

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.

Bibliography

1. Unger, W.P. *Anesthesia*. In: W.P. Unger, Ed. Hair Transplantation, 4th ed. Chapter 8.
2. Data on the half lives and duration of action of various local anesthetic agents were obtained through Lexi-Comp, Inc. and <http://www.uptodate.com>. ✧

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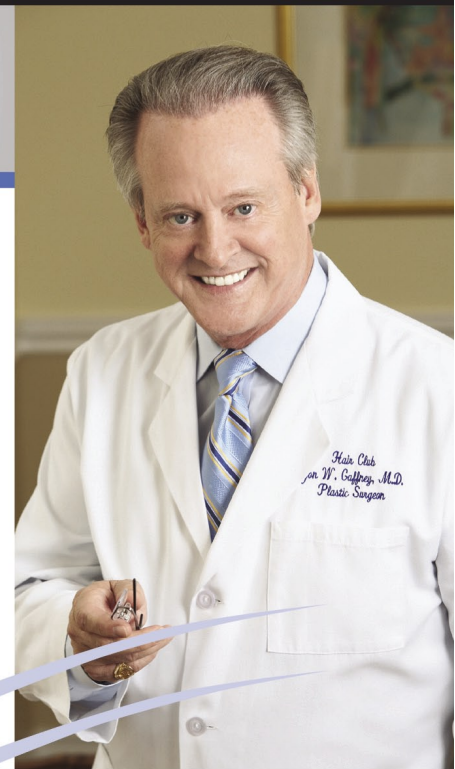
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Message from the Program Chair of the 2010 Annual Scientific Meeting



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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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

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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 Palakurthi (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.

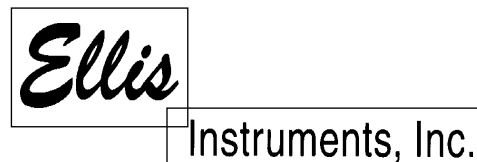
The Recertification Exam is also being offered on January 22, 2011, from 2:00PM–5:00PM, in Houston, Texas. For those interested in first-time certification, the next primary exam will take place on January 22, 2011, in Houston, Texas.

For further information and to register, contact:

Peter B. Canalia, JD, Executive Director
 American Board of Hair Restoration Surgery (ABHRS)
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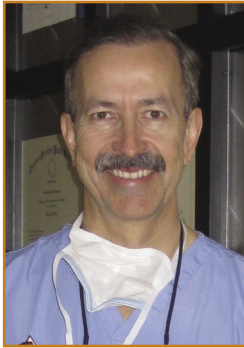
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Surgeon of the Month: Alfonso Barrera, MD

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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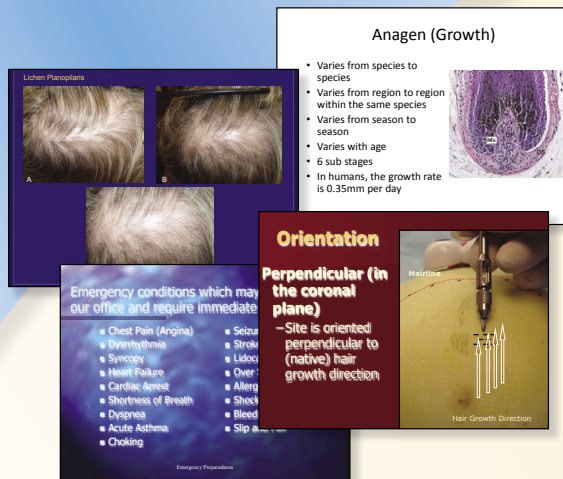
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The 2010 Basics in Hair Restoration Surgery Lecture Series

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.

LECTURES IN THE SERIES:

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
15. *Basic Principles of Staff Training*, Carlos J. Puig, DO 30:15

FORMAT Internet/online, computer. The following is a list of user/system requirements in order to participate in this enduring material:

- Internet connection with a minimum speed of 1000 kilobytes per second.
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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
- 64 megabytes (MB)
- 16-bit sound card
- Super VGA (800 x 600) or higher resolution
- Speakers or headphones
- Adobe Flash Player

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The International Society of Hair Restoration Surgery designates this educational activity for a maximum of 9.5 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

To receive CME credit participants must participate in the activity, complete the post-test, and achieve a passing grade (70% or higher). Instructions are included on the webpage.



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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 |
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| 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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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