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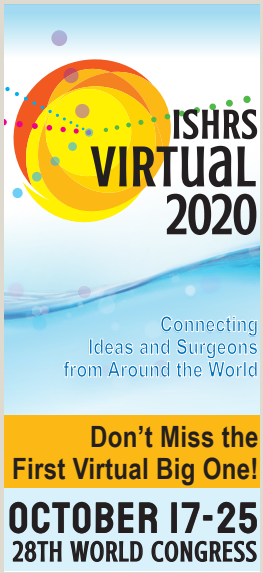
IN THIS ISSUE

Revised NPRT Classification System Encompasses Additional Patterns of Male and Female Hair Loss

Risk Factors and Prognosis of Folliculitis at Recipient Sites Following Hair Restoration Surgery

Telogen Effluvium: An Incidental Observation Seen in COVID-19 Patients

2nd Round Call for Abstracts
Deadline: June 8, 2020



Characterization of the Safe Donor Area in the Indian Population Aged 50-55 Years

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ABSTRACT

Introduction: The safe donor area (SDA) in hair transplants has been categorized in various studies. This study was designed to profile and grade the occipital donor area in our patient population of Indian men, aged 50-55, with androgenetic alopecia (AGA).

Objective: To profile and grade the pattern of receding hair over the occipital donor area among Indian men, aged 50-55 years, with androgenetic alopecia.

Methods: A total of 681 Indian men with AGA (grade Norwood III and above, diffuse unpatterned AGA and/or retrograde AGA), aged 50-55 years, were included in the study group. Occipital donor areas were analyzed and photographed with the head in the sagittal plane. A team of two dermatologists graded the hair loss and the pattern of the receding hair over the occipital donor area and devised a method to grade and profile the donor area.

Results: Of the occipital donor areas analyzed, according to our scale, 78% were graded 1, 2, or 3 and fulfilled the standard SDA criteria; 22% did not fit well into the standard SDA grading scale. Diffuse thinning and/or reverse thinning of the occipital donor area were also observed.

Conclusion: There is no clear-cut defined SDA that can be applied to all patients; therefore, SDA selection should always be conservative and overharvesting of the occipital donor region should be avoided.

Key words: safe donor area (SDA), androgenetic alopecia (AGA), occipital donor area, diffuse thinning (DT), reverse thinning (RT)

INTRODUCTION

Safe donor area (SDA) in hair transplant surgery has been categorized by various studies. In our clinical practice, retrograde androgenetic alopecia (AGA)/reverse pattern hair loss, diffuse AGA, and possibility of miniaturization in occipital scalp are observed routinely; however, these factors are not clearly addressed in the standard SDA definition. This study profiled the occipital donor area in our male Indian patient population and devised a grading scale for the donor area.

METHODS

A total of 681 men between the ages of 50-55 with AGA (Norwood grade III and above, diffuse unpatterned AGA and/or retrograde AGA) were included in this study. Each patient's occipital donor area was analyzed and photographed with the head in the sagittal plane. A team of two dermatologists graded the hair loss and the pattern of the receding hair over the occipital donor area and then devised a grading scale based on the location of the lowest point of the occipital fringe from an imaginary horizontal line connecting the superior surface of the helical rims (grades 1 to 5, with or without diffuse hair loss and/or reverse thinning). Grades were defined as follows:

Grade 5: The lowest point of the occipital fringe is below the horizontal line connecting the superior surface of the helical rim.

Grade 4: The lowest point of the occipital fringe is at the level of the horizontal line.

Grade 3: The lowest point of the occipital fringe is at a distance of up to 3cm from the horizontal line.

Grade 2: The lowest point of the occipital fringe is at a distance of 3-5cm from the horizontal line.

Grade 1: The lowest point of the occipital fringe is at a distance of 5cm and above from the horizontal line.

PAGE 78

FORUM
HAIR TRANSPLANT FORUM INTERNATIONAL
VOLUME 30 | NUMBER 3 | MAY/JUNE
2020

TABLE OF CONTENTS

73 Characterization of the Safe Donor Area in the Indian Population Aged 50-55 Years
75 President's Message
76 Co-Editors' Messages
77 Notes from the Editor Emeritus: Dr. Mario Marzola
81 Revised NPRT Classification System Encompasses Additional Patterns of Male and Female Hair Loss
84 Risk Factors and Prognosis of Folliculitis at Recipient Sites Following Hair Restoration Surgery
90 Hair Sciences: Telogen Effluvium: An Incidental Observation Seen in COVID-19 Patients
91 COVID-19 Updates
92 Medical and Professional Ethics: Spotlight on Social Media
94 The Notable Articles Project
97 2020 Practice Census Offers Key Insights on Hair Restoration Practices and Procedures
99 Hair's the Question: Physiology of Hair Transplant Surgery: Part 1
101 Literature Review
104 Letters to the Editors
105 Case Study from the ABHRS Diplomates: Linear Morphea en Coup de Sabre (LM ECDS)
107 ABHRS President's Corner
108 Meeting Review: BAHRS
111 Hear from the Assistants
112 Message from the ISHRS 2020 World Congress Program Chair
112 Classified Ads
113 Calendar of Events

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Hair Sciences	Vlad Ratushny, MD, PhD
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In Focus: Global Council Societies	David Perez-Meza, MD, FISHRS
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Medical & Professional Ethics	Gregory Williams, MBBS, FISHRS
Meeting Review	Rachael Kay, MBChB
Regenerative Medicine and Hair Loss	Gorana Kuka Epstein, MD
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President's Message

Francisco Jimenez, MD, FISHRS | *Gran Canaria, Canary Islands, Spain* | president@ishrs.org

Reading and Listening Recommendations for the COVID Lockdown

Dear colleagues,

Who could have imagined when we were at our meeting last year in Bangkok that we would be in this situation now? Unbelievable! The COVID pandemic has disrupted all of our ISHRS educational projects and traveling plans for the entire year of 2020. First, we had to cancel the workshop in Houston, then the European workshop in Athens, then the St. Louis Workshop, and now the big one, the World Congress in Panama. The good news at least is that the World Congress will still be held, albeit virtually. At a personal level, though, I am disappointed that I will be unable to meet and greet you all in person at the Congress in the year that I am serving as ISHRS President. However, I also feel strongly that circumstances such as these provide us with the opportunity to learn how to deal with emergency situations in leadership positions, and this is something that not everyone has the chance to experience in their lifetime. Besides, planning a virtual online congress for such a large society as the ISHRS is going to be a wonderful learning experience in itself, and I am sure that it will help us all to familiarize ourselves with new technical and planning methods that can be applied to future meetings of all kinds.

Finding the beauty amidst the isolation





Over these past few months, and in the midst of the COVID lockdown, one of the few possible benefits has been the opportunity to get around to doing those things that we tend to put off when we have to dedicate so much time to working in our clinics. Maybe finishing that paper that has been on hold for so long, going through that pile of journals we just never found the time for, reading that book we were given as a gift, making that long-promised promotional video for our website, trying out that new recipe, practicing that piano or guitar riff…. There are so many things to do that, for me at least, time has seemed to move faster than in a normal working day.

Bombarded as we are with news about the COVID epidemic, with graph after graph showing infected patients and mortality rates, scientific articles revealing the hyperinflammatory cytokine storm caused by the virus, lists of what preventive measures seem to be more effective, gloomy economic forecasts, etc., I would prefer not to add to that in this message. We have more than enough from other sources. If I may, I would just like to recommend a few things for you to read and listen to during this lockdown.

The book I recommend is *The Forest Unseen: A Year's Watch in Nature* (in Spanish: *En un metro de bosque: Un año observando la naturaleza*) by David George Haskell, Professor of Biology at Sewanee: The University of the South in Tennessee (USA). The book reveals what can be understood about the natural world through the author's year-long observation of a one-square-meter patch of old-growth Tennessee forest, explaining the scientific ties binding all life and how the ecosystem has cycled for millions of years. We learn how so many wonders of nature can be uncovered by simply and carefully observing how animals and plants adapt to changes in temperature and environment. The book also underlines the importance of attention to detail, something that we hair restoration surgeons, and indeed all scientists, have in common with naturalists.

As a scientific article in the hair field, I would recommend a recently published article in *Science* by Michel Rendl and his team from the Icahn School of Medicine at Mount Sinai, New York. The article is titled "Dermal sheath contraction powers stem cell niche relocation during hair cycle regression." It is somewhat unusual to find a paper on hair in *Science*, whose impact factor of 41 makes it one of the world's top scientific journals. To make a simple comparison, publishing a single article in *Science* equates to publishing 20 articles in *Dermatologic Surgery*, the most reputable peer review journal in cutaneous surgery. This particular article identifies the dermal sheath that lines the follicle as the key driver of tissue regression and niche relocation via the smooth muscle contractile machinery that generates centripetal constriction force. In other words, if it weren't for the dermal sheath, now identified as a smooth muscle, the epithelial stem cells could not come back during catagen to their place of origin in the bulge region, and a new hair would not be formed, thereby terminating the lifetime of the follicle in terms of hair shaft production.

I would also like to recommend a couple of songs for you to listen to. The first is "Country," a tune that appeared on the album *My Song* by the American jazz pianist and composer Keith Jarrett in June 1978. It was the second album recorded by Jarrett's European Quartet and features Norwegians Jan Garbarek on tenor saxophone, Palle Danielsson on bass, and Jon Christensen on drums. The whole album is excellent, but "Country" stands out for its emotion and intensity.

In a fine gesture of solidarity, the rights to the second song I recommend have been signed over to the community of Madrid, the region of Spain hardest hit by the effects of COVID19, to use as it sees fit to pay tribute to its health workers. Originally released in 1995, the members of Los Secretos have just recorded from their respective homes an online version of their song, called "Pero a tu lado," which can be seen on https://youtu.be/7UOWBV6I9Y0. The melody and lyrics will long be remembered as a heartwarming anthem during this lockdown in Spain.

Finally, on behalf of the ISHRS, I would like to send you and your loved ones our very warmest and sincerest greetings. ■

Co-Editors' Messages



Jeffrey S. Epstein, MD, FISHRS ❙ *Miami, Florida, USA* ❙ forumeditors@ishrs.org

Crowns are quite an appropriate theme for this message. The triple crown of FUE, FUT, and SMP was the feature of our Bangkok meeting. The novel Coronavirus crown has and will continue to have an impact on our lives—including our practices—for months, if not years, into the future.

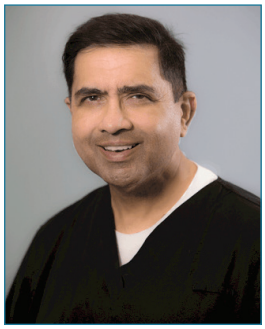
I'd like to write of another crown, the triple crown of the ISHRS consisting of educational offerings, the leadership, and the *Forum*. Together these are what make our society relevant and valuable, and none of them happen without inspiration and perspiration (hard work).

The first component, educational opportunities, are the potpourri of outstanding meetings, highlighted by our World Congress, that bring together all those interested in learning, teaching, and exploring our world through the international places we visit and the friends we make. While this year's meeting will entail us coming together virtually from our homes rather than being in one physical place, being privy to some of the extensive planning going on I know it will provide a highly anticipated special learning experience.

The second component, the leadership of the ISHRS, rose to the challenge of addressing COVID-19's impact on our practices and society. True leadership in whatever setting—an office, a nation, a professional society—is called for in times of disruption. The immediate action taken by the ISHRS in early March to present the offerings that many of which our members chose to partake in, such as offering webinars in English and Spanish on telemedicine and other timely subjects, establishing guidelines for returning to practice, and surveying members to learn the impact of quarantines on our practices (the results are presented on page 91), all demonstrated the quality and commitment of the ISHRS's leadership, backed up by the efforts of executive director Victoria Ceh and her team including Rita Kaufman, Melanie Stancampiano, Blanca Mejia, and others.

Finally, the third component—the *Forum*. Managed by a long line of prior committed editors, Aditya and I are doing our best to continue on the rapid dissemination of salient ideas and knowledge, a responsibility that could not be achieved without the contributions of our members. This issue's cover story, which discusses the characterization of the safe donor area in a specific demographic group, is made particularly worthwhile as it features commentary from Drs. Bernstein and Rassman. Last issue's cover story reignited the sagittal vs. coronal debate, generating the letters to the editors. The Notable Articles Project takes us back to a 2002 article from *Outpatient Surgery*, "9 Sacred Cows to Banish from Your Facility," which was reprinted in the 2002 *Forum*. It discussed infection control in the OR, and we run it again here with a perspective on today's relevance.

COVID-19 will come and go, and like all crises, will leave us wiser and with a better perspective. The ISHRS and the *Forum* will be here to guide us in our efforts to be the best clinicians we can be, and will help us raise the bar on how we treat hair loss. ■



Aditya K. Gupta, MD, PhD, FISHRS ❙ *London, Ontario, Canada* ❙ forumeditors@ishrs.org

I truly hope this message finds you all safe and well. As countries are going through different stages of the response to COVID-19—some of us are able to reopen while others are in the crux of a lockdown—please know that the ISHRS is here for each and every one of us. The COVID-19 Task Force has assembled several webinars, Zoom discussions, and specialized resources to assist members in reopening our practices (outlined on page 91). This is unchartered territory for all of us, so let's share our reopening ideas, successes, and failures to find the best strategies and help each other through this difficult time.

