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Read all 4  
articles on SMP  
in this issue!



## Combining Scalp Micropigmentation (SMP) and Hair Transplantation

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Concealers have been used for decades by men and women to camouflage their balding and thinning scalps. Although previous use of cosmetic tattoos have been attempted by cosmetic service providers,<sup>4</sup> not until recently has this become an art form used by cosmetic surgeons.<sup>1,2,14</sup> SMP reflects the use of permanent concealers in the form of a specialized tattoo applied in a stippling pattern to mimic closely cut hairs. It has been applied to a wide variety of pathologies of the hair and scalp in hair restoration surgeons' offices and even in tattoo parlors. A special cosmetic tattoo instrument with a handpiece that utilizes reciprocating needles is used to apply the stippled pattern between the pores of the scalp. The dot size must be small, around 0.1mm as seen from the surface of the skin (Figure 1).



Figure 1. Close-up of dots

### Equipment and Inks (Pigments)

The equipment is standard for cosmetic tattoo instruments, containing one or more needles. These machines vary in costs from US\$1,000-\$3,500. Needles cost approximately \$10/use and are disposable. The handpieces are part of the machine costs. In our hands, we use only organic pigments that contain no heavy metals unlike many tattoo inks. When it comes to the color of the inks, we always tell our patients that we use 50 shades of gray, which is close to the truth as we dilute black ink to achieve many shades of gray. Hair that exits the scalp is usually gray so what we do is not so different than what Mother Nature does.

The limited donor supply of hair for the advanced balding pattern patient often creates a problem for the patient and the doctor. For example, for those with low donor density and a Class 4 or 5 pattern or greater, the ability to cover the balding area with hair transplantation alone is limited. This is particularly relevant for the Asian patient with generally 20% less available hair for transplantation. SMP, in combination with hair transplants, offers a solution not heretofore available. When fine dark hair and a light skin color appear in combination, as it does in many Asians, the low Asian donor density complicates surgical planning. SMP, therefore, allows the doctor to achieve the patient's desired results with less grafts.

SMP is uniquely suited to a variety of conditions for which there is no other alternative such as 1) the punctate scars from FUE, 2) those with see through donor areas when extractions are above the 4,000-5,000 level, and 3) in those patients with lower than normal donor densities. Previous hair transplant patients who have become heavily donor depleted, often with significantly scarred donor areas, are ideal candidates for SMP, and it offers the patient an ability to achieve a normal looking donor area without further hair transplantation as SMP addresses the scarring and see through donor areas directly.

The SMP process is paradoxically both easy and difficult. A cosmetic tattoo handpiece contains more than one needle that cycles between 120-150 cycles per second, penetrating the epidermis with each cycle. The inks (pigments) are passed into the wounds by surface tension between the needles. As such, the amount of ink delivered is non-quantitative and the multiple insertions delivering the ink through surface tension work as a two way street (upward and downward), delivering only a small amount of ink past the epidermis into the dermis. As the depth of the delivery is hand controlled, depth control can become a real problem. Too deep delivers an amalgam of ink that appears blotchy, too superficial, the ink does not get into the dermis and leaks out as each needle withdraws. If held too long in the dermis, too much ink gets delivered, and if not passed beyond the basement layer of the epidermis, an inadequate amount of ink is delivered. To compound the problem of ink delivery, the cycling needles produce a

## Hair Transplant Forum International Volume 26, Number 3

Hair Transplant Forum International is published bi-monthly by the International Society of Hair Restoration Surgery, 303 West State Street, Geneva, IL 60134 USA. First class postage paid at Chicago, IL and additional mailing offices. POSTMASTER: Send address changes to Hair Transplant Forum International, International Society of Hair Restoration Surgery, 303 West State Street, Geneva, IL 60134 USA. Telephone: 1-630-262-5399, U.S. Domestic Toll Free: 1-800-444-2737; Fax: 1-630-262-1520.

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## President's Message

Kuniyoshi Yagyu, MD, FISHRS Tokyo, Japan [nhhtkyo@kioicho.jp](mailto:nhhtkyo@kioicho.jp)



The ISHRS is excited and pleased to announce the new venue of the 24th World Congress. I am happy about the new location. I am sure that our members' hearts will leap at the news of the new congress venue in Las Vegas. This scientific meeting is the largest academic congress in the field of hair restoration surgery. Over 700 participants are expected to gather from around the world.

The meeting space is the highest grade, and the hotel provides top-quality amenities, rooms, and service at special discounted prices. At the World Congress this year, we will enjoy the most up-to-date topics from molecular biology to clinical treatment. World famous basic scientists will be invited for the scientific lectures. We can learn the latest information about hair loss treatment and surgical procedures at the many workshops, symposiums, panel discussions, and general sessions offered throughout the Congress.

The ISHRS Board of Governors respected the opinion of the majority of the membership in making the decision to relocate the Congress venue. Staff at the headquarters of the ISHRS worked hard to find an alternative venue for the Congress, and they prepared everything perfectly in a short time frame. We were fortunate to find an outstanding venue available near the original dates. America is a very safe place politically and epidemiologically.

