequent patient contact, including after-hours phone calls, if possible.
- Make sure that your pre- and post-operative hand-outs are of high standard and are up-to-date with your current technique.
- Work on developing strong patient relationship and encourage your staff to do the same. If you do this well, you will keep the patient for decades and he or she will send friends and relations to see you. This is far superior to costly advertising.
- If there are any surgical problems, a strong rapport will prove far superior to anything that a smart lawyer can deliver.
- In young patients, place the hairline as high as the patient will tolerate within artistic feasibility. You will both be grateful for this in twenty years' time. A low rounded temple should only be performed by surgeons with many years of experience and even then only very occasionally.
- You should carefully assess the donor site before making your second cut to remove a strip. This is even more important if you did not perform the earlier surgery. Patients are notoriously inaccurate in recalling prior surgical events. They may even forget to mention prior scalp reductions.
- Always be on the lookout for patients with Body Dysmorphic Syndrome. These patients can be very enthusiastic and complimentary before surgery but notoriously difficult to satisfy post-operatively.
- Our patients are generally very healthy and most are on no prior medication. For this reason, minimal dosage is often very effective and higher doses may have adverse effects. Have a good understanding of any drugs that you use and the number of drugs you use in each patient should be kept to a minimum.
- If using intravenous sedation, be sure to use a pulse oximeter. Respiratory depression is a common side effect but the lowered PO2 is easily reversed by asking the patient to take some deep breaths.
- A defibrillator and supply of oxygen is essential operating room equipment in all modern surgical procedures. You are most unlikely to require a defibrillator in your professional career but will have no defense if there is an adverse event and it is missing or the battery is flat.
- Make sure that you and your staff are well trained in CPR techniques and update regularly. This is a legal requirement in some states and countries but it also is common sense.
- Most fainting and fitting during local anesthesia are due to vasovagal attacks and can be prevented by being aware of the warning signs. These are yawning, patient asking for a drink of water, and beads of sweat on the patient's forehead. The staff must be instructed to get the patient into a head-down-feet-up position and immediately administer oxygen.
- Factors that can lead to these attacks are intra-operative pain and blood loss, undue heat, and noise or chatter in the O.R.
- Do not use hair from the lower regions of the donor site. It is tempting to use this fine-grade hair for eyebrows or the hairline reconstruction, but remember that this hair is only fine because it is already in transition to the vellus state.
- Be very wary of operating on patients with a high percentage of miniaturization mixed with normal hairs in the donor and recipient sites. These patients often have disappointing results. In addition, the hair may thin out prematurely, revealing old donor scars.
- Patients with diffuse unpatterned alopecia have poor-quality donor hair and a lot of miniaturization. They do not make good candidates for hair transplant surgery.
- Grafting to the crown area of young patients should be undertaken only with great caution and a thorough investigation of the patient's family history of baldness. This region can become a "bottomless-pit" for hair transplants.
- Scalp reduction procedures are still quite valid but be aware of the well-described complications associated with repetition of this procedure (distortion of the residual hair margins, elevation of the supra-auricular zone, and difficulty in hair styling and concealment of the central scar).
- Scalp-flap surgery is tricky and, even when well-executed by skilled plastic surgeons, can produce unhappy patients because of the dense, sharply defined hairline and unnatural hair direction.✧

Hair Sciences

Nilofer P. Farjo, MBChB Manchester, United Kingdom nilofer@farjo.com



In this edition, I discuss with Dr. Matthew Harries the concept of *immune privilege* and how it relates to the hair follicle in normal and disease states. Immune privilege is defined as those sites in the body that are able to tolerate antigen challenge without eliciting an inflammatory immune response. These sites include the brain, eyes, placenta, fetus, and testicles with corneal transplants currently the only procedure that takes advantage of this resistance to rejection.

An interview with Dr. Matthew Harries

1. Can you explain the concept of “immune privilege” of the hair follicle? What portions of the hair follicle are immunoprivileged?

Immune privilege describes a complex collection of mechanisms that restrict antigen presentation (e.g., reduced expression of major histocompatibility complex [MHC] class I and class II), suppress local immune responses (e.g., increased expression of locally generated immunosuppressants such as TGF- β) and favours peripheral tolerance in specific tissue compartments. The proximal anagen hair follicle epithelium and, more recently, the hair follicle bulge have been shown to exhibit features of relative immune privilege.¹ Recent work suggests that bulge immune privilege appears to collapse in primary cicatricial alopecias, although it is still to be determined if this is a primary event, or if it is secondary to other factors.

2. Theoretically, would it be possible to transplant specific fragments of a hair follicle from one person to another (heterologous transplantation) without getting rejection?

Yes. In fact, immune privilege was originally discovered when foreign tissue grafts were transplanted into the eye or brain of rabbits. These grafts were observed to survive for prolonged periods of time without rejection.² Further, functional evidence for immune privilege in hair follicles was presented by Billingham in 1971. Skin taken from the ears of black guinea pigs grafted onto genetically different white guinea pigs became depigmented within two weeks as the epidermal melanocytes were rejected in the graft. However, after a number of weeks, black hairs were observed to grow through the (now) depigmented graft skin, suggesting that the hair follicle melanocytes had somehow evaded immune destruction.³

3. According to Dr. Ohyama, the “upregulation of CD200 may enable bulge cells to protect themselves from unwanted immune responses.”⁴ Why, then, in primary scarring alopecia is the bulge zone the target of the inflammatory reaction with subsequent bulge destruction?

CD200 is not only a potential bulge marker, but it has also been shown to act as a “no danger” signal to the immune system.⁵ It is possible that loss of CD200 expression in the bulge may expose these cells to an auto-aggressive immune response. In support of this is my own observation that CD200 expression is reduced in the bulge in lichen planopilaris and that skin grafted from CD200 knockout mice onto wild-type hosts display a scarring alopecia phenotype.⁶



Figure 1. Frontal fibrosing alopecia showing peri-follicular erythema and hyperkeratosis.

4. What do you think of using recombinant CD200 as a new remedy for scarring alopecia? Is there any other promising therapy?

If loss of CD200 turns out to be a key pathogenic factor in scarring alopecia, then theoretically recombinant CD200 could be a potential therapy. In addition, therapies that can re-establish immune privilege, which appears to be collapsed in primary cicatricial alopecias, are also a promising area for future research.⁷ Looking at current new therapies, the PPAR γ agonists (e.g., pioglitazone) look promising but require more clinical study.⁸

* PPARs: Peroxisome proliferator-activated receptors are a group of receptor proteins on nuclei that are involved in regulating the expression of genes. Three types of PPARs have been identified—alpha, beta, and gamma (γ)—and are expressed in different tissue types. PPARs play essential roles in the regulation of cellular differentiation, development, and metabolism (carbohydrate, lipid, protein), and tumourigenesis.

5. In your practice how would you treat patients with lichen planopilaris? Please detail the acute and maintenance therapy you normally use.

Evidence for treatment options in lichen planopilaris is generally poor.⁹ I usually start with a potent topical corticosteroid, followed by intralesional triamcinolone acetate as local therapy. My first choice systemic agents are oral hydroxychloroquine or a tetracycline antibiotic. My second line systemic therapy takes the form of an immunosuppressant (e.g., ciclosporin, mycophenolate mofetil).

6. Any comments on the etiology of frontal fibrosing alopecia? Why is it so prevalent in postmenopausal women?

Hair Sciences

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The etiology of frontal fibrosing alopecia is currently unknown. As with lichen planopilaris, there does appear to be a collapse in the hair follicle bulge immune privilege. However, why it predominantly affects post-menopausal women is still a mystery. Considering that it was only first described in 1994, and appears to be becoming more common, may suggest that there is an environmental factor in the etiology. Further, the reported response to finasteride, along with the patient group, may point toward a hormonal influence.

7. In your experience what is the best therapy for frontal fibrosing alopecia? Oral antimalarials, topical steroids? Please comment.

Response to topical steroids is often disappointing. I tend to favour intralesional steroids, often combined with a systemic agent (see LPP treatment above).

8. Do you envision any role of the hair follicle in regenerative medicine in the near future?

Yes. The observation that some nestin + * hair follicle stem cells can differentiate into non-epithelial neural tissue is clearly exciting in the regenerative field. The easily accessible nature of the hair follicle makes it an incredibly useful organ for future research.

* Nestin is a protein marker for neural stem cells that is also expressed in mesenchymal stem cells located in the connective tissue sheath of hair follicles.¹⁰ These nestin positive cells can differentiate into neurons, glia, keratinocytes, smooth muscle cells, and melanocytes in vitro.

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Dr. Matthew Harries graduated from the University of Leeds, United Kingdom, in 1998. After completing training in internal medicine, he took up a post as a Specialist Registrar in Dermatology in Manchester. Since September 2007, Dr. Harries has taken time out of his clinical training programme to pursue his growing interest in hair and scalp disorders. He currently works as a Clinical Research Fellow in Dermatological Sciences at The University of Manchester studying the hair immune system in cicatricial alopecias. He has also spent time as a visiting Research Fellow in Experimental Dermatology at the University of Lübeck in Germany. His research is supported by the Geoffrey Dowling Fellowship from the British Association of Dermatologists and research grants from the Cicatricial Alopecia Research Foundation (CARF) and British Skin Foundation (BSF). In addition, he runs a monthly specialist research hair clinic in Manchester.