This issue of the *Forum* highlights some great topics worthy of discussion, as always. A topic not discussed too often but that is fairly common is post-operative folliculitis. Tueboon Sriphojanart and colleagues address this in a retrospective study. The results suggest that a younger age and preexisting scalp, facial, and neck acne are potential risk factors for developing folliculitis. This study also addresses the concern that folliculitis may affect graft survival, showing that the prognosis of hair regrowth after post-operative folliculitis is good. Since the development of folliculitis after a hair transplant can be distressing to the patient, identifying risk factors and susceptible populations can help surgeons better inform their patients and reassure them that the overall prognosis should not be affected by folliculitis.

The Hair Sciences column is particularly relevant as it discusses the possibility of COVID-related telogen effluvium through multiple mechanisms. Possible causes include stress or fever-induced, as seen after the Spanish Flu pandemic in 1918, or possibly through direct effects of the virus. There is still so much to learn about the effects of this virus on hair growth, but being aware of this possibility is important to take into consideration when planning surgical treatment in the current times of the pandemic.

Greg Williams's "Spotlight on Social Media" brings to our attention the advantages and cautions of social media as a medical professional. In the age of social media, posting about health issues and medical experiences has many advantages, such as educating patients and helping them understand what to expect on the day of surgery. Social media is also a great way to advertise your practice (as long as it is done responsibly and ethically). However, there is a gray area when posting about your personal life on social media. This column offers an important reminder to take caution when posting personal stories or opinions as your reputation is at risk.

In closing, Jeff and I are sincerely appreciative of all contributions to the *Forum*. Your continued participation in sharing your ideas and knowledge is instrumental in advancing the field of hair transplantation. In an attempt to accelerate the editing process, we are asking that all contributions include a structured abstract and up to 6 key words. We look forward to reading your future contributions! ■



Notes from the Editor Emeritus, 2014–2016

Mario Marzola, MBBS | *Adelaide, South Australia* | mario@marzola.net

I don't want to isolate!

This forced isolation from COVID-19 has been difficult on many fronts. We are social people who enjoy interacting with each other. There are so many nice people in hair restoration surgery, damn it; I don't want to isolate.

The interactions with patients I am missing badly. I feel comfortably based in experience and knowledge of this field and can help hair loss sufferers. There is pleasure on both sides: the patient is happy to have a concern dealt with and I'm happy to have served a purpose. We all love to be needed. The last two or three patients I saw in person before the lockdown felt very special. Remote consultations now serve the purpose but it's not the same.

So many patients are also nice people, sometimes shy to admit that they have an issue with hair loss. Their trust in us is warming, and we are happy to accept the responsibility for helping them and not letting them down. Hence, the chase for ever better outcomes all the time. We focus on every step of the procedure—to not have a break in the chain of nine or so steps from donor to recipient—because all it takes is for one to go wrong (e.g., a rough planting), and then the whole operation will fail. It matters not how perfect the other steps were. HRS fits so well for those of us who have a touch of OCD!

The chase for ever better outcomes is focusing and addictive. The sudden imposed removal of these connections is unpleasant. I feel grief. I don't like it.

It is all balanced a little by knowing that it is temporary. Also, all Day Hospitals in Australia—including mine—have been taken over by the Health Department to provide overflow accommodation at the forthcoming peak of COVID-19 cases. Suddenly, we are dealing with ever-changing directions, paperwork, and rules and regulations that are foreign to those of us in private enterprise. Hopefully, it won't go on for too long. Oh well, all in the national interest, happy to do our share. Then I hear the pronouncement by Australia's chief medical officer that those of us who are a little senior will come out of isolation later than the others. Hey, elder abuse I say!

I still go to the office every weekday and stay home on the weekend; this way, there is structure still. If there is a silver lining in this cloud, it is the undisturbed time available to catch up on so much that has been put off, and for that I am thankful. On the weekend, retirement things like gardening, renovating, etc., are just ok.

During the recent Easter break, it was really bad, just moping around. I heard these pearls around my house: "Get out there and do stuff, Mario, otherwise your brain will shrink more" and "Do some home cooking and return the favour Bitch" from my wife. "It's really tiring when there is nothing to do" from our daughter.

My comfortable position has been that hair restoration and I will go on forever. It's been so busy lately that my work week has gone from four days a week to five and a half. A 2,500 FUE surgery is the standard procedure. Start at 7AM, finish at 5PM, on average. My harvesting and site making is over by 11:30, so the planters have an hour at the head before lunch. They like that. We have not yet moved to harvesting and planting at the same time as some others have done. I learnt a lot at the Sixth Annual Latin American FUE Workshop in Cancun last February. Better, faster harvesting with less transection. Same with planting, fast and gentle, mostly with implanters. Great growth, happy patients. Every year it gets better, there is a lot for me to work on, it never stops. I want to keep improving, to crowd around a surgical demonstration (no social distancing) and share a chat in the corridor or over lunch with colleagues. Connect. Improve. Serve our patients better.

I will always remember Dow Stough's saying: Patients first, second, third, fourth, and fifth, then me.

Finally, with the passage of the years, there will be a time when something will force me to stop. I hope it will be gentle, maybe a tap on the shoulder by a colleague or two, then I will know and will accept. But not from a virus. ■

CONTINUED FROM PAGE 73

The patients were analyzed for the presence of diffuse thinning and reverse thinning over the SDA by assessing the extent of miniaturization. To categorize the patients into diffuse thinning (DT) over the SDA, the following parameters were used: three random points on the occipital, parietal, and temporal regions, corresponding to Unger's SDA,[1] were chosen and an area of 1cm^2 was marked with a marker. The number of follicular units (FUs) within each marked area was measured using trichoscope (FireflyDE350 Polarizing Dermascope). Patients with < 30 FUs in all the three points were categorized as diffuse thinning over the SDA. To categorize the patients into reverse thinning over the SDA, the following parameters were used: retrograde miniaturization of the inferior occipital hairline was clinically diagnosed and, additionally, trichoscopic examination of the inferior zone of the occipital hairline on these patients and on patients with hair shaft diameter variation of > 20% of all the hairs in the same view were categorized as reverse thinning (RT).

Presence of DT or RT as a stand alone finding or in any of the above-mentioned grades was also noted and documented.

RESULTS

Grade 1 pattern was found in 29% (198), grade 2 in 27% (181), grade 3 in 22% (150), grade 4 in 18% (124), and grade 5 in 4% (28) (Figure 1, Table 1). Reverse thinning alone was found in 0.6% (4) (Figure 2), and diffuse thinning alone in 1% (8) (Figure 3). Diffuse thinning over the occipital donor area in all grades was found in 8% (52), reverse thinning in all grades was found in 22% (150), and both RT and DT in the same patient was found in 2% (14) (Figure 4).

TABLE 1. Distribution by Donor Grade Among Patients

Donor Area	%	Number of Patients (n=681)
Grade 1	29.07	198
Grade 2	26.57	181
Grade 3	22.02	150
Grade 4	18.20	124
Grade 5	4.11	28

DISCUSSION

Hair follicles located over the occipital region are considered androgen resistant and thought to be permanent, hence these follicles are utilized as the donor in hair transplant surgery for AGA.[2] Unger first suggested the safe donor area in 1994, and this continues to be the standard, though the SDA has been defined by others as well.[1,3-5] In clinical practice, retrograde AGA/reverse pattern hair loss, diffuse AGA, and possibility of miniaturization in occipital scalp are also observed routinely. These factors were not clearly addressed in the standard SDA definition. Recently, with the advent of follicular unit excision (FUE) mega sessions and grafts being harvested over larger parts of occipital scalp, questions have been raised as to what is SDA and whether it is wise to harvest from all areas of occipital scalp. In this study, we intended to profile the donor area in our population.

Although a variety of grading scales for AGA have been published and widely followed, there are no grading scales for the donor area described in the literature. We formulated a grading scale to define the donor area objectively by keeping the horizontal line connecting the superior rim of the helix as a landmark and based on the distance of the lowest

FIGURE 1. Grading scale based on the location of the lowest point of the occipital fringe from an imaginary horizontal line connecting the superior surface of the helical rims. Images show grades 1 to 5.

Grade 1: The lowest point of the occipital fringe is at a distance of 5cm and above from the horizontal line.



Grade 2: The lowest point of the occipital fringe is at a distance of 3-5cm from the horizontal line.



Grade 3: The lowest point of the occipital fringe is at a distance of up to 3cm from the horizontal line.



Grade 4: The lowest point of the occipital fringe is at the level of the horizontal line.



Grade 5: The lowest point of the occipital fringe is below the horizontal line connecting the superior surface of the helical rim.



FIGURE 2. Patient with only reverse thinning



FIGURE 3. Patient with only diffuse thinning



FIGURE 4. Patient with both reverse and diffuse thinning



point of the receding occipital fringe from this line; the donor area was then categorized into 5 grades. The grading scale described in this study is a simple, objective, useful grading scale for defining the donor area in all age groups.

There are no studies to assess the SDA in the Indian population. We tried to profile the donor area in our population in men with AGA falling in the age group between 50-55 years, since epidemiologically 50% of men in this age group would have AGA.[6] The donor area was categorized into the 5 types according to our grading scale, and among these 5 types, grades 1, 2, and 3 occipital donor areas (78% of patients) fulfilled the SDA criteria established by Unger. Grades 4 and 5 occipital areas (22% of patients) did not fit well into the SDA as described by Unger. Unger noted that 80% of men under the age of 80 years would fulfill the SDA definition,[2] while in our study population, only 76% under the age of 55 years fulfilled the definition of Unger's SDA. These data highlight the importance of defining the SDA among various races; extrapolating the SDA from Western data might not be appropriate for the Indian population.

FIGURE 5. Patient's DT over the occipital region led to the visibility of a scar from a prior strip surgery.



In our study, DT was observed in 8% of the patients, and diffuse unpatterned hair loss over the occipital donor region was not accounted for in any of the earlier SDA definitions. One patient's DT over the occipital region led to the visibility of a scar from a prior strip surgery (Figure 5). These findings highlight the possibility for DT in the donor area with advancing age.

FIGURE 6. Patient with RT extending into the standard SDA.



In our study, RT was observed in 22% of the patients, and this RT extended up to the occipital protuberance extending into the standard SDA in some patients (Figure 6). We observed the RT in many patterns among the patients: paralleling the pattern of occipital fringe, as a straight line from the inferior hair line, on either side alone, and on the central portion alone. When considering FUE, the possibility of RT with advancing age needs to be considered while harvesting the hair follicles.

Among the study population, 0.6% (4) had RT alone without the receding of the occipital fringe and 1% (8) had DT alone. DT and RT were observed in all the grades (1 to 5) in our study group (Table 2). These findings highlight the possibility for thinning of hair follicles in the so-called permanent zone of hair.

The findings from our study demonstrate that miniaturization affects the hair follicles located over the SDA. The pattern of miniaturization is unpredictable and highly variable. The possibility for thinning of hair and reduction in the density over the donor area increases with advancing age; the possibility for DT and RT affecting the donor area should be discussed with the patient prior to the hair transplant surgery, since this may reduce the long-term survival of the grafted follicles and may lead to poor results.[7]

TABLE 2. Distribution of DT and RT by Donor Grade

Donor Area	No. of Patients with RT	No. of Patients with DT
Grade 1	8	8
Grade 2	12	20
Grade 3	10	54
Grade 4	16	60
Grade 5	6	8

CONCLUSION

There is no clear-cut SDA and it might vary amongst different ethnicities. A proper history, careful assessment of future hair loss progression, family history, pattern of hair loss in the family, and the possibility with increasing age for future DT and/or RT over the occipital region due to miniaturization of the hair follicles, which might affect the long-term survival of the transplanted follicles, should be discussed with the patient prior to the hair transplant surgery. SDA selection should always be conservative and overharvesting of the occipital donor region should be avoided.

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Invited Commentary

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This very interesting paper by Dr. Muthuvel adds some important dimensions to the safe donor area (SDA) that was meticulously described by Walter Unger in his classic publication on the subject in 1994.

A major focus of the current paper is the development of a new grading system to measure the extent of hair loss by comparing the position of the superior portion of the occipital fringe to a fixed landmark: the helical rim. The clinical utility of this metric over simply measuring the height of the

➤ PAGE 80

CONTINUED FROM PAGE 79

donor is not obvious, since the overall dimensions of the donor area, rather than simply the position of its superior aspect, is what determines the amount of donor hair that can be harvested. That said, this new type of measurement provides the interesting data reported in the paper.

The author treats the inferior portion of the donor area separately by defining retrograde AGA and then reporting on its occurrence. Although retrograde thinning would be baked into the Unger donor area calculation, the stand-alone incidence of 22% is surprisingly high and underscores the importance of considering it when assessing the donor area. Importantly, RT (along with disappearing temple points and "whisker hairs") may portend the eventual development of extensive AGA and should be a worrisome sign for anyone attempting hair restoration surgery, regardless of the technique.