I would like to call to your attention that the schedule for the Call for Abstracts and hotel room reservation this year are different from previous years.

The new dates and location for the 24th World Congress of the ISHRS are from September 28th to October 1st, 2016 (Wednesday-Saturday) at the Caesars Palace Las Vegas Hotel & Casino in Las Vegas, Nevada, USA.

After the intense study and hot debate during the full days, you can enjoy the night-life in the city. There are many entertainment programs and amusements in many interesting places in close proximity of the hotel. Many shows, hospitality, and world gastronomy are waiting for you.

You may make your own plan to enjoy your vacation after the Congress. You can enjoy the nature of the desert, the Grand Canyon, and the Colorado River of emerald green. All these excellent adventures are waiting for you.

We would like to share the wonderful World Congress this year with all the members of the ISHRS. It is sad that some of our friends temporarily stay outside of the Society recently. I know that all these people love the ISHRS, and their heart is with the ISHRS. I know that all the hot debates came from enthusiasm based on dedication and passion for the Society. I hope that we will understand and reunite with each other in the near future. I believe that positive mutual understanding will be possible. I remain optimistically hopeful for the future of the ISHRS. We are leaving the door open for everybody. I truly have hope for this wonderful society.

Our ultimate goal is the establishment of high ethical standards and patient safety. The ISHRS takes a stand against the paradigm of non-licensed personnel performing surgery. The ISHRS is an educational body and not a political organization. Nevertheless, many great senior members have remained dedicated to patient safety for many years. This policy will be maintained hereafter: the ISHRS is against the practice of surgery by personnel without a medical license.◆

## Co-editors' Message

Mario Marzola, MBBS Adelaide, South Australia [editors@ISHRS.org](mailto:editors@ISHRS.org)

This issue of our *Forum* magazine, dear readers, may become known as the SMP issue. We have four articles on SMP, Dr. Sara Wasserbauer's Hair's the Question column on SMP, and some comments in between and at the end. Though there is still so much more to know, these articles will help us focus on how and when SMP can help our patients. Also, they will start our thinking on how to do it well and avoid some of the pitfalls. It is really heartening to see how effective this camouflaging system can be both for old scars and for new hair loss. Even more heartening when it helps female hair loss where the options are few. Many questions remain. Where to get training, what will it cost, are there ongoing royalties, how much are consumables per patient, what is the best pigment, long term or short term, and who should do this procedure, doctor, nurse, or technician? These answers will come soon enough because this modality is here to stay. Already some of my patients are opting for SMP in preference to surgery. We thank all of our SMP contributors, but especially Dr. William Rassman for his excellent lead article.

It is also appropriate to thank our columnists for their regular contributions time after time. Immerse yourself into the Cyber-space Chat column; it reads like a conversation, easy and very

informative. In this issue, the How I Do It column features Dr. Parsa Mohebi's FUE technique, which makes a lot of sense, but even more please note the clarity of his photographs, which are very beautiful. It is a reminder to us that photographs are currency in cosmetic surgery. Spend the time to understand what it takes to have good photographic records because one day these records may well protect us from unhappy patients.

We continue to receive an increasing number of articles from Asia, with ones from Pakistan, India, and Thailand featured in this issue. There are some waiting for the next issues, but please send in more. After all, half the articles should come from non-American sources to reflect our membership.

Finally, we should all commend Victoria Ceh, Jule Uddfolk, and all in head office for the quick and successful transfer of our World Congress from Panama to Las Vegas. This is a large logistic exercise, handled professionally. Thank you to all who contributed. We will visit Central and South America before long. In the meantime... Viva Las Vegas! ♦



Robert H. True, MD, MPH, FISHRS New York, New York, USA [editors@ISHRS.org](mailto:editors@ISHRS.org)

The emphasis on SMP in this issue is timely and welcome. Thanks to those who have contributed. I do have reservations about SMP, which I have expressed in my comment on the lead article. But, in the right hands, it is a valuable tool.

In his Controversies column, Dr. Russell Knudsen has masterfully dissected what is known and the great deal that is unknown about persistent side effects with finasteride. This continues to be a vexing question for us all and having regular scientific updates is essential for our prescribing practices.

In June/July, the ISHRS Board of Governors will select the next editors of the *Forum*. They will take over from Dr. Marzola and me beginning January 2017. The term is for three years. Application for *Forum* editor is open to all members. The deadline for application is June 1, 2017. Editing the *Forum* is an honor

and something I have enjoyed doing. I can't say it is always easy. Sometimes, many hours of work will go into creating an issue. But we editors are supported by talented and productive columnists and an outstanding copy editor, Cheryl Duckler, who really lighten the load and help to make each issue relevant and interesting.