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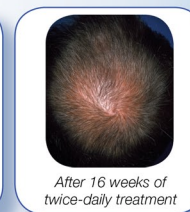
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Successful treatment of chemotherapy-induced alopecia with LaserCap™: a case report

Tseng-Kuo Shiao, MD, Ting-Kuo Shiao, Jessica C. Shiao *Overland Park, Kansas*; I-Sen Shiao, MD *Taipei, Taiwan* uhr@att.net

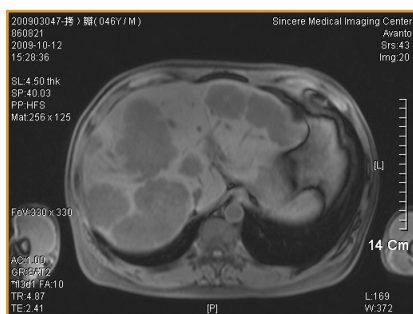


Figure 1. MRI of the liver at the time of diagnosis.

Case report: The patient is a 46-year-old male of Chinese decent diagnosed with stage IV colon cancer with 10 + metastases to the liver on October 12, 2009 (Figure 1). His CEA at the time of discovery was 4,030ng/ml.

FOLFOX (5-FU, folinic acid, oxaloplatin) chemotherapy every two weeks was started on October 28, 2009. Alternative therapy included fermented wheat germ extract (Avemar) and high-dose IV Vitamin C (3,000mg IV, 3 times per week) beginning in the same month and 8g/day of fucoidan from *Fucus vesiculosus* beginning in early December 2009. The patient had minimal side effects from the FOLFOX chemotherapy regimen, reported no GI discomforts, and had no noticeable hair loss during his 12 weeks of FOLFOX.

Unfortunately, the patient's tumors did not respond to the chemo regimen, and his CEA reached 7,900ng/ml by January 2010. His oncologist switched his chemo regimen to cetuximab + FOLFIRI (5-FU, folinic acid, irinotecan) while his alternative therapies remained the same. Under this new regimen, he experienced significant side effects including diarrhea, nausea, skin eruptions, and, within several weeks, significant hair loss.

His colon Ca responded to the new chemo regimen, and his CEA dropped to 396ng/ml in 4 weeks (February 2010) and 359ng/ml in 2 months (March 2010). The patient's CT after 3 months of chemo (April 2010) showed significant reduction of tumor size ($< 1/10$ of the volume at the time of discovery) and widespread calcification. His fucoidan regimen was changed to a 50/50 mix of *Fucus vesiculosus* and *Undaria pinnatifida* at the end of March 2010. The same chemo protocol continued and his CEA dropped to 12.40 by July 2010 and his CT at the end of July also showed reductions in tumor size and count. As of July 31, 2010, the patient is still on the same protocol.

LaserCap Treatment

Hoping to stop the patient's hair loss, in April 2010 Drs. Tseng-Kuo and I-Sen Shiao had started the patient on LaserCap treatment. LaserCap is a portable low level laser therapy device containing 224-650nm 5mw laser diodes. The patient received 30-minute LaserCap treatments 2-3 times a week. By June 2010, after 23 sessions (about 9 weeks of LaserCap therapy), the patient's hair loss had completely stopped. He had also regained his lost hair and may have had a higher hair density than he did prior to chemotherapy (Figure 2). The patient did not use minoxidil, because it irritated his already compromised skin (from cetuximab).

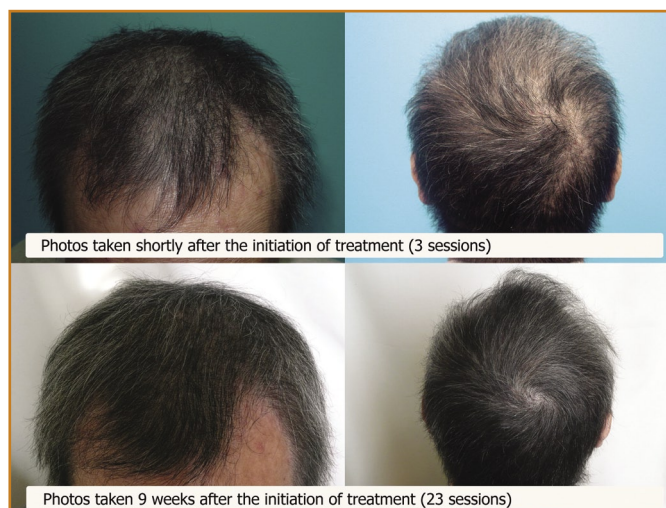


Figure 2. Pictures in the top row were taken 10 days (3 treatment sessions) after initiation of LaserCap therapy. Note the significant hair loss in these pictures. Pictures in the bottom row were taken about 9 weeks (23 treatment sessions) after initiation of LaserCap therapy. Not only did the patient's hair loss stop, his hair also grew back while he was under active chemotherapy (note the skin eruption on left forehead due to cetuximab).

Discussion

Few dermatologic conditions carry as much emotional distress as chemotherapy-induced alopecia. It is psychologically daunting as it constantly reminds the patient of the disease, and patients have even refused possibly palliative or lifesaving drugs because they could not accept the temporary or prolonged baldness. In this patient's case, once his hair loss ceased, his family members noticed a change in his mood from being depressed to being much more relaxed. In his words, "It was very depressing to see hair all over my pillow when I got up every morning and to watch gobs of hair falling off each time I combed my hair. Now I feel bad for other chemo recipients who do not have access to the LaserCap."

As far as we know, this is the first reported case of successful treatment of hair loss induced by chemotherapy while the patient is undergoing active chemotherapy under the same regimen. However, this is an anecdotal case and controlled studies must be done to determine if low level laser therapy is really useful in chemotherapy-induced alopecia, or if such success is only possible against certain chemotherapeutic agents or influenced by the patient's age, gender, and degree of hair loss. We must also determine if low level laser therapy was solely responsible for the success or if any alternative therapies this patient received, such as fucoidan, fermented wheat germ extract, and IV Vitamin C, also played a role. Nevertheless, we hope this case report will lead to a new direction in finding treatment for chemotherapy-induced alopecia and bring hope to the millions suffering from this heart-wrenching condition. ✧

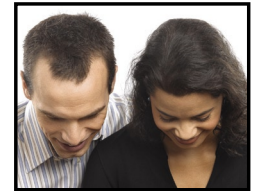
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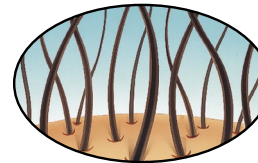
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Cyberspace Chat



Sharon A. Keene, MD Tucson, Arizona drkeene@hairrestore.com

Techniques to improve density and limit shock loss when operating on female pattern hair loss patients

Recently the following cyber conversation dealt with the subject of surgery for female pattern hair loss (FPHL) and the frequently observed permanent shock loss that effectively dilutes the cosmetic benefit of surgery. It can be very disheartening to a hair restoration surgeon and the patient, after spending hours in surgery, to find months later that both you and your patient are dissatisfied with the results. Though there is a lack of scientific study regarding the pathophysiology of shock loss, techniques that some experienced doctors believe have improved results and limited shock loss are reported here. In addition, a brief review of some of the known science of wounding is presented, which may explain why these techniques may be helpful.

The thread began by a colleague lamenting mediocre transplant results seen in some female patients following carefully limited procedures of 1,000 grafts or less. It was felt that this resulted because existing hair fell out and the remaining transplanted hairs were insufficient to create the cosmetic coverage desired. The strategy behind limiting graft numbers and the avoidance of dense packing is to limit local tissue trauma, believed to be a cause of shock loss in existing hairs. This raised the question of whether to transplant larger sessions and simply plan at the outset for shock loss—with the caveat that this would likely have the effect of temporarily creating a much thinner appearance of the hair, which most women would not appreciate. The end result, however, would be more permanent hairs to the recipient area.

The Cyber Conversation

In response to this problem, *Dr. Jerry Cooley* shared the following: “In my experience, shock loss is due to the size and depth of incisions I make. I’ve used needles and blades (custom cut) for over 10 years and find no difference between the two in regards to shocking when depth is controlled. Using tumescence, taking time to go in between existing hair, and minimizing size and depth is what determines shock loss in my experience. When it has occurred, it was usually because I pushed the size (1mm) and depth limits (3–3.5mm). I prefer needles to go in between existing hair. Few of my men and none of my women are willing to shave their heads. A needle doesn’t make a crescentic incision if done properly. When I’m concerned about the possibility of shock loss, I de-epithelialize the grafts, and make the depth about 3–3.5mm. Transecting the graft just above the

sebaceous gland (i.e., removing the infundibulum) does not affect regrowth, as shown by numerous experiments. I do think it is important to prevent dehydration after placement if you de-epithelialize: keep ambient humidity in the operating room above 50% and have the patient keep the grafts moist for several days. De-epithelializing the grafts allows shallower sites, which, with good tumescence, produces less bleeding...and, I’ll be willing to bet, you’ll see less shocking or none at all. I prefer Terumo needles to B-D, and change them out every 100 sites, which is an easy way to track your numbers, too.”

In addition to this, *Dr. Jim Vogel* had this to share: “I also use 19g needles with shallow sites adjusted on a case-by-case basis to individual graft length, a lot of saline tumescence, non-aggressive packing (15–20/cm²) and periop methylprednisolone.... My personal feeling is that the inflammatory response that is reduced by the technique Dr. Cooley mentioned, and that I believe is also minimized in my technique, is the main factor.”