An interesting aspect of the Muthuvel paper is the finding that diffuse thinning of the permanent zone (defined as < 30 follicular units/cm^2) was present in 8% of patients. It could be argued that the > 20% miniaturization the author used to define reverse thinning, should also be applied to donor thinning.

These commentators would like to add that, in addition to donor "thinning" from AGA (defined either by loss of follicular units or by excessive miniaturization), there is another significant type of hair loss that affects the donor area and that renders patients poor candidates for both surgical and medical intervention. This condition, common to both men and women, is age-related thinning (ART).

ART is characterized by the progressive, diffuse, uniform decrease in hair shaft diameter. The key word is "uniform." Both AGA and ART are progressive conditions and can be so at varying rates. And both AGA and ART can be diffuse, with the female pattern of AGA displaying diffuse miniaturization and men having both diffuse patterned and un-patterned alopecia (DPA and DUPA).

Hair thinning in AGA is a focal process. It starts with one follicle in a follicular unit and then gradually involves others, characteristically resulting in hairs of varying diameters (miniaturized or partially miniaturized hairs). In contrast, hair thinning in ART is a uniform process. Uniformity is the defining characteristic of ART, where every hair shaft becomes finer at the same time and to the same degree. ART is not merely thin hair, it is a genetically programmed process that relentlessly reduces hair shaft diameter over time.

It is important to make the distinction between gross clinical thinning, which can be due to the loss of the absolute numbers of full-thickness hairs (telogen effluvium), the presence of miniaturization (AGA), or the accumulated thinning of every hair follicle (ART), and the thinness of the actual hair. Thin hair is a characteristic of every hair in ART, some hair in AGA, and not seen in TE, although in all three conditions one's overall head of hair can look and feel "thin."

ART has often been referred to as senile alopecia, but the problem with this latter term is that the condition can start at an early age (just as AGA can). ART is truly an age-related genetic process that involves all the hairs on one's head. It is not androgenetic. It can be the only process that is occurring when a women or man complains that they have thinning hair or decreased hair volume. But ART can certainly occur along with AGA—and usually does!

The diagnosis of ART is simple: no matter where you look you seen uniformly fine hair. When you use dermoscopy to look at the donor fringe of an 80-year-old man and see uniform, fine hair, these changes are from ART, not AGA. ■



Revised NPRT Classification System Encompasses Additional Patterns of Male and Female Hair Loss

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ABSTRACT

Introduction: The NPRT classification system was first described in 2016 and was initially designed specifically for male pattern hair loss (MPHL). We introduce additions that allow for a more comprehensive classification system that encompasses almost all of the patterns of hair loss in both males and females.

Objective: To propose a revised NPRT classification system that encompasses male and female hair loss patterns.

Results: The current NPRT classification system has been revised and various patterns of male and female hair loss have been included that encompass a wide variety of hair loss patterns.

Conclusion: The revised NPRT classification system has become a universal hair loss classification and documentation system because it is easy to understand, can replicate the exact picture of the hair loss pattern, and has good reproducibility.

Key words: NPRT classification, hair loss classification systems, male pattern hair loss (MPHL), female pattern hair loss (FPHL)

INTRODUCTION

Androgenic alopecia affects more than 50% of the population at some stage of their life. It is believed to be a genetic condition, and androgens play an important role. In addition, many dietary and environmental factors play a role in hair loss.[1] Hair loss is generally a slow process; terminal hairs gradually turn into fine vellus hairs. There are different classifications for documenting male and female hair loss patterns. Furthermore, there exists a wide variation in patterns of hair loss affected by factors such as geographical area, ethnic group, or gender. The basic aim of classification is to communicate between physicians and the patient the exact extent and nature of the hair loss.

Probably the first classification for male pattern hair loss (MPHL) was described by Beek in 1950, followed by Hamilton in 1951.[2,3] Subsequently, many other classification systems for male hair loss have been described: Ogatta (1953), Feit (1969), Setty (1970), and Rook (1975).[4-7] In 1975, Norwood improved the Hamilton classification.[8] Additional classifications were described by Bouhanna (1976), Takashima (1981), Blanchard (1984), Savin (1992), Dardour & Bouhanna (1996), Sinclair (1998), Koo (2000), Cohen (2002), Brandy (2002), Mayer (2003), Lee (2007), Ahmad (2016), and Kim (2019).[9-21]

Similarly, female pattern hair loss (FPHL) classifications were described by Ebling and Rook (1975), Ludwig (1977), Savin (1992), Olsen (1994), Sinclair (2004), Bouhanna (2000), Lee (2007), and Kaneko (2018).[18,22-28]

Almost all of the classifications for documenting MPHL or FPHL that are available today have limitations. Some are too complicated and lack details on the stages of hair loss. For example, temporal areas (peaks/points) are not addressed by the Norwood-Hamilton classification system, as Mayer's temporal hair loss classification was never incorporated in the Norwood scale. Similarly, donor hair density and donor hair characteristics have not been incorporated into any previous system, but they are part of the NPRT system (Norwood, temporal Peaks, Reverse thinning, and overall Thinning).[20] Moreover, many patterns exist beyond the described classifications, with some never classified.

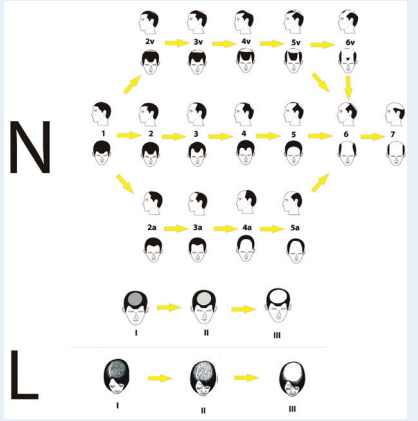
In 2016, articles describing Ahmad's NPRT classification system were published in the *Hair Transplant Forum International* and the *Journal of Cutaneous & Aesthetic Surgery*.[20,29] In 2017, a report was published on 500 patient evaluations using this new system.[30] This original NPRT system mainly applied to MPHL.[20,28] However, in this article, we introduce additions that allow for a more comprehensive classification system that encompasses almost all of the patterns of hair loss in both males and females.

REVISED NPRT SYSTEM

The revised NPRT system (Figure 1) consists of four points:

1. NoveL: This component serves as the main part of the classification, and all subtypes and variants are included (Figure 1). In the original and current versions, the letter "N" stands for "Norwood scale"; however, in the current version, we've added an "L," which stands for "Ludwig scale," a method for classifying FPHL. The Ludwig scale is subdivided into three stages: L1a (Olsen type I), L1b (Olsen type II), and L1c (Olsen type III).

FIGURE 1. Revised NPRT scale



Moreover, TWO new variants have been added for MPHL to the Norwood scale. First is type 5v, which can either advance to type 6v or type 7. The type 5v of the Norwood scale includes the preservation of a "frontal forelock," which may be present at the advanced hair loss stage (type 6v) as well (Figure 2).

FIGURE 2. Male Norwood type 5/6/7 with frontal forelock



Another variant is the inclusion of Ludwig-type hair loss in

➤ PAGE 82

CONTINUED FROM PAGE 81

men, which thus far has been applied only to women. In Ludwig-variant male patients, the anterior hairline stays at the position of Norwood type 2 and never recedes despite the hair loss seen on the vertex/crown. There are certain atypical hair loss patients who lose a considerable amount of hair diffusely, until now classified as "atypical" or "unpatterned," who now can be classified as Norwood type 2 or 3 when adding the status of hair density (Figure 3). Moreover, the different stages previously represented by Roman numerals have been replaced by Arabic numerals to decrease the ambiguity and confusion of stages (e.g., type 4v was previously written as type IVv). Likewise, in the Ludwig scale, I, II, and III have been replaced with 1, 2, and 3.

FIGURE 3. Male atypical hair loss, Norwood type 2/3 with severe loss of density

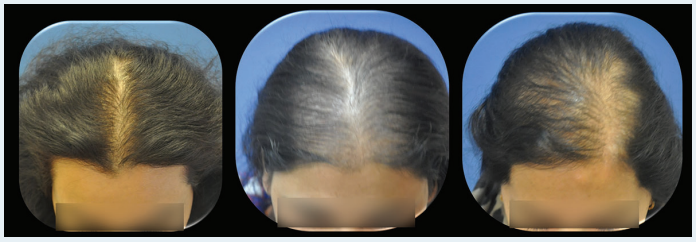


Similarly, in FPHL, anterior-type Norwood patterns can be applied (Figure 4), and the "Christmas tree" pattern of Olsen is included in Ludwig type 1 (i.e., a, b, and c) (Figure 5). The thinning is more visible in areas where the hair is parted, so if hair styling changes, the hair loss becomes less visible.

FIGURE 4. Female Norwood anterior pattern; N3, P3, R0, T0



FIGURE 5. Ludwig female hair loss patterns



2. Temporal Peaks/Points: This component is denoted by the letter "P." The different grades vary from 0 to 3 written with the letter P (Figure 6):

P0 indicates no hair loss at the temporal peaks/points.

P1 indicates the apex of the temporal peak (temporal point) is located not less than the junction of one-third and two-thirds of the distance between the outer canthus to the tragus.

P2 indicates the temporal point is located not less than half of the distance between the outer canthus to the tragus.

FIGURE 6. Temporal hair status



P3 indicates the reverse of P1; that is, the temporal point is located at a distance less than two-thirds and one-third between the outer canthus to the tragus.

3. Reverse/Retrograde Thinning: This component is denoted by the letter "R." This applies to the hair loss in the occipital and mastoid (above the ears) areas. Thinning in these areas means more skin than hair is visible. Retrograde thinning also has grades 0 to 3 (Figure 7):

FIGURE 7. Reverse or retrograde thinning



R0 indicates no reverse thinning.

R1 indicates mild reverse thinning; that is, the loss of hair density is limited only to 1cm above the ears and/or the occipital area (below the horizontal line joining both ear lobes).

R2 indicates moderate reverse thinning; that is, the loss of hair density is more than 1cm but less than 2cm in the occipital and/or mastoid area.

R3 indicates severe reverse thinning; that is, the loss of hair density is more than 2cm above the ears and/or occipital area.

4. Overall Thinning: This component, denoted by the letter "T" (Figure 8), describes the overall density of the donor area (behind the straight line from the tragus on the sides and about 2cm above the external occipital protuberance). Similarly, it has grades from 0 to 3:

FIGURE 8. Overall thinning/density



T0 indicates no thinning.

T1 indicates mild loss in density; that is, some skin is visible more than hair (less than 25% loss).

T2 indicates moderate loss in density; that is, a moderate amount of skin is visible more than hair (loss is more than 25% but less than 50%).

T3 indicates severe loss of density; that is, much more skin is visible than hair (loss is more than 50%). The density can be measured at the level of external occipital protuberance (or 100 hairs/cm^2 can be taken as a reference value).

DISCUSSION

Androgenic alopecia is characterized by a gradual loss of hair. In contrast to the previous beliefs and teaching in the literature, there exist various patterns that are a mixture of hair loss patterns common in both males and females. One

example is with anterior/frontal hair loss patterns that are the hallmark of male hair loss patterns but also are seen in females. This pattern of hair loss currently is not documented by any of the female hair loss classifications. Similarly, males can exhibit Ludwig-type hair loss and need to be included in the comprehensive classification. Moreover, Norwood and Ludwig classifications alone have certain limitations—for example, the lack of density, temporal hair status in male hair loss classification, or the lack of description of anterior hair loss patterns in females—that have been pointed out in various reports in the literature.[31-33] Yet the Norwood and Ludwig classification systems are believed to be the "gold standards" and may take decades to replace.

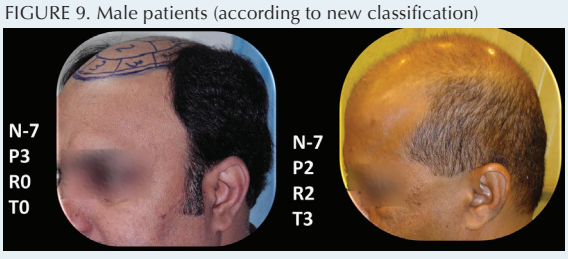
One of the reasons for the popularity of the Norwood and Ludwig classifications among physicians and patients is their simplicity to document and communicate. However, the overlapping of certain classifications create confusion; for example, type V of BASP (**B**asic **A**nd **S**pecific **P**atterns) is often confused with type V of the Norwood scale. The limitations of the previous classifications to document all types of hair loss, in addition to the confusion created, were the impetus for the development of new classifications.

In medicine, classification is the systematic arrangement of similar items on the basis of certain differing characteristics. The main purpose of a classification system is to organize items in a structured and useful way. To be reliable, a system must be universally understood, so that terms have the same meanings across cultures and languages and categories are grouped based on perceived common characteristics. The current NPRT classification system was designed to encompass more of the hair loss patterns that are missing in most of the previous classifications. For example, a study by Guarrera et al showed that the reliability of the Hamilton-Norwood scale is unsatisfactory.[34] Similarly, there are certain stages missing in the Norwood scale that are included in the newly revised NPRT system presented in this paper. The current version encompasses both male and female hair loss patterns and can easily express and reproduce the exact pattern of hair loss.