If you think you have the experience, skill, and desire to edit the *Forum*, please see page 124 for further details. You can send an e-mail indicating intent, and include qualifications and C.V., to Victoria Ceh at [vceh@ishrs.org](mailto:vceh@ishrs.org) and [info@ishrs.org](mailto:info@ishrs.org) by June 1, 2016. ♦



## INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

Vision: To establish the ISHRS as a leading unbiased authority in medical and surgical hair restoration.

Mission: To achieve excellence in medical and surgical outcomes by promoting member education, international collegiality, research, ethics, and public awareness.

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 Korean Society of Hair Restoration Surgery  
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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 [editors@ishrs.org](mailto:editors@ishrs.org).
- 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](http://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).
- Images should be sized no larger than 6 inches in width and should be named using the author's last name and figure number (e.g., TrueFigure1).
- Please include a contact email address to be published with your article.

Submission deadlines:

April 5 for May/June 2016 issue

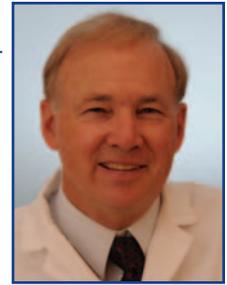
June 5 for July/August 2016 issue

August 5 for September/October 2016 issue



## Notes from the Editor Emeritus

Michael L. Beehner, MD, FISHRS Saratoga Springs, New York, USA [mlbeehner@saratogahair.com](mailto:mlbeehner@saratogahair.com)



### Tips for Obtaining the Best Possible Donor Scar: “A Top 10 List”

Instead of dwelling on the current FUE vs. FUT debate in our specialty, I would like to backtrack and try to clean up the “whipping boy” that many have used as the rationale for the FUE revolution—namely, horizontal donor strip scar. A number of changes I have made over the years have helped my scars become more undetectable in recent years. Most of the colleagues I talk with still strongly feel that the FUT harvesting method, combined with microscopic dissection of grafts, is still the “gold standard” of hair transplantation. I would like to share some of my insights into the art of thin scars, especially for the newcomers to our field, who may have been previously scared off of FUT by tales of horrendous, wide scars. My hope is to perhaps redeem the reputation of the notorious donor scar we see in every airline magazine, shown on the scalp of this poor fellow with a shaved head, placed unfavorably alongside an FUE patient with ¼–½ inch of hair. Before getting to my “Top 10 List,” I would like to make two points.

First, there is no such thing as “scarless” hair surgery, and it is deceitful to claim that one’s surgery is such. If you shave the head of a patient who had an FUT-MD (“microscopic dissection” emphasized) and that of one who underwent FUE, you will see both of their scars. If you visually inspect both of them with hair ½-inch long, in 95% of them you should not be able to detect either of their surgical scars. That being said, we have all seen instances in which the patient or the doctor was too greedy and either an excessive number of FUE grafts were harvested or too wide of a donor scar was excised, both leading to disfiguring scars. The patient’s greed is for more hair, and the surgeon’s greed is usually for more income.

The second point is that I think those of us who are able to perform large FUT surgeries and have large, full-time staffs of assistants on hand have played a role in the newfound fascination with FUE. It is difficult for a hair surgeon just starting out to have on hand a trained and available staff that can suddenly help him handle a 2,500 graft case. If we don’t solve this difficulty, then, like the Shakers, strip harvest surgery will disappear. Regardless of the fact that many of us feel FUT-MD is the “gold standard,” this will happen because the “getting started” obstacles are very formidable. One possible solution for this situation is for those of us with large, trained staffs to make our people available to other practitioners on days when we don’t have surgery scheduled. In fact, two of my assistants will be in a nearby New York State city this coming Friday to help out a doctor who wants to do a 2,000 graft “strip” case, for which he was trained in his fellowship, but does not presently have the necessary staff to help him.

So now, on with my “Top 10 List” for better donor scars. I should add that they are not listed in any particular order of importance.

#### 1. Avoid “fixed blade” instruments for excising the strip.

Because almost all hair is angled acutely down the surface of the rear and side scalp areas, the two blades simultaneously will

be cutting at a much wider width than the sum of the spacers between the blades. The outer blade projects further down the scalp, with the width of skin cut being proportional to the acuteness of the hair exit angle. If, for a given patient, you assume a hair shaft angle of 45 degrees and you have two blades set at 10mm in width, you will cut out a strip of scalp 15mm wide. It is true that deeper down the strip at the base of the follicles, the strip will in fact be 10mm wide across that portion, but, regardless, the damage is done at the skin level, where you have to bring the two edges together. Also, using multiple blades in a multi-blade holder is a recipe for excessive transection. The curved surface of the scalp ensures this. I used three 3mm spacers with four Personna #10 blades for around 5 years, and then one day found myself needed to help out with the graft cutting. I was aghast at the amount of transection I saw. After two additional cutting sessions to confirm this, I immediately switched to Bobby Limmer’s method of using a single blade to separately incise the two sides of the donor strip.