Dr. Mike Beehner shared this candid evolution in his techniques: “I have gone through three stages. For a great many years, I used FU grafts around the edges (front, temples, and creases) and depended upon 4–6 hair ‘slit’ grafts cut with an 11 blade, which I am certain made cuts that were larger and deeper than I needed. I did like the density and light-blocking properties they gave, but I did notice, after a couple of sessions, that the only hair growing in the center of the head were my grafts and that I had ‘spooked’ all the native hair out of existence. Then, around 4 years ago, I switched to all FU grafts, usually around 1,500–1,600, placing most of them in 20g, 19g, and 18g solid core needle sites, and later into 0.8, 0.9, and 1.0 custom blade slit sites. I am pretty sure I got less shocking, but I wasn’t happy with the evident density, and, quite frankly, I couldn’t tell my grafts apart from the native hair (a nice problem, most would probably say). In women with a fairly advanced degree of hair loss on top, I am now returning to using small 45 degree custom made slit blades that are 1.6–1.8mm wide, and I place them in the large central areas from behind the hairline back to the vertex border, using around 400–450 of them in a typical case, and each has around 4 hairs in it (2 FUs together with the intervening tissue intact). In the few cases I have seen back, I am starting to notice more visual density. If the woman doesn’t have that much hair loss but still wants transplanting, where the gaps aren’t that large, I still only use FU slit

sites, to avoid damaging existing hairs. Coincidentally, for the past year I have been routinely using 40mg of Kenalog (triamcinolone) in my tumescent solution."

Dr. Walter Unger had this to share about his techniques: "I use mostly 19g and 20g needles for 2s and 1s, and 18g or 19g for 3s and peri-operative systemic corticosteroids, and I limit the density to 20-25 FU/cm² in women. In my experience, so called "permanent" shock loss is always substantially overwhelmed by the positive effects of the transplanted hair. This will be the case as long as one does not overdo FU density and FU numbers and incises recipient sites slowly and carefully enough to result in minimal injury to existing recipient area FU. (The preceding is also true of transplanting into still hair-bearing areas of hair in men.)"

Dr. Bobby Limmer commented: "I could almost verbatim use Walter's comments regarding shock loss and planting methods. I am beginning to think that the pre-op prednisone 60mg and 60mg per day for 3 days' post-op may have a lot to do with the very few cases of shock loss we see."

And though there were yet other comments, the one made by **Dr. Bob Bernstein** echoed the frustration that prompted the subject: "I use essentially the same doses of steroids and exactly the same needle sizes as Dr. Limmer but pre-make sites and do sessions with the average of about 2,200 (in women). I also use less epi than most, with concentrations ranging from 1:200,000 to 1:600,000, and I never use superjuice. Although I don't have hard data, my subjective experience is that some thinning is the rule rather than the exception when transplanting women."

Comments

Even in experienced and careful hands, shock loss can still occur. But let us have a little closer look at the possible ways these recommendations may impact healing to understand why it is they could influence shock loss.

Wound healing is a very complex cascade of events that have been characterized in the medical literature as an inflammatory phase, proliferative phase, and maturation phase¹; or, alternatively, as hemostasis, inflammation, repair and remodeling.² Specifically, a wound or incision in the skin initiates the process of hemostasis, including fibrin clot formation due to platelet aggregation. During this process, platelets degranulate and release their contents into the circulation to stimulate the coagulation cascade, as well as the release of chemoattractants. Meanwhile, the injured blood vessels contain endothelial cells that produce chemokines. Each of these processes contributes to the onset of inflammation that is associated with the release of blood-borne inflammatory cells to the injury site, including neutrophils. Neutrophils provide proteolytic enzymes to digest foreign debris or kill bacteria, and then undergo apoptosis after 24-48 hours if decontamination of the wound is achieved.

A partial thickness wound (epidermis only—like a scrape or paper cut) evokes a different wound response than a full thickness wound (skin into subcutaneous tissue). Partial thickness wounds, which leave the basement membrane intact, heal through keratinocyte regeneration and migration alone, which begins 24-48 hours after injury, a process known as lamellopoidal crawling. The epithelial progenitor cells remain intact and the synthesis of collagen is not re-

quired. In such wounds where there is minimal extracellular matrix production, very little additional wound remodeling is required, and there is limited or no scarring. If the wound extends to the basement membrane, the keratinocytes produce proteases, which tunnel through the fibrin clot and over granulation tissue to repair the damaged basement membrane.

Depending on the area of the scalp, the skin is 3-8mm thick, and therefore, limiting the depth of incision to 3-3.5mm during recipient site creation may create a shallower, but nevertheless, full thickness wound. In full thickness wounds that extend into the subcutaneous tissue, repair occurs with the production of extracellular matrix from fibroblasts together with the creation of granulation tissue as endothelial cells produce new capillaries. Migrating fibroblasts switch to a more fibrotic phenotype, which synthesizes collagen matrix that begins to provide structural support for the wound. New capillaries are formed in response to growth factors such as fibroblast growth factor and VEGF.² In this phase there are more cytokines released into the systemic circulation, too. These cascades are self limited once healing of the blood vessel occurs, so limited damage to blood vessels would be expected to limit the inflammatory response, too.

As part of the proliferative phase, incisional wounds are epithelialized within 24-48 hours.¹ When grafts extend through the incision and prevent the two wound edges from being in contact, it is reasonable to conclude this process may take longer. In contrast, when grafts are de-epithelialized, wound edges are coapted immediately, and it seems likely this process can occur more quickly. Furthermore, maintaining a hydrated or moist wound environment has been shown to accelerate wound healing.³

The use of steroids, specifically triamcinolone in tumescent fluid and oral prednisone, has been used to help reduce post-operative edema. It has also been suggested these are a means to inhibit the inflammatory response that exposes the tissue to stress, and it is speculated this may reduce the risk of shock loss. It is interesting to note that although glucocorticoids have been documented to delay wound healing,⁴ there may be reasons why we don't seem to see delayed healing when they are used in tumescent fluid. Connective tissue growth factor (CTGF) has an important influence on fibroblast proliferation and extracellular matrix deposition, and in studies of cultured fibroblasts, glucocorticoids were a potent inducer of CTGF expression.³ It seems clear as our understanding of wound healing progresses, we will gain a better understanding of how glucocorticoids may impact shock loss.

In conclusion, strategies to modify the wound healing response (limited depth of recipient sites and steroids) and that accelerate epithelialization (de-epithelialization of grafts, post-operative hydration of recipient sites) may accelerate the healing process and limit the physiologic stress that is a possible contributory factor to shock loss in FPHL. Based on these reported experiences, the following techniques summarize what our experienced peers have observed as a means to reduce shock loss:

1. Making shallow incisions (the latter may be easier to accomplish by de-epithelialization of grafts).

Cyberspace Chat

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2. Taking care to place incisions carefully between existing hairs.
3. Keeping the level of graft density to moderate levels of dense packing 20-25 grafts/cm².
4. Using peri-operative corticosteroids.

Keeping the recipient area moist after surgery will facilitate re-epithelialization, too. What is not clear is whether two 0.8mm incisions of 3.0mm depth is an advantage over a single 1.6mm incision that is equally shallow—as the area of trauma is presumably the same. More of the latter may allow for more follicular family grafts (or double follicular units where 2 FUs are joined by the skin bridge between them for natural spacing), and obviate the need for greater dense packing of incisions while providing the same or increased hair numbers needed to achieve cosmetic density in female patients. Controlled surveys are needed to scientifically document the validity and effectiveness of these strategies. Nevertheless, based on available wound healing evidence, these seem like reasonable and safe empiric techniques to try.

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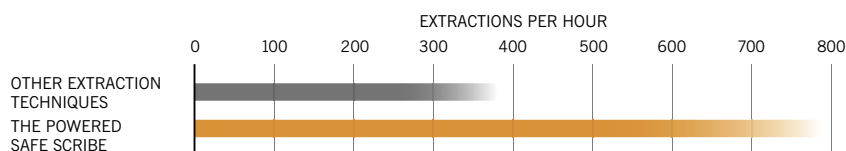


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Hair's the Question“?”

Sara Wasserbauer, MD Walnut Creek, California drwasserbauer@californiahairsurgeon.com



Every hair surgeon seems to have his or her own proprietary method for local anesthesia, and each one seems to eclipse all others with regards to efficacy, ease of use, and safety. This is one of the areas that I still find useful little clinical pearls either through review of existing literature or when talking with other hair surgeons. Whether it is a complication or just a complicated patient, it is also beneficial to have a broad array of techniques in your professional armamentarium.