Documenting Hair Loss

It is very easy to document and understand hair loss patterns using this revised system. The "NL" in the updated system denotes "Norwood/Ludwig" pattern. First, the Norwood type with its new variants or the Ludwig type with its new variants is determined. For example, a patient with type III Norwood is written as N3, or a patient with Ludwig type 2 is written as L2. To delineate gender, the word "male" or "female" is added before the scale (e.g., male N3 or male L2; female N4a or female L1c). The other three points—P, R, and T—are added as observed. The final scale of the patient in Figure 9, for example, is "male N7P3R0T0 and N7P2R2T3," and the patient in Figure 5 is "female N3aP3R0T0."

FIGURE 9. Male patients (according to new classification)



CONCLUSION

The revised NPRT system is better than previous hair loss classification systems in that it encompasses all the varying degrees of hair loss patterns for both males and females. It helps to document and understand the true picture of the balding stage by including the atypical patterns that have not been incorporated in previous systems.

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➤ PAGE 84

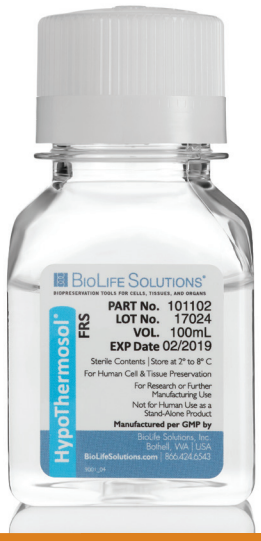
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Risk Factors and Prognosis of Folliculitis at Recipient Sites Following Hair Restoration Surgery

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The authors have indicated no financial interest with commercial supporters.

ABSTRACT

Introduction: Folliculitis after hair restoration surgery is a common complication with potentially multiple etiologies. Folliculitis usually occurs from a few days up to 6 months post surgery, and it often causes distress for the patient. However, there is still a lack of evidence regarding patient characteristics, risk factors, and prognosis of folliculitis following hair restoration surgery.

Objective: To determine the characteristics, risk factors, and prognosis of folliculitis after hair restoration surgery for androgenetic alopecia and eyebrow and beard hypotrichosis.

Methods: From January 2013 through December 2017, we conducted a retrospective study of 102 patients after follicular unit transplantation (FUT) and follicular unit excision (FUE) for scalp, eyebrow, and beard hair transplantation. A total of 50 patients with folliculitis and 52 patients without folliculitis were included in the study. The data was collected from patients' records and electronic mail. Patient characteristics, surgical technique, anesthesia, tumescent, density of donor and recipient area, and pre- and post-operative medication were compared between the two groups. The clinical investigation of infection including bacterial culture, treatment, and follow-up of hair growth were recorded.

Results: A total of 102 patients were included in the study. In the folliculitis group, 42 patients had undergone FUT, 6 FUE, and 2 a combination of FUT and FUE. In terms of severity, 30 patients (60%) had mild disease (0-10 lesions), 10 (20%) moderate (11-20 lesions), and 10 (20%) severe (more than 21 lesions). The onset of disease ranged from 2-130 days post operation. Swab cultures for aerobic bacteria were done in 10 patients and showed no growth in 4, *Staphylococcus aureus* in 1, *Staphylococcus epidermidis* in 1, *Pseudomonas aeruginosa* in 1, and *Klebsiella pneumoniae* in 1. The median age of the folliculitis group was significantly lower than the non-folliculitis group (37 years vs. 44 years). Patients in the folliculitis group were reported to have more preexisting scalp, face, and neck acne. There was no difference in surgical technique, anesthesia, tumescent, density of donor and recipient area, and pre-operative and post-operative medication between the groups. At 12-month follow-up, most patients reported satisfactory or very satisfactory results; in addition, the two hair surgeons evaluated pre-operative and post-operative photographs as satisfactory or very satisfactory.

Conclusion: Younger age and preexisting scalp, face, and neck acne may be risk factors in developing folliculitis at the recipient site after hair restoration surgery. The overall prognosis is good; most patients had excellent hair growth after one year.

Key words: folliculitis, infective folliculitis, recipient site, follicular unit transplantation (FUT), follicular unit excision (FUE)

INTRODUCTION

Folliculitis after hair restoration surgery is a common complication. The etiology could be due to infection, foreign body reaction, ingrown hair, or surgical technique. Folliculitis usually occurs from a few days up to 6 months post surgery, and it usually causes distress for the patient. However, there is still a lack of evidence regarding patient characteristics, risk factors, and prognosis of folliculitis after hair restoration surgery.

METHODS

Between January 2013 and December 2017, we conducted a retrospective study of 102 patients after follicular unit transplantation (FUT) and follicular unit excision (FUE) for scalp, eyebrow, and beard hair transplantation. A total of 50 patients with folliculitis and 52 patients without folliculitis were included in the study based on the following criteria:

1. Patient's medical records or email showed folliculitis.
2. Patient had hair transplantation either by FUT or FUE technique for androgenetic alopecia, eyebrow hypotrichosis, or beard hypotrichosis between January 2013 and December 2017.
3. Patient was followed for at least 12 months post transplantation.

The exclusion criteria were the following:

1. Patient's clinical records were incomplete.
2. Patient's follow-up period was less than 12 months post surgery.

Data was collected and reviewed for each patient. The patient's clinical characteristics, which included age, sex, race, hair characteristics, hair loss grading, skin and scalp conditions, and underlying disease, were recorded. Also recorded were operative techniques, such as technique of donor harvesting, site creation, and graft placement; onset of folliculitis, duration, number, location, and characteristics; investigations, such as bacterial culture; and treatments. All hair transplant procedures in this study were performed by the same surgeon and team of nurses and assistants in a single hair restoration center in order to eliminate the technical bias from differing surgical techniques, graft preparation, and graft placement.

For outcome and hair growth assessment, a five-point Likert scale was used to assess the subjective satisfaction of patients and the objective satisfaction of the surgeon at 12-month follow-up. The surgeon's satisfaction score was marked by two expert hair surgeons who did not participate in the particular surgical procedures for accurate and objective evaluation through pre-operative and post-operative

➤ PAGE 86

CONTINUED FROM PAGE 85

patient photographs. The scale used was as follows: 1, Very Unsatisfactory; 2, Unsatisfactory; 3, Average Satisfaction; 4, Satisfactory; 5, Very Satisfactory.

SURGICAL TECHNIQUES

Follicular Unit Transplantation

The donor site was selected above the level of occipital protuberance. The donor area was painted by Betadine solution and draped with sterile towels. Scoring and open dissection technique were done, then a no.15 blade was used to separate the rows of hair follicles up to the level of the bulb and subcutaneous fat. Trichophytic closure was done on the lower edge of the excision site. Simple interrupted sutures using Nylon 3-0 and continuous running sutures using 4/0 Vicryl Rapide (27 inch) were done at the donor surgical wound.

Follicular Unit Excision

Painting with Betadine solution was done, and the donor area was draped with sterile towels. A 0.95mm punch size was used to extract the follicular units by FUE using the WAW device set at oscillation.

Recipient Area

The recipient sites were cleaned with Betadine solution and 70% alcohol. Depth-controlled slit incisions were done after injecting local anesthesia and tumescent fluid using a 21g needle for 1-hair grafts, a 19g needle for 2-hair grafts, and an 18g needle for 3-hair grafts. The grafts of normal length were inserted into premade slit incisions. However, longer and shorter grafts were inserted by stick-and-place method.

RESULTS

Of the 102 patients enrolled in the study, 50 had folliculitis and 52 did not. In the folliculitis group, the median age was 37 years (range = 23-64 years, IQR = 32-48) and all patients were male (100%). In the folliculitis group, there were 33 Caucasian patients, 13 southeast Asians, 3 east Asians, and 1 patient of Middle East origin. Two patients (4%) were classified as androgenetic alopecia Norwood-Hamilton class II, 13 (26%) class III, 17 (34%) class IV, 12 (24%) class V, and 6 (12%) class VI. Two patients were diagnosed as both eyebrow and beard hypotrichosis, and 1 patient had eyebrow hypotrichosis. Forty-two patients underwent FUT, 6 underwent FUE, and 2 a combination of FUT and FUE. There were 5 patients (10%) who had acne on their faces and 7 (14%) with acne on their scalps at the time of surgery. Regarding hair characteristics, 32 patients (64%) had straight hair, 14 (28%) wavy hair, and 4 (8%) curly hair. Regarding the medical history, 2 patients (4%) had hypertension, 2 (4%) hyperlipidemia, 2 (4%) hypothyroid disease, 2 (4%) migraines, and 7 (14%) other medical conditions. Regarding the use of topical minoxidil, 10 patients (20%) used minoxidil solution 5% post surgery.

In the non-folliculitis group, male patients accounted for 50 cases (96%) and female accounted for 2 cases (4%). In this group, the median age was 44 years (range = 33-66 years, IQR = 38-52). Twenty-nine patients were Caucasian, 17 Southeast Asian, 3 East Asian, and 3 Middle Eastern. Three patients (5.7%) were classified as Norwood-Hamilton class II patients, 15 (28.8%) class III, 16 (30.7%) class IV, 14 (26.9%) class V, and 4 (7.6%) class VI. Forty patients underwent FUT, 7 FUE, and 5 a combination of FUT and FUE. Two patients (3.8%) had preexisting acne on their faces and 1 (1.9%) on the scalp. Thirty-six patients (69.2%) had straight hair, 12 (23%) wavy hair, and 4 (9.6%) curly hair. Regarding the medical history, 4 patients (7.6%) had hypertension, 2 diabetes (3.8%), 2 (3.8%) hyperlipidemia, and 5 (9.6%) other medical conditions. Regarding the use of topical minoxidil, 12 patients (23%) used minoxidil solution 5% post surgery.

The median age of the folliculitis group was significantly lower than the non-folliculitis group (37 years vs. 44 years, $p<0.05$). In addition, in the folliculitis group, patients with preexisting face and/or scalp acne were significantly more frequent than in the non-folliculitis group ($p<0.05$; folliculitis group: median = 37 (IQR=32-48), mean = 39.7 (SD=10.48); non-folliculitis group: median = 44 (IQR=38-52), mean = 46 (SD=11.22)).

The mean onset of folliculitis was 7.2 days post operation, ranging from 2 days to 130 days post operation. Thirty-six patients (72%) had folliculitis within 7 days post surgery, 6 (12%) within 8-14 days, 5 (10%) within 15-21 days, 1 (2%) within 21-28 days, and 2 (4%) after more than 28 days. Regarding severity of folliculitis, 30 patients (60%) had mild disease (1-10 lesions), 10 (20%) moderate disease (11-20 lesions), and 10 (20%) severe disease (more than 21 lesions). The location of folliculitis occurred at the front in 24 patients, at the mid scalp in 10, at the crown in 10, and at the temple in 8. Regarding the investigations of infection, swab culture for aerobic bacteria was done in 10 patients; there was no growth shown in 4 patients, *Staphylococcus aureus* in 3, *Staphylococcus epidermidis* in 1, *Pseudomonas aeruginosa* in 1, and *Klebsiella pneumoniae* in 1. Regarding the treatments, almost all patients had pus drainage by using sterile needle; 34 patients were prescribed chlorhexidine scrub, 8 betadine scrub, 5 topical antibiotics (mupirocin in 3 patients and fucidic acid in 2 patients), and 37 oral antibiotics (doxycycline in 20, ciprofloxacin in 17, amoxicillin/clavulanate potassium in 1, and cephalexin in 1). The duration of folliculitis ranged from 5-96 days (median 14 days).

Regarding patient satisfaction at 12-month follow-up, the mean satisfaction score was 4.3. The mean satisfaction score based on pre-operative and post-operative patient photographs by two hair surgeons was 4.5.

FIGURE 1. Post-operative folliculitis at 4 weeks post surgery.