#### 2. Consider leaving the sutures in for 2 weeks.

For many years, I have done this for patients with hyperelastic and tight scalps, which helped narrow the scars in these patients. In the past 1-2 years, however, I have extended this recommendation to most of my patients, if they can tolerate having them in that long. My theory of why this might help is that each day the hair-bearing scalp above and below the donor closure probably “relaxes” a little bit more, and thus, the more days that pass, the less tension there will be on the scar to stretch after the sutures are removed. For the hyperelastic patients, I have even pushed the suture removal time to 2½ weeks. I close all my donor wounds with a running 3-0 Prolene® suture. I also place three inverted interrupted intradermal sutures of 3-0 Vicryl®, placed at the mid-occipital point and at each parietal area where the scalp’s curve is maximal. In suturing the Prolene, I take bites around 2.5-3mm from the skin edge, making sure the needle passes no deeper than the upper third of the follicles. Half of our patients have family members remove their sutures and this wider placement of the sutures makes it easier for them to do so. Obviously, it is crucial that these sutures do not strangle the tissue. Making sure there is some loose “play” at the final suture loop at each end of the Prolene closure goes a long way toward reducing post-op pain in the donor area.

#### 3. Make clear at the consultation that hair must be kept at least ½ inch in length.

There must be a clear understanding by the patient regarding the minimal length his hair will probably need to be kept at after having transplantation and for the rest of his life. This applies to whether it is an FUE or an FUT-MD surgery. My experience is that ½ inch is sufficient length to cover the great majority of donor scars, even those following a third procedure. Many of my scars are completely covered with ¼-inch length hair.

Editor Emeritus *from page 89*

**4. If a patient returns for a third procedure, I almost always leave “pillars” at the two parietal corners.**

My 2010 *Forum* article (How I Do It: Use of Intact Pillars in Donor Harvesting. 2010; 20(4):126) details my methods for doing this. To summarize, I leave a short, intact bridge of scalp at each corner, thus taking out three separate shorter strips. The widest of these is always the occipital strip, which can be cut along the flat plain of the rear scalp. Then, two shorter strips are taken from the two respective sides. These are usually of a shorter width than the occipital portion. This small bridge at the corners helps prevent the wide gaping open we often see after taking out a donor strip. For patients with tight scalps, I often use this on a second transplant procedure.

**5. Avoid undermining unless absolutely necessary.**

We have all seen the thick “marble-like” scar tissue that forms when one excessively undermines. Also, the only infections I have ever had in my 27 years of transplanting were caused by infected hematomas in the donor area. If you don’t undermine, there is no place for blood to collect. Perhaps the biggest reason to minimize undermining is the avoidance of cutting the occipital artery.

**6. Develop a good feel for judging laxity.**

I can’t explain this one. You just have to learn it through experience. There is nothing like just feeling the scalp and moving it at the time of the consultation. Most of our initial strips are 13-15mm wide in the flat, middle 8.5cm of the occipital scalp and 11mm wide in the corners and laterally. For a second procedure, all of these widths are 1mm narrower. If the scalp is excessively tight or loose, I will usually subtract or add another millimeter to that width in both areas. I find that a “tight” scalp almost always means I need to make my recipient sites with an instrument that both cuts and dilates, such as a solid core needle, rather than lateral slit blade. Also, a tight scalp usually means that “popping” will be more of a problem, and, if I am using MFU grafts, it is best to remove tissue than to simply cut through it, wedging grafts into the slits.

**7. Use of multiple small towel hooks to bring wound together.**

I got this idea after seeing Dr. Victor Hassan do it in a video at one of our meetings. At least 90% of the time, I can approximate the skin edges using these tiny hook-clamps. I then just follow behind with my running Prolene sutures, removing the clamps as I move along the wound. I stop three times to place my inverted Vicryl intradermal suture. I use a “moderate” level of tumescence pressure in the tissues. If you make the donor area too “rock hard” with tumescence, then it will be difficult to get a “feel” for whether or not the edges will come together or whether undermining will be necessary. The correct width for the donor strip is best determined at the beginning before any cutting takes place. However, once the strip is out, applying the towel clamps gives you a good idea whether any undermining is necessary. If the hooks rip excessively through the scalp, that would be the case.

**8. Use a temporary moist dressing and delay wound closure.**

I wrote a *Forum* cover article nearly 15 years ago (A Proposal for Selective Delayed Closure of the Donor Area. 2000; 10(3)) on this technique and still use it once in a while when I am uncertain of how much tension will be created by a given donor wound

closure. It involves packing the open wound with saline-soaked gauze, covering the wound and gauze with narrow bands of latex rubber cut from a surgical glove, and then placing several wide, interrupted chromic sutures over the top to hold everything in place. The patient is usually supine when I later go to close the wound, so simply moving the patient onto one side and then the other gives plenty of exposure for visualizing the final surgical closure. It takes a little extra time and patience to do all of this, but it is a surefire way to eliminate the effect of tumescence on evaluating the tightness of the wound you are attempting to close.