Anesthesia in Hair Transplant Surgery

1. Advantages of effective local anesthesia include:
 - A. Improved hemostasis
 - B. Increased anxiety
 - C. Increased bleeding and thus increased visibility
 - D. Improvement of graft survival directly attributable to effective numbing
2. The “Gate Theory” of pain control posits:
 - A. Sensations such as pressure and vibration can diminish the perception of pain when simultaneously administered during local anesthesia injections.
 - B. Anesthesia should be administered as soon as possible so that pain can be controlled “right out of the gate” for particularly anxious patients.
 - C. Buffering a local anesthetic to the “gate pH” of ~7 with sodium bicarbonate reduces pain at the time of injection.
 - D. Oral administration of benzodiazepines and setting realistic pain expectations for patients are the best methods of early intervention for pain control.
3. Which of the following local anesthetics are ordered correctly from shortest to longest duration of action?
 - A. Lidocaine (xylocaine) alone, lidocaine with epinephrine, bupivacaine (marcaine) alone
 - B. Bupivacaine (marcaine) with epinephrine, lidocaine (xylocaine) with epinephrine, prilocaine (citanest) alone
 - C. Articaine (septocaine) alone, lidocaine (xylocaine) alone, bupivacaine (marcaine) alone
 - D. Lidocaine (xylocaine) alone, articaine (septocaine) with epinephrine, lidocaine with epinephrine
4. Clinically, which of the following shows the order of loss of nerve function with the use of local anesthetics?
 - A. Vibration, touch, pain, temperature, proprioception
 - B. Pain, temperature, touch, proprioception, skeletal muscle tone
 - C. Skeletal muscle tone, proprioception, touch, temperature, pain
 - D. Proprioception, temperature, pain, touch, vibration
5. Sensory innervation of the forehead and frontal scalp is supplied by which of the following?
 - A. Greater occipital nerve
 - B. Postauricular and lesser occipital nerves
 - C. Supraorbital and supratrochlear nerves
 - D. Zygomatico and auriculotemporal nerves
6. Topical local anesthetics (such as EMLA cream, etc.) are best used
 - A. for superficial anesthesia of the donor area.
 - B. with occlusion at the recipient site while donor harvesting is taking place.
 - C. 1-2 minutes ahead of time to make injections less painful.
 - D. in conjunction with pump-style (wand or needleless) anesthesia injectors.
7. Which of the following is true in general regarding local anesthesia?
 - A. Buffered lidocaine is less likely to cause post-operative edema in either the donor or recipient areas.
 - B. The occipital donor area is more sensitive than the hairline area and thus lower concentrations of local anesthetic can be used.
 - C. Saline tumescence can increase bleeding in the donor area and create a less stable cutting surface for initial incisions and later complicates microscopic dissection as well.
 - D. Warming anesthesia solutions to body temperature, using small (30g) needles, and slowing the rate of injection are potential methods of reducing pain.
8. Which of the following medications in a mixture of local anesthetic has the highest potential to decrease graft survival?
 - A. Epinephrine 1:1,000
 - B. Lidocaine 2%
 - C. Kenalog 40mg/ml
 - D. Bupivacaine 0.5%
9. Clinically, what would the earliest indication of systemic toxicity from local anesthetic use be?
 - A. Faintness and syncope treated best with Trendelenberg positioning, head turning to prevent tongue blockage of the throat, and peripheral irritation (cold water, ammonia, etc.)
 - B. Hypotension and bradycardia with hives treated best with oxygen, epinephrine, and diphenhydramine
 - C. Respiratory arrest and convulsions treated best with ACLS protocols
 - D. Tongue numbness, copper penny taste in mouth, and “spots before my eyes,” treated best with Trendelenberg positioning, oxygen, and diazepam

Hair's the Question

from page 161

1. **A.** Anxiety should decrease when anesthesia is effective and there is no known correlation with graft survival.
2. **A.** Other answers may be valid as well, but only A accurately describes the "Gate Theory."
3. **A.** In general, the addition of epinephrine allows for a longer duration and the decreased need for larger doses of the anesthetic.
4. **B.** Pain is the first function to be lost and skeletal muscle tone is the last.
5. **C.** Although C is the correct answer, all of them together constitute the list of nerves that provide sensory innervation to the scalp!
6. **B.** Since 1-2 hours (preferably with occlusion) is needed for optimal superficial anesthesia, application to the donor area can be inconvenient. Pump-style injectors minimize the pain of local anesthesia through their slow and metered infusion speeds.
7. **D.** Buffered anesthetic causes increased post-operative edema. Saline tumescence has many advantages including decreased bleeding overall, a firmer cutting surface in the donor area, and improved microscopic dissection via increased distance between the hair follicles. The donor area is typically less sensitive than the hairline area.

8. **A.** Epinephrine is at high concentration through its vasoconstrictive effects, which may decrease oxygen supply to the newly grafted hair. Of course, all medications have risk to the patient no matter how minor the surgery or how small the dose.
9. **D.** Choice A simply describes a common vasovagal reaction and its correct treatment. True allergic reaction as described in B is rare and potentially fatal but may present with hypotension and bradycardia B. Respiratory arrest and convulsions as noted in C would be late signs.

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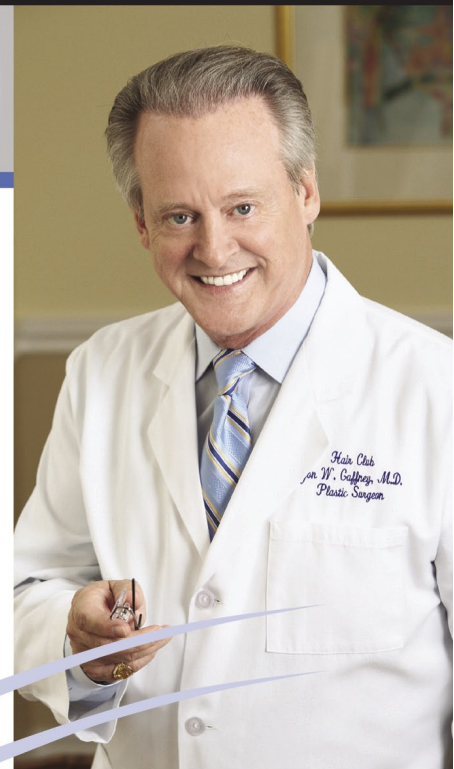
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Message from the Program Chair of the 2010 Annual Scientific Meeting



Dear Colleagues:

The 18th Annual Scientific Meeting of the ISHRS is just around the corner, so register now before it is too late. This is one meeting that you will not want to miss. The meeting will be held at the Seaport Hotel and World Trade Center from October 20-24. This year's theme, "Revolution & Evolution—Advances in Hair Restoration: Revolutionary Concepts and Evolutionary Techniques," is perfect considering the revolutionary history of Boston. There will be ground-breaking lectures given by our invited speakers, Drs. Bruno Bernard, Kurt Stenn, and David Whiting. We have also added another cutting-edge lecture by Dr. Marty Sawaya.

True to our theme, this year's meeting will build on the most popular elements of the meetings of the past few years including the enhanced accessibility of the video surgical theater, additional use of panel discussions/debates on controversial topics with extended periods for audience involvement, and the popular Saturday afternoon live patient viewing session. Topics will range from cutting-edge medical and basic research topics to all aspects of the core surgical competencies that have advanced hair restoration to the degrees of excellence that our field has achieved to date.

This year will create more of an interactive experience for attendees with the use of an Audience Response System that will enable the moderators of select sessions and panels to query the audience for impromptu surveys before and after topics are presented and debated. We have allotted ample time for audience participation with a Question-and-answer session following each section. We also brought back "Open Mic" where experts on the panel will field questions on any subject the audience would like. In addition, we've added a free session during Saturday lunch entitled "How to create a high definition surgical video."

Particular highlights this year will be a repeat of last year's very popular hairline design panel, complications sessions, controversy sessions, breakfast with the experts, and lunch symposiums with topics such as advances in FUE techniques.

Judging from the largest number of abstracts ever submitted for oral, poster, and video theater presentations as well as the buzz on the street, this year's meeting promises to be a particularly enjoyable and productive exchange of scientific and surgical information and techniques. I hope that many of you will be able to attend, and I encourage you to contact me at doctor@hairgrowthdoctor.com if you are interested in participating or have suggestions concerning this year's meeting.

Best regards,

Paul J. McAndrews, MD



<http://www.ishrs.org/18thAnnualMeeting.html>

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ZIERING



Review of the

Literature: Dermatology

Nicole E. Rogers, MD Metairie, Louisiana nicolerogers11@yahoo.com; Marc R. Avram, MD New York, New York dochair@aol.com

Long-awaited Lash Data

Citation: Rhibaut, S., et al. Human eyelash characterization. *British Journal of Dermatology* 2010;162:304-310.

In a recent publication of the *British Journal of Dermatology*, long-awaited data about eyelashes was published. A group of researchers from France enrolled 29 Caucasian female volunteers to take part in a 9-month study examining various aspects of eyelash growth and biology. The women were seen on a weekly basis, and photographs of their lashes were taken at fixed positions, with specific attention paid to specific areas of the lash lines. A second part of their study enrolled elderly patients undergoing ectropion surgery in order to obtain histologic specimens of their eyelashes for melanocyte study.

Their findings confirmed what has long been believed true: The anagen phase of eyelashes is indeed much shorter than that of regular scalp hair follicles (average 34 ± 9 days), but that the total eyelash cycle was reasonably constant: 90 ± 5 days. The growth rate of individual eyelashes was found to be 0.12 ± 0.05 mm daily. The calculated mean eyelash length was 4 ± 1 mm (range 2.1–6.6 mm). There was a large variation in lash length even within the same individuals. Immunohistologic study of eyelashes demonstrated

the presence of K-19 positive cells throughout the length of the ORS, rather than clustered in a single reservoir like in the bulge of the mouse hair follicle. These appeared as two distinct reservoirs in the upper and lower ORS, but fused during the catagen/telogen transition, and individualized again in the newly forming anagen scalp hair. No arrector pili muscles are present in hair follicles, as exist in scalp hair follicles.

Interestingly, all eyelash samples from biopsies of ectropion patients contained highly pigmented melanocytes, despite being advanced in years (68–87 years old). The authors hypothesize that the very late whitening of eyelashes correlates with the presence of a cytoprotective factor TRP-2, which may have a more attenuated expression in eyelashes.

Comment

Eyelashes are obviously controlled by different factors than scalp hair, and this study confirms this. As hair experts and surgeons, we may use this data to help treat our patients better. ♦

Solving Scarring Alopecia Through Diabetes?