DISCUSSION

The incidence of post-operative folliculitis (Figure 1) has been reported to range from 1.1% to 20%.[1] The causes of post-operative folliculitis are classified as non-infective and infective. For non-infective, with an onset in the first few weeks after surgery, the etiology can

be an inflammatory response to hair transection or epidermis buried during site creation, or to planting hair grafts too deep. Hwang et al noted that folliculitis due to the deep placement of grafts commonly occurs, and is due to significant intra-patient graft length differences. Making the same depth of slit every time may result in improper graft level in the slit according to the length of graft.[4] Hwang proposed a device for depth-controlled transplantation to match the graft length with the incision depth that allows for proper graft placement.[5] Release of sebum from the ruptured sebaceous glands during incision may also play a role of post-operative folliculitis.[2] Inflammation can also be the result of either a foreign body reaction with recipient dermis or obstruction of the orifice by a hair fragment. After the third week, the transplanted follicle enters the telogen phase. If this hair fragment is dislodged or removed, the folliculitis would subside spontaneously. If left behind, it might block the skin orifice and cause ongoing inflammation. Another peak of folliculitis is 3-4 months post surgery when the new re-growing hair cannot penetrate through the epidermis.[3] In our study, 2 patients had late onset folliculitis (at post-operative day 115 and day 130, respectively), the same time as the new re-growing hair started to penetrate through the scalp. Sometimes, the curve and the coarse hair might curl around instead of raising up through the skin, causing folliculitis. In addition, there are reports that topical treatments for androgenetic alopecia, such as topical minoxidil, can cause comedones and folliculitis of the scalp.[9]

Infective folliculitis should be suspected in any case of severe or persistent folliculitis. Immediate pre-operative razor shaving and clipping of hair was shown to cause a 3% increase in risk for surgical infection.[6] Personal care hygiene, dusty work environments, infrequent scalp washing, scratching of itchy scalp, cross infection in a hospital setting, or immunosuppressive medical conditions such as diabetes mellitus increase the risk of infective folliculitis. The common causative organisms are *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *enterobacter spp.*, *klebsiella spp.*, and *proteus spp.* In 2009, Palakurthi et al reported a hospital-acquired Enterobacteria infection following hair transplant surgery.[7,8] The patient developed severe pustular formation at both recipient and donor areas 72 hours after follicular unit transplantation surgery. The subsequent pus culture showed numerous *Enterobacter aerogenes*. Oral ciprofloxacin was prescribed, and the patient responded well to the treatment.

From our study, we found that the mean age of patients with folliculitis following hair transplantation was lower than patients with no folliculitis. This may support the hypothesis that younger patients produce more sebum due to hormonal factors, such as higher androgen levels, that may lead to a blockage of the sebaceous gland and result in inflammation of the hair follicle. We also found that patients with pre-operative acne on the scalp and/or face may be at higher risk for developing folliculitis post transplantation. Acne-prone skin has a propensity to develop comedones and pimples. This is because the sebaceous glands produce more sebum than in other skin types. This in turn might predispose to the development of folliculitis. However, there were three patients in the non-folliculitis group who had preexisting acne, so prospective study is required to clarify this correlation.

From our study, we found that bacterial infection can be one cause of folliculitis following hair transplantation, with *Staphylococcus aureus* the most common causative organism. *Staphylococcus aureus* is an aggressive pathogen and the most common cause of primary pyodermas and superficial skin and soft tissue infections, as well as of secondary infections on disease-altered skin. Infective folliculitis should be suspected in any case of severe or persistent folliculitis. Gram stain and pus swab culture should be done, and oral antibiotics should be prescribed according to bacterial culture results.

The treatment of post-operative folliculitis includes warm compression, drainage of the pustule by sterile needle, and topical antibiotics. Oral antibiotic therapy for *Staphylococcus aureus* should be initiated. In cases in which methicillin-susceptible *Staphylococcus aureus* (MRSA) is suspected, especially in a patient who had a prior episode of MRSA infection, known MRSA colonization, recent hospitalization, or is immunocompromised, trimethoprim-sulfamethoxazole, amoxycillin plus doxycycline, or clindamycin should be initiated. In a patient with moderate to severe acne on the face and/or scalp predating hair transplantation, with the presence of inflammatory papules or pustules more than 10 lesions or presence of inflammatory nodules or cysts, the oral and topical treatments for acne vulgaris should be prescribed prior to the transplant and up to a few months post transplant. Oral antibiotics such as tetracyclines (doxycycline, minocycline) or macrolides (erythromycin, azithromycin) are recommended as the first line antibiotics for the treatment of acne vulgaris. Concomitant topical benzoyl peroxide should be prescribed in patients receiving antibiotic therapy to decrease the emergence of antibiotic-resistant bacteria.

There is always a concern that folliculitis may affect graft survival, since folliculitis can cause chronic inflammation and scarring of the recipient area. Our study found that the prognosis of hair regrowth after post-operative folliculitis is good (Figure 2). The mean satisfaction score was 4.3 by the patients and 4.5 by the two objective hair surgeons. Most of the patients reported a Satisfactory or Very Satisfactory rating for the results at their 1-year follow-up. In addition, the two hair surgeons evaluated pre-operative and post-operative photographs as Satisfactory or Very Satisfactory.

FIGURE 2. Hair regrowth 75 weeks after post-operative folliculitis.



CONCLUSION

Younger age and patients with preexisting scalp or face acne may be at higher risk in developing folliculitis at the recipient site after hair restoration surgery. With proper management, the prognosis of post-operative folliculitis is good.

➤ PAGE 88

CONTINUED FROM PAGE 87

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Due to the COVID-19 pandemic, the previously scheduled in-person meeting to occur in Panama this Oct. 2020 will now take place virtually. Please mark your calendars and watch for registration details.

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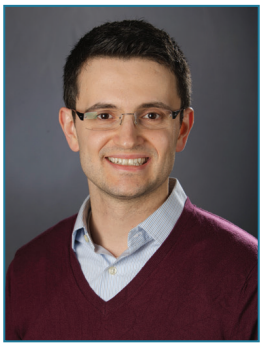
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Hair Sciences

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Telogen Effluvium: An Incidental Observation Seen in COVID-19 Patients

While I normally dissect a basic science study, this month's column will discuss a type of hair loss that we may see in our patients (and perhaps in ourselves) once the COVID-19 pandemic is over and we are able to return to patient care. Telogen effluvium (TE) is a diffuse hair shed that typically occurs months after a significant physical or emotional stressor.

TE can occur in both men and women although in this author's experience as a dermatologist and hair transplant surgeon, women make up the majority of the cases. The most typical cause of TE is childbirth, with up to 20% of new mothers experiencing shedding 2-3 months after delivery of their child. TE can also occur from starting certain medications such as Accutane (isotretinoin) and after discontinuing or switching oral contraceptive pills. Testosterone supplementation and nutritional or micronutrient deficiency may also contribute to TE. A study by Cheung and colleagues showed that a large proportion of TE patients had deficiencies in zinc, Vitamin D, and ferritin.[1] A recent study showed that a diet with low-dose Vitamin C and D supplementation may help to improve TE.[2] Conversely, excess vitamin A intake can cause TE.

TE can also be autoimmune in nature and is induced by lymphotoxicity.[3] In fact, studies showed that a large percentage of cases of TE are associated with anti-thyroid peroxidase antibodies and Hashimoto's thyroiditis.[4]

Emotional stress has also been shown to precede episodes of TE and may indeed be related via multiple mechanistic pathways. Mouse studies showed a stress-induced premature catagen development and perifollicular inflammation via a neuropeptide substance P-dependent pathway.[5] In mouse models, experimental stress has been shown to shift the immune cytokine balance to the Type-1 Helper (TH1) cytokines and induce apoptosis in epithelial cells. A study of 33 medical students showed that stress around final examinations was correlated with a transient decrease in hair growth and a transition to TH1 cytokines.[6] Given the significant emotional stress associated with the COVID-19 pandemic, it is quite likely that there may be a large cross-section of the population that may experience TE within the next few months and years.

Another population of our patients that may develop TE are patients that contract and recover from COVID-19. While we don't yet know the effects of COVID-19 infection on hair growth, we can learn lessons from the last great pandemic of the Spanish influenza in 1918. Post-febrile TE was originally reported after the Spanish flu pandemic in 1918. It was reported that TE followed 2 to 6 weeks after the onset of a high fever (around 39.5°C or 103°F).[7] As reports of high fever have also been reported with COVID-19, it may be reasonable to suspect that there may be a post-febrile TE that can occur. There may also be direct effects by viruses on hair follicle growth that lead to TE. Diffuse TE occurs in 7% of HIV-1 infected patients. Apoptosis of the follicular stem cells has been described in HIV-1 alopecia.[8] Since there are reports of thrombotic and vasculitic complications from COVID-19, it may be inferred that infection with COVID-19 may compromise hair follicle vasculature.

Clinical management of TE mostly involves reassurance and counseling. Patients should be informed that TE is a self-limited condition and resolves by itself in the majority of cases. The natural course of TE involves about 1-3 months of hair shedding in the active phase and then 6-12 months of regrowth during the resolution phase. There are some patients that may experience chronic TE, a condition that requires a thorough evaluation, including laboratory workup and checking of ferritin levels, vitamin D, zinc, and thyroid levels. Topical 5% minoxidil solution may be offered as a therapy for TE, with appropriate counseling that a small subpopulation of patients may experience further shedding before further regrowth. Also, some patients may find success managing their TE with low level light therapy or certain brands of hair loss vitamins such as Viviscal or Nutrafol. Combination treatments with all these modalities is also encouraged for very motivated patients. Hair transplantation isn't contraindicated in patients that have experienced TE; however, hair transplant surgeons would be wise to wait until the patient's TE has resolved. Waiting until there is resolution of TE would allow the surgeon to fully assess the baseline status of the patient's hair loss before performing surgical restoration. The pattern and degree of hair regrowth following resolution of TE may influence the surgical treatment plan for the patient.

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COVID-19 Task Force Updates

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The ISHRS has been kept busy adapting to the evolving COVID-19 pandemic. Our educational plans have been changed. The Board of Governors made the very difficult decision to postpone this year's World Congress meeting in Panama to 2022 considering the uncertainty of travel during the pandemic. However, we are very excited to tell you Dr. Brad Wolf and his team are hard at work putting together a state-of-the-art "Virtual" Congress for October 17-25.

The ISHRS COVID-19 Task Force has put together several webinars and Zoom discussions. They have also developed specialized resources and information to assist members in resuming their hair transplant practices, while also ensuring the health and safety of their patients and staff. You can access these resources and prior webinars, including "COVID-19 Pandemic ISHRS Suggested Protocols for Resuming Hair Transplant Practices," in the Members Only section of www.ishrs.org.

On May 30, at 8:00AM Central Standard Time, we will host a "Re-Entry Roundtable Online Discussion" live webinar. This will discuss the suggested re-entry protocols and how members have improved or fine-tuned their protocol in their individual offices. All ISHRS members are eligible to register/attend and there is no charge. The webinar will be recorded and available in the Members Only section of the ISHRS website.

Thank you, and please let us know if there are any other areas of concern you would like us to address. ■

Results of the First COVID Impact Member Survey

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In an attempt to capture the early and anticipated impact of COVID-19 on ISHRS physician members, the ISHRS COVID-19 Task Force conducted a COVID-19 Impact Survey. The survey, which opened March 31, 2020, and closed April 12, 2020, was sent to 962 members, of which 108 participated. The majority of respondents were from the USA (27%), followed by India (8%), then the UK and Northern Ireland (5%), with the remaining dispersed worldwide. Within the USA, more than 50% of respondents were from New York, California, Texas, Colorado, Minnesota, or Oregon. Physicians with less than 5 years experience made up 48% of respondents, and the remaining 52% had 10 years or more experience. For 70% of respondents, hair procedures comprise three-quarters or more of their practice.

Asked to estimate the time it will take for their practice to return to normal, the same percentage of respondents (39%) stated between 2 and 4 months as those who stated 4 or more months. Eighty-three percent of participants indicated that their practice has not remained open during the time frame of the survey, with 15% being completely closed. The plurality of participants (64%) continued to pay employees, with 50% reducing hours or cutting pay, with just 18% laying off employees. Estimated total value of lost hair restoration surgery cases was $11,946,000 USD, for a mean of $108,000 per practice, with a range of less than $25,000 to more than $450,000. When asked if their practices were continuing to perform consultations, more than 50% indicated "yes," mainly by way of webcam (71%) or photo review (23%).

This survey demonstrates that the digital age has alleviated some of the burden of closing our practices, allowing half of the surveyed physicians to continue with consults using web-based tools. Continuing consultations is a critical factor that will help us get back on our feet more quickly once it is safe to re-open our practices. Continuing to financially support employees, even in a time of no or minimal work, will help expedite this recovery as the "team" will be ready to resume operations as well as be appreciative of the support received.

The financial impact of COVID-19 on the hair transplant business is prominent, with an estimated total revenue loss of more than $10 million for the 108 participants. The plan is for a follow-up study to be conducted soon to provide a more concrete idea of the financial impact of COVID-19, while providing some suggestions as to how our practices can most quickly recover from and adapt to these challenges. ■



Medical and Professional Ethics

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Spotlight on Social Media

The way we communicate both as a global society and as physicians is rapidly changing with a much greater reliance on social media. The term social media describes web-based applications that allow people to create and exchange content. In the west, these include blogs and microblogs (such as Twitter), internet forums (for doctors only such as doctors.net.uk and for hair restoration surgery patients such as hairlossexperiences.com), content communities (such as YouTube, Instagram, TikTok, Pinterest, and Flickr), social networking sites (such as Facebook and LinkedIn), and messaging platforms (WhatsApp), but there are many more in Asia and other parts of the world.

In my March/April 2018 column "Spotlight on Ethical Marketing,"[1] I touched on terms that should not be used in social media posts according to the ISHRS's *Misleading and Inappropriate Messaging* guidance.[2] Social media platforms are difficult to regulate and it is therefore the responsibility of ISHRS members to self-regulate and advertise responsibly and ethically.