**9. Staging the removal of donor hair**

For every surgery, I first excise an 8.5cm length of occipital donor hair and then remove the right lateral portion of the strip. The length taken is based on the patient’s FU density, which I measure after shaving the donor strip region. The assistants then keep a separate count for the occipital segment and the right lateral one. In setting the length for the right side segment, I assume that the two lateral pieces will be the same length. When the assistants are all done dissecting the grafts and give me the counts, I only need to know two things: How many more grafts we need to reach the original goal and how many grafts were obtained from the right side. If I obtained less than I expected from that right segment, then, when I harvest the left side a couple hours later, I increase its length as needed to reach our goal. If, on the other hand, I obtained much more than I expected from the right side, I reduce the left one. Another benefit of this method, in addition to always ending with the desired number of grafts, is that it keeps the grafts out of body for a shorter time, as the left side grafts are the last ones to be placed.

**10. Ways to improve the donor scar after hair transplantation.**

If at any time, either at the initial consultation or later, after one or more transplant surgeries has been completed, the patient expresses a desire to wear his hair as short as possible, or if he is upset with the width of the scar for any reason, I explain that there are four ways to help make the donor scar less noticeable: 1) partial excision of the scar, 2) micro-pigmentation dots, 3) FUE grafting into the scar, and 4) camouflage products such as DermMatch or Toppik. If partial excision is chosen, I wait until at least one year after their last session to do this. If they have had a prior excision procedure on their scar, it is almost never fruitful to do another one. I usually then go to a combined session of FUE grafts and SMP into the scar. For the person with the appropriate type scalp, I occasionally will do a trichophytic closure (“ledge” Rose method) along with scar excision, but overall feel trichophytic closures are way overrated.

In summary, I hope all hair surgeons will at least maintain their skills at performing strip surgery with microscopic dissection of grafts, even if you utilize FUE harvesting most of the time. I firmly believe that the problem of scarring is no worse with strip surgery than it is with FUE. The skills necessary to obtain thin donor scars can be learned over time and result in very satisfied patients. ♦

SMP *from front page*

significant wound in the epidermis that leaks ink out of the wound while it is being done as to obscure the visual field. Depth control becomes a tactile skill that takes millions of passes to get it right, so the skill required is a time-consuming, tedious process. In each procedure, it may take over 50,000 insertions to create the stippled pattern, and this usually takes all day. For every wound, if the ink is implanted in inadequate amounts, at too superficial a depth, or if the ink should be “attacked” by the body’s immune system, a second pass is almost always required. What your eye sees during the SMP process may not reflect the ink delivery into the proper depth. Usually, in our hands, an average of three passes on each patient is required, sometimes more, rarely less, and always at least 1 week apart. Perfection for performing SMP on an entire head might take 20-30 hours of work over a few days separated each time by a minimum of one week. Occupational hand and wrist injuries are common in the operators so frequent rest periods are essential.

The inks come in two general varieties: temporary or permanent. Temporary inks make no sense as they may start to fade fairly quickly, sometimes as early as months after the process occurs. As it takes considerable time to put the ink in, losing the ink in a few months does not impart a real benefit for the patient over any reasonable time frame. The cost to perform it is high, too high for a temporary process that has to be repeated in less than a year. The permanent inks reflect the lifetime tattoos we see in body art, so the impetus for the operator to get it right in as few sessions as possible is high. Over-shooting requires laser removal of the inks, a real problem for the physician’s practice and in generating patient satisfaction and confidence. We have been doing permanent SMP for 6 years and on many hundreds of patients, and not one patient has regretted it. I take this to mean that we did not “sell” the patient on the process, we educated them well and then the patients were thrilled to achieve their targeted results predictably.

Some people are concerned about a bluish tinge of the inks on the skin. This slight color is there, worse if you use a dark black ink than a shade of gray. This has not been a problem with our patients, but if you look carefully on some of our SMP patients, you may see a blue tinge. The veins on the back of my hand are green, but I can assure you that my blood is as red as the blood of all of our readers, so what we see is the absorption of light that impacts the colors we see. This is the case with the darker inks used for SMP.

The SMP is performed under local anesthesia using a ring block just as we do with a hair transplant, but because the work is very superficial, the block does not require the depth of the nerve block as what would be a typical hair transplant anesthesia technique. A few patients are willing to do SMP without anesthesia, but those numbers are very few.

*Patient education and marketing:* Educating the patient is critical. We spend an average of one hour in each consultation for the education process. The good news is that most hair transplant doctors have patients in their databases with donor area scars, thinning with unachieved fullness, and people whose hair loss has progressed since the hair transplant was done. As these patients return to you, this is an excellent opportunity to present this new modality for addressing their problems. Good internal marketing campaigns are easily undertaken to secure your initial patients for an SMP offering. I would generally start performing donor area scars in people who intend to keep their hair long, so that any defects in the initial SMP will not be evident to the patient. Long hair masks defects

in technique. Scars are a good place to practice in developing the skills necessary to progress to other parts of the scalp. Do not start with a full head SMP or even on a person who shaved his head to show you the scar as you will regret that decision. Make sure you have the technique down before moving beyond donor area scars.