Citations: Mirmirani, P., and P. Karnik. Lichen planopilaris treated with a peroxisome proliferator-activated receptor γ agonist. *Arch Dermatol.* 2009; 145:1363-1366.

Karnik, P., et al. Hair follicle stem-cell specific PPAR-gamma deletion causes scarring alopecia. *J Invest Dermatol.* 2009; 129:1243-1257.

Lichen planopilaris (LPP) can result in devastating hair loss with permanent scarring. Patients' symptoms of itching, burning, and flaking can also significantly affect their quality of life. Historically, anti-inflammatory medications such as intralesional triamcinolone, hydroxychloroquine, doxycycline, and systemic steroids have been first-line therapy, with inconsistent results. Researchers at Case Western and UCSF recently used pioglitazone, a medication for type 2 diabetes mellitus that increases the activity of peroxisome-proliferator-activated receptor γ (PPAR- γ), in a patient with LPP.

The patient was a 47-year-old Caucasian male who had sudden onset of irritation, redness, and itching with rapid hair loss, in addition to a pre-existing diagnosis of androgenetic alopecia. Over the previous 1.5 years, he had failed all of the above-mentioned medications in addition to oral prednisone and mycophenolate mofetil. He was given pioglitazone hydrochloride, 15mg/day orally, based on a study suggesting that the initial trigger of inflammation in LPP is loss of function of the peroxisome-proliferator-activated

receptor γ , which then leads to aberrant lipid metabolism in the sebaceous gland, a toxic buildup of lipids, and resultant inflammatory response. After just 1 month, the patient noted a decrease in itching and a follow-up biopsy performed 6 months later demonstrated a dramatic decrease in inflammatory infiltrate.

Comment

The results of this single case report are promising and will hopefully prompt additional large-scale studies. In the meantime, physicians should be reminded of possible side effects of pioglitazones: peripheral edema, weight gain, shortness of breath, and worsening of congestive heart failure. Non-diabetic patients may safely use the medication but should be advised of the risk of possible hypoglycemic episodes. A topical version of this medication is reportedly under development and would offer an additional method of delivery. ♦

Review of the ISHRS Asian Regional Live Surgery Workshop

Sungjoo "Tommy" Hwang, MD, PhD *Seoul, South Korea* tommyhairdoctor@yahoo.com;
Theresa Marie Cacas, MD *Manila, Philippines* theresareyesderm@yahoo.com

The Vimanthip Function Room of the Montien Riverside Hotel in Bangkok, Thailand, provided a stunning background for this meeting, which began on Friday, June 24, 2010, with a warm "Sawadeekrub" and welcome by workshop chairman, Dr. Damkerng Pathomvanich.

Friday/June 25, 2010

Hair Transplantation—An Art and Science

Dr. Dow Stough reminded us that hair transplantation has evolved a long way. He emphasized that this craft is a combination of more art than science since many advancements in this field have progressed through anecdotal evidence. Dr. Stough showed us many of his ingenious techniques, such as the special scissors used for trichophytic closure, different devices to measure hair, such as the Hair Check™, 3M surgical clippers to cut hair, and an airbrush device he uses to clean the donor area. He reminded the audience that contributions from each doctor are important to improve hair transplantation, and that leaving a legacy with these contributions makes all efforts worthwhile.

How to Set Up a Hair Transplant Clinic

Dr. Sungjoo "Tommy" Hwang outlined the important necessities each clinic should have to start a hair transplant practice. This included, first and foremost, physician training and a well-organized staff. Necessary facilities include a good operating room setup, an area for graft cutting, pre- and post-operative areas, and a photography room, and he noted all areas should be well-thought-out and planned. A nurses' area for the preparation and sterilization of equipment was also advised. Adequate instrumentation starting from the smallest needle to a defibrillator machine was also recommended. Lastly, Dr. Hwang emphasized the need for incorporating marketing and the use of the Internet by doing such things as posting ads in magazines and printing out booklets and pamphlets for the clinic.

Anatomy of Asian Scalp, Follicular Distribution, and Scalp Laxity Compared to Caucasians

It is a known fact that there are some differences in Asians and Caucasians that affect the hair transplant surgeon's approach to patient treatment. According to Dr. Kenichiro Imagawa, the first noticeable difference is in the shape of the face and the skull. Asians have a more rounded face and skull shape while Caucasians have a more elongated or oblong shaped face and skull. With regards to hair characteristics, Asian hair is coarser and is attached to the skin much deeper, the color is usually black or darker compared to Caucasian hair, and the density is lower. Dr. Imagawa also noted that Asians tend to develop more keloids than Caucasians.



Live surgery demonstration

Hairline Placement in Asians

Knowing the differences in skull shape and facial contours between Asians and Caucasians, Dr. Pathomvanich shared his techniques for creating hairlines suitable for Asians. Instead of having a U-shaped or a bell-shaped hairline when viewed from the top, Asians tend to have less curvature or a rounded to almost flat-shaped hairline. Popular hairline shapes among Asians when viewed from the front would be rounded or V

shaped, and some patients request to restore a widow's peak. Dr. Pathomvanich also showed a handheld laser device that offered a quick and easy way to create hairlines.

How to Administer Local Anesthesia Safely and with Minimal Pain

Dr. John Cole provided an overview of basic hair transplant anesthesia concepts. The basic goal for a pain-free hair transplant procedure is to administer anesthetic with as minimal pain as possible and to prolong its effects. Dr. Cole presented his technique of administering local anesthesia, which was comprised of a mixture of epinephrine, lidocaine, sodium bicarbonate, and kenalog 40 in an IV bag attached to an IV tubing and connected to a self-filling injection device. This was used at the donor area prior to FUE graft harvesting. Whatever technique or combination of anesthetics is used, it is important that each clinic is prepared for emergency situations for untoward anesthetic side effects, and it is vital that all staff know how to counteract these side effects.

Donor Site Selection and Harvesting FUE and Strip

Dr. Cole also presented his views on how to extract intact follicular unit grafts using FUE. Extracting follicular units using FUE requires knowledge on the appropriate safe donor area, knowledge on punch engineering in order to use the appropriate type and size of puncher for each hair graft, and knowledge of hair direction and angle as they go down from the skin to subcutaneous fat. Dr. Cole also presented current automated FUE machines that, in his hands, achieve more transection rates than his own manual FUE technique. For strip harvesting, Dr. Mario Marzola recommended choosing the best hair found at the middle of the temporal-parietal occipital region in between the upper and lower fringes. Dr. Marzola recommended that the blade be parallel to the direction of the hair shaft while cutting and that adjustments be made according to the direction of hair. To release the strip, traction is done until it is freed from the underlying subcutaneous fat.

Tension Donor Dissection

Dr. Stough presented his technique of harvesting the donor area with minimal hair follicle transection. This technique is a modification of Dr. Pathomvanich's open technique

where he uses single or double skin hooks to expose and spread apart the harvested donor area for better visualization of the hair shaft. After scoring lightly, the skin hooks are placed on both edges of the flap and adequate force is applied to pull both edges until the strip splits up to the level of the subcutaneous fat right below the hair bulb. He mentions that patients have different levels of difficulty with regards to separating the epidermis and dermis, with some more difficult than others. The advantage of this technique is that it almost reaches 0% transection rate. Another instrument that gained popularity using this same principle of separating the skin using traction force is the Haber spreader.

Choice Between Pre-made Incisions and Stick-and-Place

Different surgeons have different views on whether to do pre-made incisions or stick-and-place. Dr. Jerry Wong finds it more suitable to use pre-made incisions when doing megasessions. He does these incisions in a coronal fashion using his custom-cut blades.

Candidates for Hair Transplantation

In the day's last lecture, Dr. Marzola enumerated appropriate candidates for hair transplantation. This group included male or female patients of sufficient age with androgenetic alopecia (AGA), sufficient donor area, and understanding. For hair loss that did not fall under the category of AGA, candidates for hair transplantation would be those with inactive disease activity. Patients to avoid are those with personality disorders or active medical illness, and those who are too young or too old.

Live Surgery

The live surgical demonstration consisted of two cases and was held at the Thai Jaksu Medical complex in Bangkok. The first case was a female who wanted to correct a congenital high forehead, and the second was a male with a Norwood III pattern of hair loss.

Case #1. For the female patient, Dr. Stough demonstrated his tension traction technique for donor harvesting after Dr. Pathomvanich selected and marked the donor area. Half of the hair strip was shaved while a 1 cm length of hair was left for the remaining half. The shaved part of the strip was cut into individual follicular unit grafts by Dr. Imagawa's assistants while the other half was cut by Dr. Hwang's assistants to be placed in the Choi implanter. What was noticeable was the way Dr. Hwang's assistants cut the grafts so well and quickly with minimal transection using a No. 10 surgical blade over a block of wood without any magnification. The other half of the strip was prepared by Dr. Imagawa's assistants using Personna blades. While the assistants were cutting, Dr. Wong demonstrated how he creates pre-made incisions using custom-cut blades. He showed the group his technique of rounding the corners while properly paying attention to hair angle and direction.

Case #2. With the second patient, Dr. Cole demonstrated how he harvests grafts using FUE. He used a plastic template to mark the donor area and showed proper administration

of tumescent anesthesia with his self-filling injection device. He demonstrated FUE harvesting with manual punchers and with the use of an FUE machine that he developed. It was noted that the follicular units were scored at a depth of 2-3mm then the grafts were held with the left hand at the level of the epidermis, and slightly pulled until the deep dermis was exposed. Using forceps, he pulled out the rest of the grafts. Dr. Cole made his recipient sites using solid core needles attached to a graft counter followed by insertion.