However, there are wider issues to consider about the general use of social media. What a doctor says and posts online is ultimately down to their own personal judgment. If social media is used to post about health issues or blog about day-to-day medical experiences, then ethical and professional standards will more clearly apply to what is shared. There are obvious advantages in educating patients about hair transplant surgery, how it is done and what to expect on the day of surgery. It is now fairly common for doctors to post videos on Instagram and YouTube of their patients undergoing hair transplant surgery, but it goes without saying that any such posts where the patient is identifiable needs documentation of written permission from the patient.

Professional boundaries are less clear when posting about personal life activities or interests outside medicine. However, a doctor is still a doctor on social media, even if not identified as such or not posting about medical matters. Reputations are still at risk. A 2018 CareerBuilder survey suggested several types of posts left employers with a bad impression including provocative or inappropriate photographs or videos; discriminatory comments related to race, gender, religion, etc; bad-mouthing a previous company or fellow employees; screen name was unprofessional; or lied about an absence.[3] If a patient sees something you put on your personal social media that they think is unprincipled, it might alter the respect they have for you as a medical professional.

Social media platforms such as Facebook, Twitter, and Instagram allow the optional restriction of who can see the content by making them "private," but any post, even if private, can have a screen shot taken and then the content reposted publicly even if the original post has been deleted. Compromising posts could be reported to medical licensing boards and professional associations as breaching ethical or professional conduct. Even on "private" accounts, it might not be appropriate to post pictures of late-night drinking and then be operating on patients the next morning. This applies to members of the surgical team as well who might be "friends" on social media and see each other's private posts.



Reflective Question

- Do I know what the guidance is from my medical licensing body on the use of social media, and do I always follow it?

Care should be taken when sharing identifiable patient photographs or information on social media including professional WhatsApp groups—anything that is posted might not be treated confidentially and could potentially be shared. There should be clear Terms of Use published and agreed on by participants. Patient permission to share identifiable information should be documented to avoid breaching data protection regulations. WhatsApp has end to end encryption, so doctors who communicate with patients using this app can be confident that there is data protection.[4] However, if discussion is about a patient's medical care, then this might be considered part of their medical record and ideally a copy of the communications should be kept in their medical notes. Whilst this is not always possible from a practical point of view, many hair transplant surgeons treat patients from far afield, and it is an easy way for patients to communicate and send images if they have concerns or complications. In these instances, every effort should be made to keep a copy of the correspondence in the patient's medical file.

Whilst a doctor's social media platforms can be used to educate patients, doctors should be certain that what they are posting is not misconstrued as prescriptive (unless specifically meant to be) and consider having disclaimers to this effect. Postings online are also subject to the same laws of copyright and defamation as written or verbal communications, whether they are made in a personal or a professional capacity.

The UK's GMC guidance *Doctor's Use of Social Media*[5] states: "When you post material online, you should be open about any conflict of interest and declare any financial or commercial interests in healthcare organisations or pharmaceutical and biomedical companies." It states further: "If you identify yourself as a doctor in publicly accessible social media, you should also identify yourself by name. Any material written by authors who represent themselves as doctors is likely to be taken on trust and may reasonably be taken to represent the views of the profession more widely."

Many medical professional associations will have guidance for doctors on the use of social media.

The American Medical Association's *Professionalism in the Use of Social Media*[6] states: "Physicians must recognize that actions online and content posted may negatively affect their reputations among patients and colleagues, may have consequences for their medical careers (particularly for physicians-in-training and medical students) and can undermine public trust in the medical profession." It goes even further in stating: "When physicians see content posted by colleagues that appears unprofessional they have a responsibility to bring that content to the attention of the individual, so that he or she can remove it and/or take other appropriate actions. If the behaviour significantly violates professional norms and the individual does not take appropriate action to resolve the situation, the physician should report the matter to appropriate authorities."

The last paragraph from the British Medical Association's guidance *Social Media, Ethics and Professionalism*,[7] which is titled "Think Before You Share," sums up the subject well: "The informality and real-time nature of social media are two of its strengths but they are also potential pitfalls. Medicine can be a challenging and stressful job and while it may be tempting to let off steam or 'speak your mind', your Twitter account may not always be the best place to do it. A good rule of thumb is don't post when angry, drunk or emotional and don't say or reveal anything on social media that you wouldn't be happy to see printed in a newspaper."

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The Notable Articles Project

The *Forum* in Review, 1990–2020: Revisiting the Articles That Helped Shape the Specialty

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This, the second installment of The Notable Articles Project where Aditya and I choose to go back and review particularly important articles that appeared in the history of the *Forum*, takes us to 2002's "9 Sacred Cows to Banish from Your Facility," which is particularly relevant today. This well-written article, which originally appeared in *Outpatient Surgery*, provided thoughtful advice on reconsidering some of the protocols and standards used in operating rooms (ORs). The presence of the novel coronavirus (COVID-19) invites critique of some of this advice, which is herein provided (based upon the knowledge as of early May 2020), as we reinforce some important steps that surgeons should take to keep our patients and staff safe. A shout-out goes to Bessam Farjo for bringing this article to our attention.

IMPORTANT NOTE: The ISHRS COVID-19 Task Force has produced a document on recommended protocols for keeping patients safe. You can learn more about this and of the actions taken by the ISHRS to help members deal with these "novel" times on page 91 of this *Forum*.

So, let's look at the 9 Sacred Cows—and the rituals of ORs that may no longer be relevant:

1. **Wearing shoe covers in the OR.** I think the advice in this article is relevant to coronavirus, as there is no evidence that there is any significant risk of viral transmission through shoes. While studies have documented the rather unpleasant material (including the presence of fecal matter) that can be found on the bottoms of shoes, the reality is that wearing shoe covers primarily aids in keeping the OR floors clean. Another benefit: in these days of patient worry, it is reassuring to see blue shoe covers rather than soiled sneakers.
2. **Wearing cover gowns outside the OR.** This is one step that can reduce the spread of COVID-19. Similar to double-masking (of both patient and surgical staff), which lowers the risk of contamination of OR scrubs, all staff who work closely with patients should change into a new disposable scrub gown when they leave the OR. It is important to cover "street clothes," because exposure to coronavirus can spread from asymptomatic carriers that a physician or patient might come into contact with in their home or on the street or on public transportation.
3. **Requiring patients to completely undress for minor procedures.** Agree here. That day's surgery patient puts on clothing at home, then wears it in the Uber or in a friend's car or even on public transportation, maybe even passing through the local Starbucks for coffee (decaffeinated, of course), putting the patient at greater for contracting COVID-19. To help reduce exposure to your staff, it is best to have the patient immediately undress and put on a clean gown upon arrival.
4. **Mopping the OR after every procedure.** No debate here. It is good medicine to have your own staff scrub down not just the floors but all surfaces of the OR at the start of and end of every day and between patients (if more than one case is performed in that OR). For that matter, all front office and consult room surfaces should similarly continually be kept clean. The use of ultraviolet light might also reduce viral viability.
5. **Wearing masks in the OR at all times.** Umm… yes. In fact, if you are required to wear a mask at the grocery store—as some stores have now made policy—it makes perfect sense that these same precautions should be taken throughout your office, not just in the OR. In fact, double masking—patient and staff—is likely to become the norm, with N95 masks preferred. A recent study showed that double masking reduced the risk of viral transmission to below 2%. Now is the time to be grateful that you pursued hair restoration and not rhinoplasty for your career.
6. **Over-scrubbing hands.** Hand sanitizer used several times an hour is, as it relates to the prevention of coronavirus, more important than scrubbing before entering the OR. Regularly wearing gloves with every contact with patients is at this time recommended. Even if you happen to have serologic-proven immunity (IgG antibodies), your hands can spread the virus to others.
7. **Mandating lab work for all patients.** Most of us do not routinely obtain pre-operative screening blood tests, relying on good history-taking; however, with COVID-19, this is a different story. Hopefully, by the time this journal goes to print, the unfortunate (and quite frankly confounding) situation of a lack of adequate testing, at least here in the United States, will be in the past. Proper interpretation of PCR and serology testing is key for assessing the infection status of patients and staff alike.
8. **Requiring an eight-hour pre-operative fast.** While intermittent fasting may be part of your or your patient's anti-aging routine (for a great read on this, I highly recommend the book *Lifespan* by David A. Sinclair, PhD) this has no benefit as it relates to COVID-19 infection. Speaking of food, steps should be taken to maintain appropriate distancing between staff during lunch or coffee breaks.
9. **Sending scrubs out to be laundered.** In our office, as in those of many other hair transplant colleagues, OR staff typically wear their scrubs to and from work, washing their clothing once at home. When all of the above-mentioned precautions are adhered to in your office, there should be very low risk of viral contamination to staff's clothing, so this routine can likely be continued.

Please know that your ISHRS is here to help you keep up to date with current precautionary recommendations and guidelines through a "living" document that is being continually updated with new information as it becomes available. The newly appointed COVID-19 Task Force is providing alternative free educational offerings. In addition, the ISHRS website is being updated weekly to help you stay current as information becomes available. There is great value to having an international membership with a solid social platform during these novel times: we can share information along all stages of this crisis and learn from the experience of our colleagues who may be at the tail end and are starting to work again. ■

9 Sacred Cows to Banish from Your Facility

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Kristin McKee, Associate Editor of Outpatient Surgery Magazine

Surgical operating rooms have long been the site of many commonly accepted rituals that the staff continue to practice long after the reasons for doing them are forgotten. These "sacred cows" are an institution of many facilities' everyday practices and yet they often provide little or no real benefit to procedure outcomes or patient satisfaction.

Here we'll examine nine practices and present the scientific and anecdotal evidence that seem to suggest that they are, in fact, sacred cows. A few are widely accepted as such, but others are still controversial. We hope that this article will help you decide what's right for your facility.

1. Wearing shoe covers in the OR.

Shoe covers used to be worn to guard against contamination from staff member's feet. However, there is little evidence to prove that using shoe covers reduces the risk of infection. In 1999, the Centers for Disease Control released guidelines that recommend abolishing shoe covers, noting that they have never been shown to decrease infection risk or to lower bacterial counts on OR floors. The Occupational Safety and Health Administration and the Association of PeriOperative Registered Nurses suggest shoe covers only when gross contamination can be reasonable anticipated.

Most administrators with whom we spoke are heeding the new guidelines. "We have eliminated the mandatory use of shoe covers in the OR. Shoe covers are available to use as necessary," says Dale Bowman, RN CNOR, manager of Providence Surgery Center in Mission Hills, Calif. Nancy Burden, the Surgical Services Manager at Morton Plant Mease Surgery Center, in Palm Harbor, Fla. Agrees, saying, "Shoe covers are not used in our OR unless the case is expected to be messy."

If you are doing procedures where blood and bodily fluids are spilling onto the floor, your staff should take proper precautions and wear moisture-proof protective footwear, advises Dan Mayworm, an infection control expert and former publisher of *Infection Control & Sterilization Technology.* He recommends wearing clogs that can be wiped clean or setting aside a pair of shoes that are used solely in the OR.

2. Wearing cover gowns outside the OR.

Like shoe covers, cover gowns were once worn over scrubs suits when OR staff left the operating suite to prevent the spread of microbes from the OR as well as to avoid bringing microbes back into the OR. Recent studies have debunked this idea. A study published in *Oncology Nursing Forum* in September 1999 conducted at Georgetown University Medical Center found that even during invasive procedures such as bone marrow transplants, eliminating cover gowns did not cause a rise in infection.

AORN stopped requiring the use of cover gowns in 1994, and its 2000 recommendations state that the use of cover gowns should be determined on a case-by-case basis. Just about everyone we spoke with has done away with cover gowns.

3. Requiring patients to completely undress for minor procedures.

Traditionally, patients undress for surgery to provide easier access to the surgical site as well as to keep clothing from becoming stained. However for some procedures, notably cataract cases and some minor plastics procedures, many facilities are safely performing procedures without requiring patients to fully undress.

At Ms. Bowman's facility, cataract patients only change from the waist up and wear pants, socks, and even shoes during the procedure. "The only reason we make patients take their tops off is to facilitate the placement of EKG leads, blood pressure cuff and stethoscope," says Ms. Bowman. Having elderly patients change for a procedure can also be time consuming. Ms. Bowman estimates that her facility's current practice saves about 15 minutes per case. But it's not just about saving time. "In our vision center, our cataract patients remain in their undergarments and pants with a gown covering," says Jim DeFontes, MD, Chief of Anesthesia for Kaiser Permanente, in Orange County, Calif. "Patients often feel more comfortable and warmer this way."

According Melonie Marchak, BSN, deciding when to have patients undress and when not to depends on the surgical site and what your surgeon and staff feel comfortable with. Patients will need to undress for cases below the neck, but for minor eye and facial procedures, it may be more convenient to let them stay partially dressed.