*Physician education and training:* This has been a real problem as many doctors have accepted tattooist expertise as the authoritative way to approach SMP. Unfortunately, many of these “experts” have produced substandard work (by our standards). Clearly, if they can perform the entire amount of work required in less than half the time as it takes us and in half the number of sessions, what they are doing can’t be an apple-to-apple comparison. Unfortunately, we are repairing many of the patients done elsewhere. We send many of them to a dermatologist that has a Q-switch laser to remove the dots so we can start on a clean slate. The doctor must master the SMP process and this is no different than the doctor who delegates FUE and does not master this procedure.

*Cost for SMP:* We spend an average of 12 hours on a strip scar in three 4-hour sessions and 20-30 hours for a full head SMP, sometimes with two technicians working on different parts of the scalp. Strip scars require blending in the scalp above and below the scar, so the magnitude of the work increases beyond the strip scar itself. If blending is not done, the scar that received SMP will stand out like a “light bulb.” Pricing, therefore, should reflect the time invested with the patient. For the first session, we usually “undershoot” the final target of what we eventually will do. Session one tells us how the patient’s body reacts to the inks, something about the technique we use and the color we employ, and if the patient’s immune system attacks and removes the inks. We keep careful notes on what we did and how we did it on session one. In session two, we look at the changes that occurred in the results from session one and what we did with regard to color and ink depth. In session two, we repeat the same process, adjusting what we learned from session one, placing the stippled dots directly in the *same* position as performed the week before, possibly altering the color of the inks and the depth the ink is placed. If the dots are placed too close to other dots, the discrete nature of the stippling may disappear into a confluence of dots that appears blotchy. Good hand-eye coordination is necessary for this. We often determine the final density of the stippled pattern in session two and might adjust the color based upon patient feedback and what we see from the patient’s immune system as it reacted to the ink. Session three is again at least one week from session two and essentially is a repeat of techniques we learned in session two, keeping careful records of what we did, and then we fill in areas that need to be filled, as we refine the overall patterns even further.

By the end of session three, most but not all patients have finished the process. A small handful of patients come back again and again for as many as 7-8 sessions if they continue to attack the inks in their scalp. We lose money on these patients, but the cost of their care is calculated into the overall charge for all patients. If you attempt to try to do the SMP in significantly less time than we take, you will get results that are not comparable to ours. Unfortunately, at this time, there is no short-cut. Any tattooists and other SMP delivery providers claiming that they perform SMP in less than half of the time it takes for us to do SMP, will not get the type of results we see. Side by side, these results will not be comparable to our results.

SMP from page 91

The authors have previously published SMP for the treatment of a variety of medical and surgical alopecias including scarring from many different causes. In these previous reports, examples of SMP in the treatment of scars have been well documented pictorially, some examples of which are shown in Figures 2-7, and others can be found on our website at <https://scalpmicropigment.com/>.



Figure 2. Scar before SMP



Figure 3. Scar after SMP

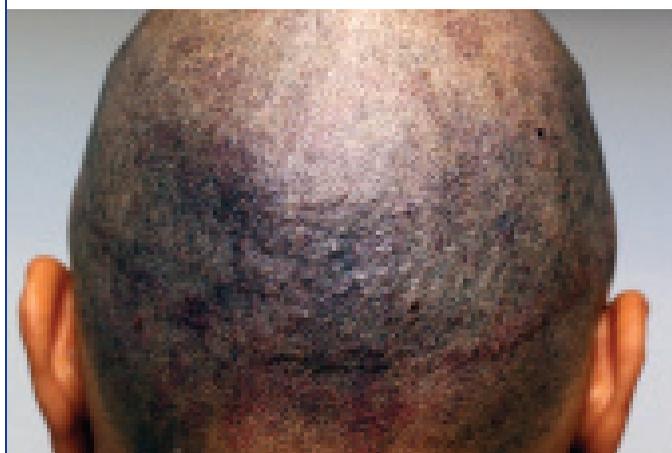
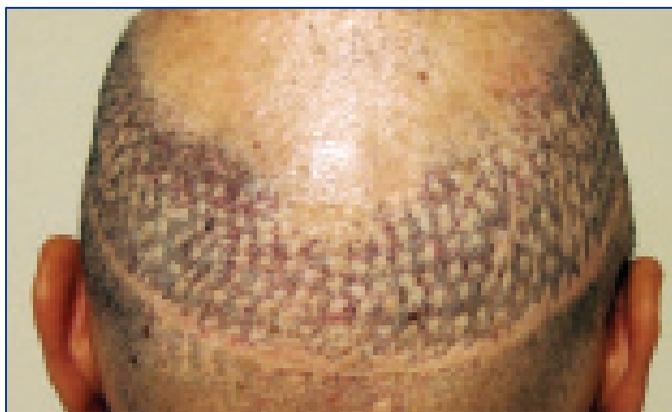