The day ended with the gala dinner. Dr. Pathomvanich's team prepared an enjoyable video of Thailand as well as the day's highlights. The evening ended with a bingo game and karaoke where everybody sang the night away.



Drs. Pathomvanich, Amonpattana, Cacas, Cole, DHT staff, and attendees

Saturday/June 26, 2010

Aesthetic Eyebrow Transplantation in Asians

Dr. Pathomvanich started by stating the significance of eyebrow appearance for the Asian culture, which is a sign of health and well-being. Comparison of eyebrows for males and females followed, with males noted as having thicker and wider eyebrows compared to females. Caucasian eyebrows are composed of finer hair compared to Asian eyebrows, and therefore the use of 2-hair grafts to create volume with single hairs at the ends is advised in Caucasians, while for Asians only single hairs are required. Careful emphasis with regard to hair direction and angulation is also important. Graft cutting is also an important part of surgery when only single-hair skinny grafts are used. Dr. Pathomvanich showed different possible eyebrow shapes of popular actors/models that are favored by most patients. Indications for eyebrow transplantation include cases of congenitally deficient or absent eyebrows, for cosmetic enhancement, and for trauma or burns.

Beautiful Eyelash—How to Do It Right

Dr. Imagawa gave some facts and indications for transplanting eyelashes. Common methods discussed were stick-and-place, pluck and sew, and the use of the Choi implanter. Proper selection of the hair to be used for eyelash transplant is important because the donor area hair considered can be from the occipital area, temporal area, or sideburn area. The post-op course includes swelling and bruising. It is important to instruct the patient not to rub the eyelashes since the grafts can be easily dislodged.

Moustache, Beard, and Sideburn Transplants

Dr. Wong noted in this lecture that beard, moustache, and sideburn transplantation, though uncommon, can be easily done and can be rewarding to both the patient and the physician. For these cases, there is no need to do dense packing, but it is important to match the density of the surrounding hair as well as its direction. He suggests using only single-hair grafts, which will fit well in 0.6-0.7mm custom cut blades. Usual applications of beard and moustache transplant include correction of scars.

Review of the Asian Workshop

from page 167

Application and Tools for FUE in Asians

Dr. Cole started his lecture by providing a brief background on the different instruments used for FUE. Manual methods were compared to mechanical devices such as the Omnigraft machine, RotoCore, FUE extractor, and the SAFE Harris system. Dr. Cole then showed his punchers, which have thin walls, hardened stainless steel, and very sharp edges. For Asians, Dr. Cole noted Dr. Bertram Ng's study that at least a 1mm diameter punch is required because Asian hair is coarse and has long roots. Smaller punches would produce higher transection rates.

Body Hair Transplantation

Dr. Cole mentioned that this is one area of hair transplantation that he wishes he hadn't gone to since his results have been variable. The potential use of body hair is for patients with limited donor supply. Although body hair increases the potential donor area, however, a downside is the possibility of small scars. Some sites that can be used are the chest, abdomen, upper and lower back, leg, and beard hair.

How to Prevent Complications in Hair Restoration Surgery

Dr. Marzola advised the audience on ways to avoid complications in hair restoration surgery. First was to identify personality disorders such as body dysmorphic disorder and obsessive compulsive disorder, and to identify those with unrealistic expectations. The technique to avoid complications in the donor extraction was to make the strip as long and narrow as possible and to avoid tension on closure.

Free Papers

After careful selection by Dr. Stough, a total of 11 papers were presented: Repair Strategies of Artificial Fibre Implantation by Kenichiro Imagawa (Japan); Surgical Microscope Assisted Hair Transplantation by Yean Lu Chang (Taiwan); Comparison of Hydrogen Peroxide 3% as an antiseptic and Normal Saline as Control on Hair Graft Survival Rate by Hamidreza Khanamuee (Iran); Why I change from FUE to strip in Asians by Bertram Ng (Hong Kong); Minimizing Scar for Donor Wounds Closed with Moderate to Severe Tension by Theresa Cacas (DHT Clinic Fellow, Bangkok, Thailand); Methodology to Enhance Efficiency of Area Estimation at Recipient Site by Shobit Caroli (DHT Clinic Fellow, Bangkok, Thailand); A Simple Way to Isolate and Cultivate Dermal Papilla Cells from Human Scalp Hair Follicle by Ratchathorn Mornchran (Thailand); and Unusual Complications of Hair Transplant Surgery—2 Case Reports by Radha Rani Palakhurthi (India).

Live Surgery

Drs. Hwang, Imagawa, and Pathomvanich performed an eyebrow and eyelash transplantation surgery and Dr. Cole performed a body hair transplantation. Eyelashes were transplanted by Drs. Imagawa and Pathomvanich using the stick-and-place technique, while Dr. Hwang, using the Choi implanter, created eyebrows on the right side. Dr. Pathomvanich used the conventional technique of stick-and-place with a 23g needle on the left side.

The second case involved a Caucasian male who wanted to use body hair to fill in gaps in his beard area. The donor body hair was taken from the inferior mandibular area to anterior neck and transplanted to the beard area and goatee.

The second day ended with the Siam Niramit show at Thailand's arts and cultural heritage hall. Dr. Marzola was chosen from the audience to go on stage and performed using a bamboo instrument to make lively sounds. Excellent performance, Dr. Marzola!

Sunday/June 27, 2010

Donor Wound Closure

Dr. Imagawa showed his technique for the closure of donor wounds. For scars less than 1cm in width, he uses a superficial continuous suture with vicryl 3-0. For scars more than 1cm in width, he uses two kinds of sutures: retention stitches with Nylon 4-0 and continuous sutures with vicryl 3-0. For repair of wide scars, he recommends the use of W-plasty.

Strip vs. FUE

For strip harvesting, Dr. Cole showed a prevalence of doctors using the strip technique at 88-90%. Though more popular, he believes that its pitfalls include a change in direction of hairs above and below the strip scar, a linear visible scar, a change in the direction of hair shafts close to the scar, and hair elevation or cap effect. Besides not leaving a linear scar, being less painful, and less invasive, Dr. Cole believes that the other advantages of FUE include more hair per graft, a lower transection rate, no alteration in hair growth angles, more hair styling options with minimal evidence that you've had hair transplant surgery, less tissue around the graft (and therefore a low risk of ridging), a shorter out of body time, and a physician controlled graft dissection.

Stem Cell and Growth Factor Treatment for Hair Loss

Dr. Pathomvanich presented his study on the use of the stromal vascular fraction of abdominal fat stem cells. At the conclusion of his study with 5 subjects, he has not seen much difference in hair growth at 1 and ½ years. Another pilot study being done at his clinic makes use of commercially prepared growth factors containing IGF, VEGF, and FGF. A total of 21 patients, with 2 dropouts, were enrolled in the study and, so far, were showing a slight improvement in results.

Female Pattern Hair Loss

Dr. Stough commented that the Savin scale is the more appropriate method to classify thinning hair for women. He discussed the use of minoxidil foam as a once a day application. Some side effects noted, though rare, included headache, breathlessness, nausea, and tachycardia.

Conclusion

From the successful live surgeries, lectures, and entertainment, Dr. Pathomvanich was a wonderful and gracious host who ensured a quality learning experience for all attendees. Dr. Pathomvanich, his associates, and his staff are to be highly commended for putting together and hosting an outstanding workshop. ♦

Review of the 2nd Annual SLU Hair Transplant Cadaver Workshop, in collaboration with the ISHRS

Samuel M. Lam, MD Plano, Texas info@hairtx.com

This year's well-run workshop from July 23-25, 2010, at St. Louis University (SLU) School of Medicine, Department of Practical Anatomy & Surgical Education (PASE), in St. Louis, Missouri, showcased an expanded program with two levels for physicians and two levels for assistants. Lectures were vibrantly communicated to the audience using St. Louis University's unique 3D system where faculty dissected cadavers at the podium, and which was viewed live on an adjacent 3D screen. Featuring one of the lowest faculty-to-student ratios of any course, attendees were hand-guided by world-class faculty in an intense hands-on laboratory experience using cadavers and teaching models. Students were critiqued and passed on their skill sets, and they matured quickly over the weekend as they learned hairline design, donor harvesting, recipient site creation, graft dissection, and graft placement, among other skills. Assistants were put through a similar rigorous didactic and laboratory course that taught production flow, difficult graft issues, body ergonomics, and graft preparation and placement. They also spent extensive time in the lab to improve their efficiency and skills and were provided with intimate faculty feedback. The course concluded on Sunday with a "critical thinking" day for both physicians and assistants that further promoted the application of the knowledge gained from Friday and Saturday's teachings.



Darla Stewart teaches assistants how to place grafts using cadaver tissue in a clay/foam head model.

As course director, I was privileged to lead a distinguished physician faculty this year that included Drs. Jerry Cooley, Vance Elliott, Bob Haber, Jim Harris, Tony Mangubat, Bill Parsley, and Ron Shapiro. The assistants program was headed by my assistant, Emina Karamanovski, who led an incredible assistant faculty team that included Vassilka Djinov, Tina



Course Directors, Sam Lam and Emina Karamanovski, with distinguished faculty and students on the steps of St. Louis University's PASE Center.

Lardner, Kathryn Morgan, Mary Ann Parsley, Charlene Smith, Janna Shafer, Darla Stewart, and Amy Watts.