4. Mopping the OR after every procedure.

Mopping the floor used to be a routine chore that had to be done between each case to provide the highest standard of cleanliness. But according to Mr. Mayworm, constant cleaning actually stirs up the particles from the floor and other surfaces and into the air, and depending on room ventilation, it may take up to an hour for this debris to resettle. Consequently, many infection experts and AORN recommend cleaning on an "as needed" basis throughout the day when surfaces become contaminated with blood or body fluids.

Linda M. Reecer, RN, BS, of Clewiston, Fla.'s Hendry Regional Medical Center, says that her facility has stopped mopping the floors between cases when there is nothing visible on the floor, such as suture material or other infectious material. Ms. Bowman agrees, "Now, we only mop in between cases if there is tissue, blood or other fluid on the floor and at the end of the day." According to Ms. Bowman,

continued on page 184

PAGE 96

Reprints

CONTINUED FROM PAGE 95

Sacred Cows

continued from page 183

skipping this step saves her facility several minutes between each case.

5. Wearing masks in the OR at all times.

Masks are worn in the OR to protect the sterility of the operative field from bacteria-laden droplets that emit when we breathe and talk. But various studies have questioned the need to wear surgical masks all the time. One of the studies conducted at the Karolinska Institutet in Sweden and published in the May/June 1991 *World Journal of Surgery* found no significant difference in wound infection rates when comparing masked and unmasked general surgical procedures. And another study conducted at the Princess Royal Hospital in England, published in the July 1991 *Journal of Hospital Infection* found no infection risk from oral bacteria expelled by non-scrubbed personnel not in the immediate vicinity of the surgical field.

According to Mr. Mayworm, there seems to be a trend toward omitting the mask during non-invasive procedures because it reduces cost and is more comfortable for the surgeon. The CDC's recommendations have become a little more relaxed than they once were, stating that surgical masks should be worn if sterile instruments are open or if the operation is about to begin or is in progress. The AORN has released similar guidelines, stating all persons entering the suite should wear a mask when open sterile items and equipment are present.

While all of the health care professionals we talked to continue to wear masks during cases, some facilities have relaxed their policies and have seen no increase in their infection rates. "We have found the patient does well even if someone 'accidentally' comes into the room without cap and mask on," says Ms. Reecer. Ms. Bowman's facility once had a supervisor who required staff to wear masks in the operating room at all times, even when there were no open sterile supplies. Ms. Bowman has since eliminated that policy. Now her staff members are allowed to remove their masks as long as there are not open sterile supplies in the OR.

6. Over-scrubbing hands.

Scrubbing for 10 minutes prior to surgery, sometimes with stiff brushes, has been the accepted practice to ensure proper skin asepsis. But studies have shown that these practices can actually damage skin over time. This can cause a significant increase in microorganism shedding and damaged skin, which harbors more microbial flora than intact skin. In a September 2000 study published in the *British Journal of Dermatology* conducted at the Hopital de la Timone in France, fifty-two nurses were randomly assigned to use either an alcohol-based disinfectant or a non-antiseptic soap for an eight-day period. Both at the beginning and at the end of the test period they took bacterial skin cultures and assessed the skin tolerance. The researchers concluded that in everyday hospital practice, alcohol-based disinfectants are more effective and better tolerated than non-antiseptic soap. They found that the soap actually posed a risk of spreading contamination, and that a nurse will wash her hands more frequently when her skin is comfortable.

Some of the nurses with whom we spoke have made the switch to alcohol rubs and no longer use brushes. Ms. Reecer's facility has reduced the amount of time they spend scrubbing from 10 minutes to about three to five minutes. But many people are looking for the CDC to give them the final okay; a final draft of their "Guidelines for Hand Hygiene in Heathcare Settings," is pending.

7. Mandating lab work for all patients.

In an attempt to provide the highest standard of care, surgeons have traditionally ordered a regimen of pre-op tests on every patient prior to surgery. But today many doctors have come to believe that the majority of pre-op tests are actually irrelevant when it comes to patient outcomes. And numerous studies have reported that the patients who undergo preoperative tests fare just as well as those who do not.

One study published in the January 2000 *New England Journal of Medicine* assessed the value of preoperative medical testing before cataract surgery. The researchers randomly assigned 19,557 elective cataract operations in 18,189 patients at nine centers to be preceded by a standard battery of medical tests (including electrocardiography, complete blood count, and measurement of serum levels of electrolytes, urea nitrogen creatinine and glucose), in addition to taking a pre-op history and performing a physical examination. They found no significant differences between the no-testing group and the testing group in the rates of intraoperative events.

Dr. DeFontes says his facilities no longer require standard lab work for all patients, such as blood work and urine analysis. A patient's pre-op lab tests are determined on a case-by-case basis. "Some facilities require EKGs for all male patients over 40 and female patients over 45 and chest x-rays for patients over 60 or 65. We look at the patients medical conditions and their history and then make our decision based on that," Dr. DeFontes says.

8. Requiring an eight-hour preoperative fast.

Decades ago, anesthesiologist recommended that patients not eat or drink after midnight prior to surgery to reduce the chance that a patient would vomit under general anesthesia. However, in 1999, the American Society of Anesthesiologists released updated guidelines that allow patients to take clear liquids (which include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee) up to two hours before their procedure, and a light meal up to six hours before.

Dr. DeFontes' facilities have their patients on a clear liquid diet for two hours before the surgery and a light breakfast six hours before. Most facilities are still doing things the old way, however. A survey published this month in *The American Journal of Nursing* of 155 patients found that 91 percent

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2020 ISHRS Practice Census Offers Key Insights on Hair Restoration Practices and Procedures

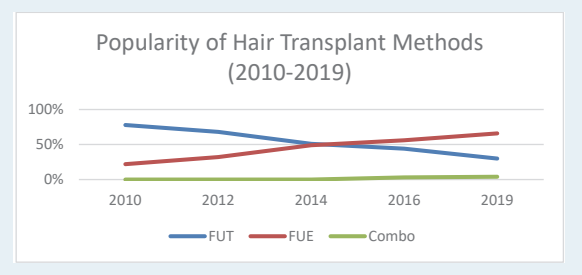
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As the leading organization specializing in surgical and non-surgical treatment of hair loss and an international symbol of excellence, the ISHRS stands on the three pillars of research, education, and collegiality. That's why when members were invited to participate in the society's 2020 Practice Census survey this year, nearly 300 members stepped up to provide invaluable insight into their practices and patients.

A full report of the 2020 ISHRS Practice Census is posted in the media section of the ISHRS website at https://ishrs.org/media/statistics-research/. All ISHRS members will receive a consumer-friendly infographic with a few key statistics of interest to both you and your patients. We encourage you to use the new data to generate media interest in hair restoration procedures in your region of the world. Sharing these statistics is another opportunity to remind the public that membership in the ISHRS is not easy to obtain and members attest to the highest ethical standards—which is more important than ever in these uncertain times.

The following are a few highlights from the 2020 Practice Census Report:

- In 2019, the extrapolated worldwide volume of surgical hair restoration procedures rose 16% from 2016—with 735,312 total procedures performed.
- More than 2 million hair restoration patients were treated in 2019, which represents a 157% increase since 2008.
- Follicular Unit Excision (FUE) and combo method (FUT + FUE) continue to increase.



- When performing FUE, 62% of physicians typically used a punch size of 0.9mm or smaller in 2019 compared with 52% in 2016.
- Most commonly prescribed non-surgical treatments in 2019 included finasteride, minoxidil, and PRP.
- Among men, 15% of procedures targeted non-scalp areas of the body, of which beards/moustaches accounted for 5% of procedures.
- While all components of a beard are important, the highest ranked "Very Important" features included "Strong goatee" (15.8%) and "Strong cheek beards" (15.4%). ■

CONTINUED FROM PAGE 96

Volume 12, Number 5 *Hair Transplant Forum International* ❑ September/October 2002

were still instructed to not eat after midnight. The study suggested that preoperative dehydration may actually increase postoperative discomfort and vomiting and recommended following the updated guidelines.

9. Sending scrubs out to be laundered.

Many healthcare providers believe that home-laundering scrubs increase the risk that infectious diseases may be brought into the home and contamination will be brought into the operating room. The AORN has stated the scrubs should be laundered by the healthcare facility. The CDC refuses to comment one way or the other, "because of the absence of well-controlled studies." And OSHA recently released guidelines that stated that employees may launder soiled scrubs at home, but the health care facility must launder contaminated attire. According to OSHA, soiling occurs for perspiration, body oils, or contact with items handled by the health care worker. Contamination involves contact with "blood or other potentially infectious materials."

Ms. Reecer's facility has laundered their scrubs for many years, as does Ms. Burden's. "Our nursing staff washes their own scrubs at home—unless there is visible contamination. Then we would treat them like our own contaminated linens and send them to our laundry service," she says. "We got resistance at first. When we originally made this change, some nurses at one of the other ASC sites in the health system were so up in arms that they worked to get the surgeons to back them up against the change. When an orthopedic surgeon raised the challenge to the manager, she told him that if he trusted the nurses to keep his cases sterile in the room, why would he not trust them not to pump gas in their scrubs on the way to work? He didn't have an answer."

If you decide to allow your staff to launder their scrubs at home, OSHA guidelines recommend having scrubs available for surgeons and staff members whose scrubs may become grossly contaminated.

When determining what sacred cows to banish from your facility, it's still most important to consider what will work best for your staff and your patients and what feels most comfortable to you.✧

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Hair's the Question

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

Is hair transplant surgery wearing you out? Many hair surgeons are plagued by the musculoskeletal effects of doing this detailed procedure. Despite our best efforts, we routinely sit in a fixed and "un-ergonomic" position and perform repetitive motions for long periods of time. At the 2019 ISHRS World Congress in Bangkok, physiologist and ergonomics specialist Janet Nelson, MS COEE, ACSM (https://27thannual.org/janet-l-nelson-m-s-acsm/) clearly identified the properties of our surgeries that can cause multiple and varied musculoskeletal problems. The good news is that she also detailed small changes we can make to not only treat but also to reverse the undesirable effects of our chosen profession on our bodies.

Test your knowledge of your own health this time! And be sure to check out the lecture that was uploaded to the conference app and the videos that accompany this set of questions. Who knows, there might be a follow-up quiz to see what you have learned.

Physiology of Hair Transplant Surgery: Part 1

1. Which of the following is a common musculoskeletal problem for surgeons performing only the *linear harvest* portion of linear excision surgery?
   A. Trapezius laxity
   B. Eye strain
   C. Shoulder injury
   D. Carpal tunnel syndrome

2. Which of the following is a common musculoskeletal problem for surgeons performing only the *recipient site creation and/or graft implantation* portion of hair transplant surgery?
   A. Trapezius laxity
   B. Eye strain
   C. Shoulder injury
   D. Carpal tunnel syndrome

3. Which of the following is the most common musculoskeletal problem for technicians performing microscopic follicular dissection?
   A. Trapezius laxity
   B. Eye strain
   C. Shoulder injury
   D. Carpal tunnel syndrome

4. Which of the following are injuries commonly associated with hair transplant surgery?
   A. Needle sticks and infections
   B. Physical attacks from dissatisfied patients and their families
   C. Accidental finger biopsies from sharp punches and other FUE equipment
   D. Repetitive motion injuries and postural-related injuries (like improper seating)

5. Work-related musculoskeletal disorders from hair surgery include which of the following?
   A. Contact injuries (toxic chemicals)
   B. Contact injuries (constant contact with soft or elastic surfaces)
   C. Cervical spine neck pain
   D. Migraine headaches

6. Which of the following is the most common work-related musculoskeletal disorder for hair transplant surgeons?
   A. Rotator cuff pathology
   B. Degenerative cervical spine disease
   C. Degenerative lumbar spine disease
   D. Carpal tunnel syndrome

7. Which hair restoration procedure is more likely to cause a longer *duration* of pain?
   A. Hybrid surgery
   B. FUE surgery of any size
   C. FUE surgery >1,000 grafts
   D. Linear excision surgery

8. Which type of hair restoration procedure is more likely to cause which *type* of pain?
   A. Shoulder pain is more likely to be reported in FUE surgery.
   B. Cervical pain is more likely to be reported in FUE surgery.
   C. Cervical pain is more likely to be reported in linear excision surgery.
   D. Shoulder pain is equally likely to be reported in FUE and linear excision surgery.