Figure 4. Before (top) and after (bottom) SMP to bad scarring



Figure 5. Before (top) and after (bottom) SMP to donor scar

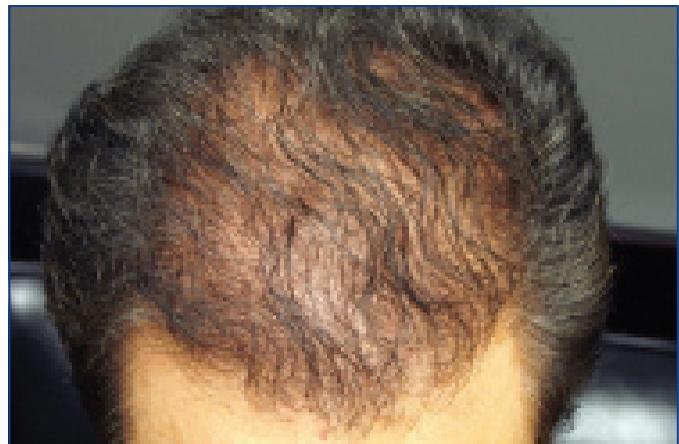


Figure 6. Before (top) and after (bottom) SMP to thinning hair

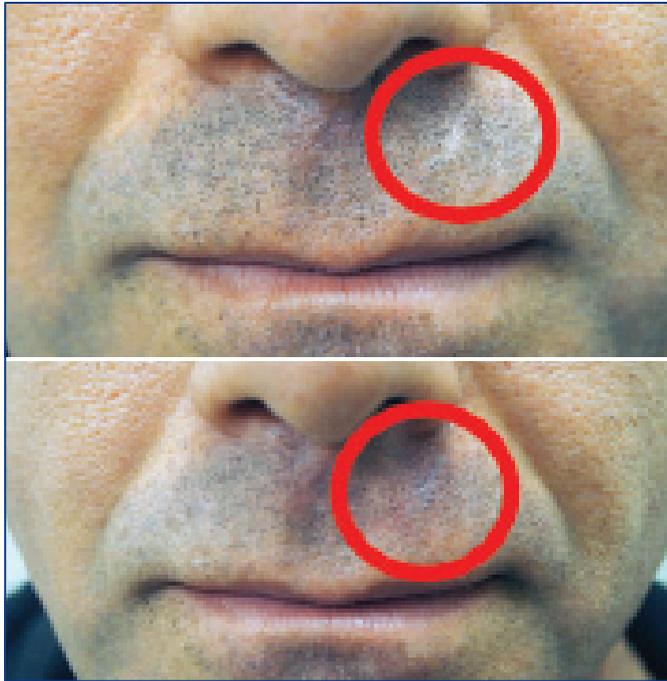


Figure 7. Before (top) and after (bottom) SMP to beard

Below, Drs. Antonio Ruston and Bessam Farjo were willing to share their personal and professional experience with SMP.

#### **My SMP story—Dr. Antonio Ruston**

About 25 years ago, I had my first hair transplant to increase the density in the frontal area as the hair had been thinning for some time. The result in terms of density and volume was incredible because large plugs were used and it led me to undergo a second hair transplant 3 years later. However, only when my native hair (not transplanted hair) began to fall out did I realize that my results were very unsatisfactory. I had visible plugs in the transplanted area and a widened scar at the nape of my neck, as well as numerous punch scars of 4mm diameter (Figures 8 and 9).

The rest is history.

In the first year of my plastic surgery residency, I decided to study the hair transplant technique and specialize in this field.



Figure 8. Scars from previous surgery



Figure 9. Scars extend to right side

First, I had to resolve my own problems, and as I learned from actions taken on me, I was able to correct similar cases to mine. So many of these patients received a major aesthetic and psychological benefit from what I learned. Now, 20 years later, I am working exclusively in hair transplant surgery, an interesting evolution in my professional career.

I have had two additional surgeries with the FUT technique to correct my previous surgeries and hairline. One of them was performed by my own team and the other was performed by my friend Dr. Ronald Shapiro, who improved the hairline and did a scar revision to reduce the worst of the scars. Two years ago, I decided to undergo another procedure. This time it was the FUE technique with Dr. Jose Lorenzo, who, with expert skills, extracted follicular units from my scalp and beard, increasing the density in the crown region, and at the same time, he re-created my temporal peaks.

But something was still bothering me as I did not feel liberated. It was the unaesthetic scars in the donor area and nape of my neck that, due to their location at the nape of my neck, could not be hidden. The scars were huge and very visible. What could I do? Extract more hair with FUE to camouflage the scars? Maybe. But what could I do to lower the hairline in the nape of my neck with an already depleted donor supply?

This was when I saw the first SMP case by Drs. Jae Pak and Bill Rassman at our annual congress in Alaska. That was something new for me. A patient with alopecia totalis who, after SMP, appeared to be someone with a full head of hair, but who wore it shaved. I had never seen such perfect work. This patient was the perfect combination of a masterful technique and an art form.