With over 100 attendees, students hailed from all over the world. Comments from this course included, "I learned a lot. This course was well thought out, very informative, and very practical" and "This is one of two courses in the last 32 years that I have attended

that delivered what it promised to do." The student and faculty feedback from this year showed that a passion for hair restoration was kindled so much so that people expressed a hunger for more. With that in mind, Emina and I reinvented the course structure to expand the educational content for next year so that students will be able to get both a Level 1 and a 2 education without having to choose. Next year, the lecture topics and laboratory time will be greatly expanded and will still cater to the physician's appropriate skill level. The assistants program will be expanded as well with more intensive integration with the physician's program and also with increased didactic and laboratory time to learn new techniques and/or to enhance current skills. We encourage all physicians to bring their assistants—whether new or experienced—to this comprehensive hands-on course. (We are also hoping by next year that the exclusive James Cameron 3D Avatar system will be installed for lectures as the only academic institution that will have it!)



Sam Lam guides students through recipient-site creation on melons.

Please save the date of October 14-16, 2011, and join us in St. Louis for next year's blockbuster course! For more information, please visit <http://pa.slu.edu>. ♦

Letters to the Editors

Marc A. Pomerantz, MD Edina, Minnesota Re: Heartfelt Thank-you

I want to thank the Editors for the excellent and moving tribute they published to my late wife, Cheryl Pomerantz, RN. I especially want to express my deepest thanks to all of those who contributed their moving and heartfelt memories to the article. Cheryl was very special. She was intelligent, she had exquisite fashion sense, and she was creative. She was an excellent operating room nurse who could design, from scratch, the new ENT and Bronchoscopy suite for the

Rush University Hospital O.R.—a world-renowned teaching hospital. She was loved by most of her patients, and admired and respected by most of the doctors she worked with—many of whom were world leaders in ENT, Bronchoscopy, and Thoracic Surgery. Then, she switched fields and became world famous in Surgical Hair Replacement. Her innovations and firsts in H.R. are too numerous to count.

In addition to all of this, she was a loving wife and mother and a good friend to many. She will be missed; we won't see her like for many years. ♦

• • • • •

Walter Unger, MD Toronto and New York Re: Combining Strip and FUE

When I saw the Forum article, "Expanding graft numbers combining strip and FUE in the same session: effect on linear wound closure forces" (July/August 2010; 20(4):121), I felt like Alex in Wonderland!! The FUE sites in the individual shown clearly extended into areas grossly exceeding the safe donor area that I described many years ago after studying 328 men over the age of 65 years of age. The ages of the 20 patients the author reported on were not listed in the Table or anywhere else but I presume many of them were in the lower-half of the reported age range. Not only was I shocked that so many grafts had obviously been harvested from areas

that were quite likely to lose their hair over the patient's lifetime but in the commentary, there was no mention of this very serious long-term drawback! I know that the main purpose of the study was to show decreased closing tension because of all of the FUE sites and this is what The Editorial Comment was addressing, but I was both saddened and amazed that this article could be published without some mention of the long-term potential drawbacks of what the author was doing. The concept and its publication in the Forum was almost certain to be picked up and shown widely on the Internet and would probably lead to yet another "next best thing" that was far from reality. ♦



RECERTIFICATION EXAM

Date: Wednesday, October 20, 2010
Time: 5:30PM–8:30PM
Location: Back Bay Complex, on the mezzanine level of the World Trade Center

For those ABHRS Diplomates who were board certified in 1999 or 2000, in order to maintain certification you must register/apply for the Recertification Exam.

The Recertification Exam is also being offered on January 22, 2011, from 2:00PM–5:00PM, in Houston, Texas. For those interested in first-time certification, the next primary exam will take place on January 22, 2011, in Houston, Texas.

For further information and to register, contact:

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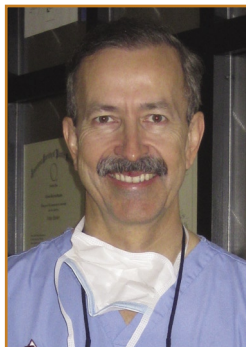
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Surgeon of the Month: Alfonso Barrera, MD

Maurice P. Collins, MBBCh *Dublin, Ireland* mauricecollins@blackrockclinic.com



Alfonso Barrera, MD, is Clinical Assistant Professor of Plastic Surgery at Baylor College of Medicine in Houston, Texas. Alfonso has been at the forefront of hair restoration for many years and is one of the pioneers of the specialty. He is a Diplomate of the American Board of Plastic Surgery and the American Board of Otolaryngology and Head and Neck Surgery. He is also a past president

of the Houston Society of Plastic Surgeons. Over the past two decades, Alfonso has dedicated a lot of his time to perfecting the art and technique of hair transplantation. He is well-known and respected, nationally and internationally, for his contributions in the advance of techniques of hair transplantation, not only in male and female pattern alopecia but also in the reconstruction of burn injuries, accidents, and birth defects.

Originally from Monterrey, Mexico, Alfonso went to Medical School at the University of Monterrey (1972-1977), followed by a year of Social Service in Mexico. He started his graduate education by training in General Surgery at the Methodist Hospital in Dallas, Texas (1978-1980), where he developed an interest and passion for Plastic Surgery. With that in mind, Alfonso did a residency in Otolaryngology and Head and Neck Surgery (Massachusetts Eye and Ear Infirmary and Massachusetts General Hospital, Harvard Medical School [1980-1983]), which provided a solid background in Plastic Surgery for all procedures involving the head and neck. He then supplemented this with a residency in Plastic Surgery at the Cronin Brauer & Biggs Program at St. Joseph Hospital in Houston, Texas (1983-1985).

Alfonso combines hair restoration with general plastic surgery and has been in private practice for more than 25 years, giving him a breadth of knowledge and expertise that marks him out in the specialty. In addition to his hair restoration and plastic surgery practice, Alfonso is also a Clinical Professor of Plastic Surgery at Baylor College of Medicine.

Like many hair restoration surgeons, Alfonso attributes his sense of aesthetics to his interest in art and drawing. He believes that common sense and a good artistic inclination are important to performing excellent surgical hair restoration. We asked Alfonso to describe his practice and what inspires him: "Today I do approximately 50% hair transplantation and 50% aesthetic plastic surgery, with 99% of the surgeries at my own American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF) accredited surgical facility. I rarely do surgery at local hospitals. I have found hair transplantation, and particularly reconstructive hair transplantation, very rewarding. I treat many patients with alopecia of the face (eyelashes, eyebrows, moustache, and beard) and scalp due to trauma, burns, or post-surgical, or due to congenital anomalies. I am appreciative of all

my mentors and particularly thankful to those who inspired me to get involved in hair transplantation—individuals from whom I learned so much—including Drs. Carlos Uebel, Rolf Nordstrom, Bobby Limmer, Ron Shapiro, Dow Stough, and the late Manfred Lucas to name a few."

In his hair restoration practice, Alfonso tells us he is very "hands on" and personally makes all graft incisions and places each and every follicular unit graft. He also prides himself on personally performing all patient consultations and spending time listening to his patient's concerns and educating them about what can realistically be achieved.

Alfonso has lectured and presented extensively on hair transplantation techniques at major cosmetic surgery meetings around the world. He has also published dozens of articles in plastic surgery and peer-review journals, and has co-written books on plastic surgery and hair restoration, including the well-known text "Hair Transplantation—The Art of Micrografting and Minigrafting" (2001).



Dr. Barrera and his staff

Alfonso has been married to his wife, Laura, for 31 years and they have six children. Four of his children, two sons and two daughters, are studying a variety of disciplines at college, while the youngest girls are still in high school. The family enjoys a variety of hobbies and pastimes. Alfonso enjoys hunting and fishing and the family also enjoys skiing, biking, hiking, and riding four wheelers. They also travel extensively and have visited Brazil, Africa, and New Zealand.

Alfonso is our Surgeon of the Month because he is a respected academic and surgeon who has written widely on the speciality and who strives to advance its reputation. This combination of academic expertise, extensive experience of hair restoration and plastic surgery techniques, and the provision of the highest standards of patient care and satisfaction ensure his position as one of hair restoration's leading lights. ♦

Surgical Assistants Editor's Message

Laurie Gorham, RN Boston, Massachusetts laurieg@bosley.com



Happy Fall Assistants!

Our meeting is upon us and preparations are being made for a stupendous meeting! I'm looking forward to seeing everyone and looking forward to the cooler weather that will come with it. Happy Fall and see you all in October!

Laurie Gorham, RN

Editor, Surgical Assistant's Corner; Surgical Assistants Program Chair

Surgical Assistants: Get Involved in the ISHRS...

We would love to hear from you. There are many ways you can contribute:

- Write an article or present an idea to the Forum
- Serve on the Surgical Assistants Executive Committee
- Help in the planning of our educational events
- Teach at our meetings and workshops

Contact laurieg@bosley.com today!



The importance of pre-operative ECG testing for hair transplant patients

Joanne Scannell, RN Hair Restoration Blackrock, Dublin, Rep. of Ireland

Today, FUT surgeries routinely take between 8–10 hours. This longer surgery time poses a potential risk to the patient's heart due to the possibility of prolonged exposure to the medications used during surgery.

As a response to this potential risk, we decided to add an ECG to the pre-operative clinic visit where we assess every patient's general health. The patient's pre-operative assessment takes place approximately one month before their procedure. The patient is seen by two qualified and experienced nurses, and one hair transplant technician.

The assessment includes the taking of a detailed medical history, a blood pressure reading, the patient's weight, and oxygen saturation, and any allergies are noted. The donor area is assessed using Canfield Mirror EpiFlash. A hair density count is recorded and follicular units are assessed. Any questions or concerns that the patient may have are discussed at this time. We have now incorporated a further element to this routine assessment: a 12 lead ECG is performed, using a Mac 1200 ST with automatic interpretation.

Any abnormal ECGs are sent to a cardiologist, who then prepares a written report/interpretation and will recommend and carry out any necessary further investigation. The month gap between the pre-operative assessment and the procedure date offers enough time for any further cardiac evaluation without interfering with the scheduled surgery.

Case History

This patient was 37 years old and had booked a transplant of 2,500 follicular units. At his pre-operative assessment, he reported that he was a non-smoker who exercised regularly. He had never been hospitalized and had no medical conditions. The only medication he used was Rogaine 5% on a daily basis. His blood pressure was 138/74; pulse rate, 48; weight, 72.8kg; and his blood showed an oxygen saturation of 99% on room air. He reported that during a previous medical examination, several years ago, he was told he had a heart murmur but there had been no mention of it since.

His automatic ECG interpretation read as follows:

"Marked sinus bradycardia with sinus arrhythmia
Moderate voltage criteria for Left Ventricular Hypertrophy, may be normal variant ST&T wave abnormality, consider anterior ischemia"

We therefore sent the ECG tracing to our regular cardiologist for his opinion. The report stated:

"I have reviewed the electrocardiogram on this young man. There is indeed an unusual repolarisation pattern in the antero septal leads which, along with his history of a heart murmur, would merit further cardiac evaluation."

We then informed the patient about the results of his ECG and he subsequently went to see the cardiologist. The cardiologist's report of this cardiac evaluation stated:

"As part of his assessment prior to hair transplant surgery he underwent a resting electrocardiogram which showed an unusual repolarisation pattern in the antero septal leads. He also mentioned that a murmur had been noted at routine medical evaluation about 12 years ago, otherwise well, no previous medical history of note. His father has hypertension and is apparently on Warfarin. One of his uncles died from myocardial infarction in his forties.

Physical examination revealed a thin, healthy looking 37 year old, heart rate 65 per minute, regular, normal heart sounds, no murmurs audible today. Physical examination otherwise unremarkable.

Echocardiogram was arranged that showed normal cardiac dimensions and good systolic function, ejection fraction greater than 60%. Satisfactory valves. No evidence of cardiomyopathy.

I discussed his electrocardiogram with my colleague, who is an Electrophysiologist, and we felt that the pattern is consistent with benign early repolarisation rather than any significant abnormality. I would be happy to reassure Kieran appropriately with regard to his heart and would see no problem with him proceeding with hair transplant surgery as planned."

Discussion

The National Institute of Clinical Excellence (NICE) recommends that, for planned minor surgical procedures, a resting ECG is carried out on those over 65. We provide pre-operative ECG testing for all our patients. We looked at 176 consecutive patients who had pre-operative assessments and, of these, 27 ECGs were sent to the cardiologist for opinion. Of these, 7 were followed up in the cardiology clinic. All 27 people whose ECGs were sent for investigation were under the age 65.

The introduction of a pre-operative assessment into our practice has enabled us to evaluate and confirm a patient's physical and psychological suitability for the procedure. It also has other advantages such as the patients are more relaxed on the day of surgery; they have more time to ask questions and think about the information we give them; they are encouraged to bring in members of their family, which results in increased information being obtained and greater support for the patient.

We believe that a pre-operative assessment is essential to a modern hair transplant practice as it cares for both the patient's physical and emotional needs and, crucially, enables the procedure to be carried out safely. Kieran presented as a fit, healthy young man and, on the surface, we had no reason to suspect that he might have any health problems. The ECG, however, showed he had a potentially significant cardiac abnormality. This allowed us to identify a potential risk and eliminate it. The patient and medical/nursing staff were reassured by the cardiologist that it was safe to carry out the procedure. The operation, which was uneventful, then proceeded as planned with no inconvenience to the patient or the clinic. ♦



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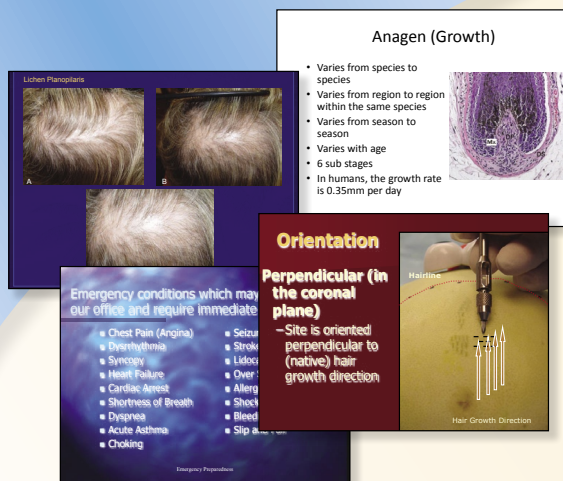
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The 2010 Basics in Hair Restoration Surgery Lecture Series

is an enduring material created by the International Society of Hair Restoration Surgery (ISHRS).

The Series can be taken alone or paired with the Basics Hands-On Course at the ISHRS Annual Scientific Meeting. The Series provides the didactic information and the Hands-On Course teaches the core skills. When paired with the Hands-On Course, students are expected to complete the Series prior to the

Hands-On Course. Together the overall emphasis is to provide basic and core skills essential for the practice of safe, esthetically sound hair restoration surgery. It is intended for use by those new to the field as well as those who are interested in a refresher. This enduring material was developed as a result of the need for the consistent and comprehensive presentation of the core basic topics. A faculty of well-known and distinguished experts in the field developed the materials and content based on the pre-determined learning objectives and with the guidance of the CME Committee.

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1. *Introduction: Course Overview and History of HRS*, Matt L. Leavitt, DO 26:59
2. *Anatomy & Physiology of Hair Growth*, William M. Parsley, MD 38:16
3. *Contemporary Insights into Hair Cycle Physiology and the Genetics of Hair Loss*, Bessam K. Farjo, MBChB 26:23
4. *Physiology & Medical Treatment of Hair Loss*, Ken Washenik, MD, PhD 58:28
5. *Identification of Non-Androgenetic Pathological Hair Loss*, Bernard P. Nusbaum, MD 42:13
6. *HRS Patient Consult: Ethics, Expectations, and Pt Selection*, Matt L. Leavitt, DO 51:24
7. *Hairline & Crown Whorl Design*, Michael L. Beehner, MD 40:11
8. *HRS Anesthesia & Hemostasis*, Vance W. Elliott, MD 38:24
9. *Donor Harvesting & Closure*, Melvin L. Mayer, MD 45:45
10. *Graft Preparation and Storage*, Jerry E. Cooley, MD 31:09
11. *Recipient Site Preparation & Graft Placement*, Robert P. Niedbalski, DO 35:09
12. *Flaps, Reductions, and Lifts*, E. Antonio Mangubat, MD 1:03:01
13. *Office Emergency Preparedness*, Edwin S. Suddleson, MD 25:53
14. *Office Design and Ergonomic Work Stations*, Carlos J. Puig, DO 19:26
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- Windows Media Player. This can be downloaded for free at: <http://www.microsoft.com/windows/windowsmedia/player/9series/default.aspx>
- Microsoft Windows® 98 Second Edition, Windows 2000, Windows Millennium Edition, Windows XP Home Edition, or Windows XP Professional
- A 233 megahertz (MHz) processor, such as an Intel Pentium II or Advanced Micro Devices (AMD) processor
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**Advancing the art and
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Upcoming Events

Date(s)	Event/Venue	Sponsoring Organization(s)	Contact Information
October 20-24, 2010	18th Annual Scientific Meeting of the International Society of Hair Restoration Surgery <i>Boston, Massachusetts, USA</i>	International Society of Hair Restoration Surgery www.ISHRS.org/18thAnnualMeeting.html	Tel: 630-262-5399 Fax: 630-262-1520
February 24-25, 2011	16th Annual Scientific Meeting and Live Surgery Workshop <i>Okinawa, Japan</i>	Japan Society of Clinical Hair Restoration (JSCHR) www.jschr.org Hosted by Akio Sato, MD	Tel: + 81-3-5351-0309 Fax: + 81-3-5351-1395 drsato@crux.ocn.ne.jp
DIPLOMAS Academic Year 2010-2011	Diploma of Scalp Pathology & Surgery U.F.R. de Stomatologie et de Chirurgie Maxillo-faciale; <i>Paris, France</i>	Coordinator: Pr. P. Goudot Directors: P. Bouhanna, MD, and M. Divaris, MD	Tel: 33 + (0)1 + 42 16 13 09 Fax: 33 + (0) 1 45 86 20 44 sylvie.gaillard@upmc.fr
January 2011	International European Diploma for Hair Restoration Surgery	Coordinator: Y. Crassas, MD, University Claude Bernard of Lyon, Paris, Dijon (France), Torino (Italy), Barcelona (Spain). Department of Plastic Surgery www.univ-lyon1.fr	For instructions to make an inscription or for questions: Yves Crassas, MD yves.crassas@wanadoo.fr

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Dates and locations for future ISHRS Annual Scientific Meetings (ASMs)

2010: 18th ASM, October 20-24, 2010
Boston, Massachusetts, USA

2011: 19th ASM, September 14-18, 2011
Anchorage, Alaska, USA

2012: 20th ASM, October 17-21, 2012
Paradise Island, Bahamas

2013: 21st ASM, October 23-27, 2013
San Francisco, California, USA