So I bit the bullet and decided to seek out Dr. Pak and bring my scalp to his care. He performed 2 sessions in about 7-8 hours each, where he created what appears to be hair in the nape of my neck. He covered and camouflaged the scars and further addressed all of the other scars on my head and eventually he addressed the FUE punctate scars that came from a FUE megasession (Figure 10). I could not be happier with the result. To give you an idea, I recently participated in a hair transplant workshop, and those who did not know about these procedures and my long arduous history, said to me, "Tony, you decided to wear your hair shaved? It looks great!"

I have only Drs. Pak and Rassman to thank for that. The work they perform goes beyond a simple "state of the art" process with SMP. Thank you, Jae and Bill.

SMP from page 93



Figure 10. After SMP



Figure 11. FUE and SMP to cover FUT scar.

*My experience with SMP in my practice.* A very good indication for SMP is when an FUE patient comes with a thick linear scar from previous FUT surgeries. In these cases, they don't have a real idea about how aesthetic or unaesthetic their scar is because hair was covering the scar. Surgeons see this when they shave the donor area for FUE. Some patients feel uncomfortable with the appearance of the scar and hide out until their donor hair grows to a necessary length to cover these terrible scars. In these cases, we are offering SMP over 2 consecutive days just after the surgery and the following day or possibly one week apart. This way, we can camouflage the scar until the hair grows back and cover it to avoid the problem of a visible scar.

Another indication for SMP is to camouflage the FUE white dots minimizing evidence of extraction in the donor area. We

suggest this to the patients when the extractions were excessive or when the white dot scars are more visible with shorter hair styles.

### **My SMP Story—Dr. Bessam Farjo**

How many times do you hear your patients tell you that they have the wrong shape for a shaved head?! Well, I never thought that I would do it, and certainly had no intention of doing so up until about 18 months ago. At the same time, I often regretted having hair transplants too early in my hair career before fully understanding my potential limitations. I thought I needed to practice what I preached.

Around 10-15 years after my first transplant, my donor area began to thin, so much so the multiple donor scars from the strip surgeries of the early 1990s were beginning to show through. This also reflected in the density of the transplanted hair. There was no worthwhile option of further surgery, so the logical thing to do was to resort to a very short haircut. Unfortunately, a point arrived when the donor area was so light that the donor scars were showing with the short haircut.

The initial idea was to apply SMP to the donor scars and the surrounding scalp to act as camouflage so I could maintain very short hair in the donor to counter the imbalance of the hair loss. I used a local and quite confident technician recommended to me. Sadly, the result was unsatisfactory with large, sparse and quite blue dots. I think a number of things were wrong from the inks used right through to the depth and duration of the injections.

This is when I discussed the issue with Dr. Bill Rassman at a meeting and we decided to try their inks and technique. The result throughout the donor area was night and day compared to my previous experience. After a couple of visits, the treatments enabled me to have my hair at the back to only a few millimeters long.

It was that confidence in the quality of the work and the convincing look of the result that encouraged me to have the top and the front of my scalp treated as well during my third and fourth visits. I don't know how long it will take for the ink to significantly fade but my journey with Jae and Bill started in February 2014 and I've not yet had to significantly top up an area (Figures 12-14).

Almost on a daily basis, I take off my surgery hat during a consultation to demonstrate the potential of SMP to a patient who I relate to. They are amazed every time!



Figure 12. Before (left) and after (right) SMP



Figure 13. Before (top) and after (bottom) SMP



Figure 14. Close-up of Dr. Farjo's hairline

## Discussion

Scalp micropigmentation uses specialized techniques and conventional tattoo instruments with organic inks in a stippling pattern on the scalp by skilled doctors and technicians trained in the art of the process. The process is very difficult to master because it requires a “feel” using reciprocating needles through the skin. Without a good feel developed, frequent errors occur by those operators inexperienced in the process, often causing disfiguring patterns on the scalp. The problems include amalgams of ink that appear blotchy, inks that do not hold, or color changes in the ink based upon poor ink (pigment) selection.

The process can be used in patients with thinning hair who are not candidates for hair transplantation such as the majority of women with thinning hair (50% of post-menopausal females). Similarly, many men who have received hair transplants and do

not get the fullness that they wanted can often obtain their desired end results with SMP. As this is a non-surgical treatment, it is attractive for many patients who find themselves wanting more hair but not wanting to or able to undergo more hair transplants, for whatever reason. The SMP process is a permanent solution to many hair and scalp problems that cannot be treated with traditional hair transplantation, and acts similarly to powdered fibers without the messy problems associated with these products. The SMP market may reflect possibly millions of men and women and patient satisfaction is very high when done well.

## Conclusion

SMP offers a good non-surgical adjunctive treatment for solving problems in patients with thinning hair or for those who may not be candidates for hair transplantation and in filling a series of other cosmetic scalp and hair needs. This paper demonstrates the results with the use of tattoo inks in the skin with a stippled pattern. We believe that SMP is destined to become a standardized offering for physicians specializing in cosmetic hair procedures either for primary first use or as a secondary use to augment hair transplantation.

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