➤ ANSWERS ON PAGE 100

CONTINUED FROM PAGE 99

Answers

1. **C.** Shoulder injury is the risk when performing procedures with hands and arms in front of your body. Trapezius strain (not laxity as the answer choice mentioned) would also be a risk factor. Eye strain is not technically a musculoskeletal problem, but in the case of linear excision would be considered less of a risk anyway. Carpal tunnel syndrome will be a risk for small repetitive hand motions (think typing, cutting/harvesting grafts, etc.).
2. **D.** Carpal tunnel syndrome is a risk for small repetitive hand motions such as recipient site creation or FUE harvesting. Eye strain is not technically a musculoskeletal problem, but should be a concern for hair surgeons when the microscopic elements come into play. Trapezius strain (not laxity!) and shoulder injuries will be a risk in situations when a surgeon is working with his or her arms forward from the body.
3. **D.** Carpal tunnel syndrome is a risk for small repetitive hand motions, which is why we need to monitor and optimize the ergonomic conditions of our staff. Eye strain is a risk that microscopes and loupes will help reduce. Trapezius strain (not laxity!) and shoulder injuries will be a risk in situations when working with arms forward from the body, so adjustable table heights and work stations for our staff are key to avoiding workplace problems.
4. **D.** This is the answer that you would expect in a column devoted to ergonomics! Surprisingly, needle sticks and infections are not commonly associated with hair transplant surgeries. Answers B and C, finger biopsies and physical attacks, are just distractors I made up to see if my new editors are reading my column.
5. **C.** Toxic chemicals and soft or elastic surfaces should not be causing musculoskeletal disorders. Migraine headaches only result from prolonged interaction with quiz columns.
6. **A.** (Though B is not far behind.) Here are the problems ranked by percent:
   Rotator cuff pathology - 18%
   Degenerative cervical spine disease - 17%
   Degenerative lumbar spine disease - 9%
   Carpal tunnel syndrome - 9%
7. **D.** I found this fascinating because my own experience with musculoskeletal awareness began with Dr. Ken Williams's survey for FUE-related problems, but according to Janet, linear excision surgery (FUT) pain LASTS. I suspect hybrid surgery may also have this effect, but there is no data to support it, which is why A was incorrect.

% Reported Duration of Pain Post HRS

Post HRS Pain Hours	FUE	STRIP
1-6	68%	94%
7-23	26	6
24	19	0
48+	6	0

8. **B.** The below chart shows the findings.

% Reported Pain During HRS by Technique

	FUE	Strip
Cervical	75%	59%
Shoulder	38	64
Lumbar	43	41
Arms	43	35
Wrist	56	35
Finger	42	35
Head	38	22
Thoracic	31	5
Leg	18	22
Feet	6	11
Fatigue	69	53

Resources

Janet Nelson, Physiologist, MS, COEE, ACSM, Manhattan Applied Physiology, +1-646-642-7669, janet@manap.us

1. Upper extremities micro-break targeted stretches: https://www.dropbox.com/s/zwav15850bnh465/Upper%20Extremities-Micro-Break%20Stretchi_FULL_HD.mp4?dl=0
2. Lower extremities micro-break targeted stretches: https://www.dropbox.com/s/m8v5ggh7jc2kx3m/Lower%20Body-Micro-Break%20Stretchi_FULL_HD-2.mp4?dl=0 ■

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Literature Review

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Technical Consistency of PRP Therapy

Hausauer, A.K., and S. Humphrey. The physician's guide to platelet-rich plasma in dermatologic surgery part I: definitions, mechanisms of action, and technical specifications. *Dermatol Surg.* 2020; 46(3):348-357.

Hausauer, A.K., and S. Humphrey. The physician's guide to platelet-rich plasma in dermatologic surgery part II: clinical evidence. *Dermatol Surg.* 2020; 46(4):447-456.

Platelet-rich plasma (PRP) is an attractive therapy option for hair loss as it offers a natural alternative with a good safety profile. However, there is a lack of consistency in PRP preparation across studies making it difficult to determine the best method and approach for PRP therapy.

Part I of this paper series by Hausauer and Humphrey (2020) identifies the technical inconsistencies of PRP preparation. These include relative centrifugal force, centrifugation time, and number of centrifugations. These parameters affect platelet activity, degranulation properties, and growth factor viability. Other variables include platelet concentration, use of anticoagulation agents, use of activation agents, and presence of red blood cells (RBCs) and white blood cells (WBCs). This paper discusses two proposed systems for standardizing the reporting of PRP preparation. First, DEPA: **D**ose of injected platelets, **E**fficiency of production, **P**urity of resultant PRP, and **A**ctivation status. The DEPA classification is meant to reflect biological parameters believed to impact clinical efficacy and may be an effective framework for analyzing PRP production quality and comparing associated outcomes. Another proposed classification system is FIT PAAW: **F**orce of centrifugation, **I**teration-sequence of centrifugation, **T**ime of centrifugation, **P**latelet concentration, **A**nticoagulation, **A**ctivation, and **W**BCs. This system is more focused on standardizing the reporting of the preparatory steps of PRP.

Part II of this paper series discusses the clinical evidence for PRP therapy. The authors identify a substantial limitation in the field of PRP therapy, which is a lack of rigorously designed clinical trials. Despite the mounting evidence for PRP efficacy in hair restoration, most studies are either small scale, non-randomized, or uncontrolled.

Comment: Technical inconsistencies across studies is one of the most pressing issues in PRP therapy and could be a reason behind the heterogeneity in published results. Standardization of PRP therapy will ease comparisons across studies and help clarify the efficacy of PRP therapy in hair restoration. There is also a need for large scale, rigorously designed trials that follow double-blinded, randomized, controlled methods to test the efficacy of PRP against a control or active comparator.

The findings from many studies support the efficacy of PRP; however, without standardized trials it is difficult to ascertain where PRP fits in our arsenal of hair restoration therapies. ■

PRP in Combination Therapy

Ho, A., et al. Trichologic response of platelet-rich plasma in androgenetic alopecia is maintained during combination therapy. *JAAD.* 2020; 82(2):478-479.

Patients considering PRP therapy are often seeking to augment their current hair loss therapy. However, studies that have evaluated PRP efficacy for hair restoration have mainly assessed it as a monotherapy; thus, whether PRP maintains its efficacy in combination with other therapies is not well reported.

The study by Ho et al (2020) evaluates whether PRP efficacy is maintained when used in combination with other therapies. Twenty-four patients with androgenetic alopecia (AGA) who received PRP while using concomitant hair restoration therapy were studied. PRP elicited a positive response in 17 of the 24 patients 2 months after initial injections. PRP significantly increased mean hair density on the anterior crown (24.5 hairs/cm^2, P=0.022); however, no significant changes in hair shaft diameter were detected. Overall, the results from this study confirm the efficacy of PRP when used in combination with other hair restoration therapies. All patients in this study used topical 5% minoxidil and 20 patients were also using oral antiandrogen medications.

Comment: Counseling patients who ask about augmenting their hair restoration medication with PRP has its challenges since there are limited publications on the efficacy of PRP in combination with other medications. This study provides evidence that PRP can significantly increase hair density when used in combination with other medications, which will aid patient counseling and decision making. It is interesting that this study did not find an increase in hair caliber after PRP treatment. Currently, there is conflicting evidence on the effect of PRP on hair caliber, highlighting the need for larger, controlled studies with PRP. ■

ISHRS Annual Giving Fund 2019 Year-End Report

Dear Colleagues:

I would like to offer my sincere thanks for all that has been accomplished through the many donations made to the Annual Giving Fund (AGF) in 2019. I am truly inspired that so many members care enough about the ISHRS and the AGF mission to make such transforming gifts. In 2019 we had donations of all levels from a manifold of faithful and new donors which helped us to reach our donation goals for the year.

2019

I want to personally thank all who contributed so generously this year making it possible for us to raise $40,171. Your kindhearted giving helped us to make 2019 one of our best years yet.

The proceeds from the year's Annual Giving Fund were used to support several projects and initiatives. Here is an example of what your gifts helped fund in 2019:

2019 Initiatives Funded

- ✔ #FighttheFIGHT (Black Market Awareness Campaign)
- ✔ Development and launch of the FORUM ePUB
- ✔ Operation Restore Pro Bono Program

2020

In 2020, a portion of the donations—for those who earmarked it—will be used for our Black Market Awareness Campaign. In addition, we will continue to fund Operation Restore and important educational initiatives.

We have added a donation field in our online dues system to make the donation process simple and accessible to all members. No donation is too small, and all are greatly appreciated.

Please Consider Donating

For those who have not yet contributed, it is easy to support the ISHRS's Annual Giving Fund. If you choose to donate for 2020, please complete the online donation form by going to https://ishrs.org/physicians/ishrs-annual-giving-fund.

Or, if you prefer, you can contact Kimberly Miller at the ISHRS headquarters office at agf@ishrs.org with your credit card information and donation amount. New donors will receive a lapel pin, and we ask you to wear it proudly at the ISHRS meetings. Thank you for your consideration of a gift to the Annual Giving Fund. All gifts are tax-deductible within provisions of your national income tax laws. Should you need additional information, please contact the ISHRS headquarters at 1-630-262-5399.

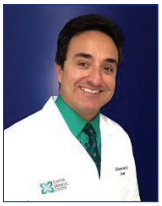
Most sincerely,
John D.N. Gillespie, MD, FISHRS, Chair
ISHRS Annual Giving Fund

Thank You to Our 2019 Donors

The ISHRS gratefully acknowledges the generosity of the following individuals who have made donations to the Annual Giving Fund during the donor year October 2018-November 2019:

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Letters to the Editors

Re: Two-step, double-action recipient site creation

Muhammad Ahmad, MD | *Islamabad, Pakistan* | plasticsurgeonpk@yahoo.com

The article, "Coronal or Sagittal Incisions: A Mathematical Approach to the Problem" (Vol. 30, No. 2; pp. 37,43-44), published by Dr. Georgios Zontos in the March/April 2020 *Forum* provides insight into the mathematical details of the sagittal and coronal incision. The commentary by Dr. Jerry Wong provides another perspective on this issue. However, I would like to present another issue, that of incidental hair transection. While creating recipient-site incisions, the surgeon must be aware of this "hidden" transection of surrounding hairs when working in hair-bearing areas between existing hairs. Although the use of sagittal incisions results in more tissue injury mathematically, it results in less microvascular trauma, as Dr. Wong discussed, and in "hidden" transection of surrounding hairs because these sagittal incisions are parallel to the hair shafts (Figure 1). Even if the incision is made very close to the hair, it is very likely to slide alongside the hair without cutting it, whereas with coronal incisions the mathematical injury is less but the chances of transection of the surrounding hairs and microvascular injury are higher (Figure 2).

The choice of the incision geometry should be practiced wisely and carefully. We probably need to develop a new double-action mechanism for site creation in which the sharp incision is limited only to the epidermis and only blunt-type dilatation is used in deeper structures (Figure 3). (The author is in the process of developing such an instrument with double action.) This would minimize the "hidden" transection of hair and microvascular injury. ■

Figure 1. Sagittal incision

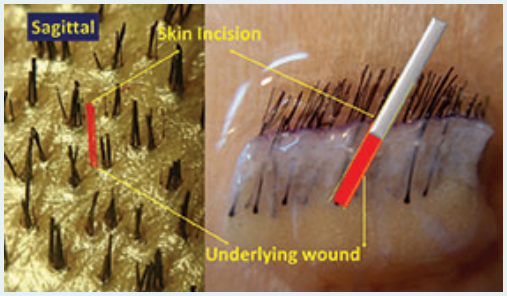


Figure 2. Coronal incision

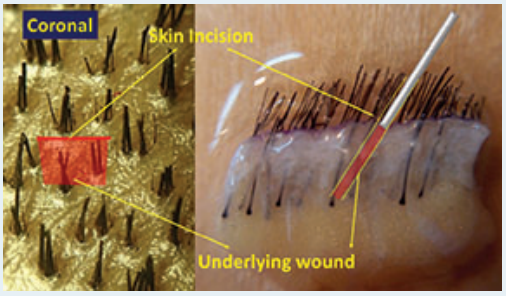
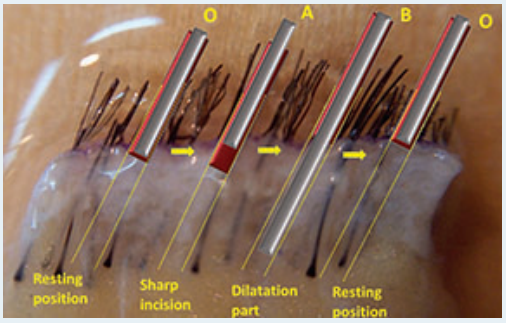


Figure 3. Proposed 2-step mechanism for site creation



Re: Coronal vs. sagittal incisions

Paul T. Rose, MD, JD, FISHRS | *Coral Gables, Florida, USA* | paultrose@yahoo.com

I enjoyed reading the article by Dr. Georgios Zontos, "Coronal or Sagittal Incisions: A Mathematical Approach to the Problem" (Vol. 30, No. 2; pp. 37,43-44), discussing the use of coronal incisions. His calculations suggest strong support for the use of such incisions, but I wonder about certain issues that he did not address. I would like to offer a slightly differing opinion.

While it is true that coronal incisions can be made more acutely than sagittal incisions, this may be more important in the temporal areas than in other locations.

Dr. Zontos did not discuss how coronal incisions are more likely to cause damage to other hairs when the recipient area is thinning and not completely bald. In a person with significant hair in the recipient area, it is easier to utilize sagittal incision for a more acute angulation and avoid transection of nearby hairs.

Because it is apparent that the sagittal blade would make a larger incision (for the same size blade), it is possible that by using a smaller angled blade and trimming grafts appropriately, the difference in incision length is decreased. The grafts are not rigid objects. The grafts are malleable and there are elastic tissue dynamics, particularly laterally in the scalp, as opposed to antero-posteriorly, that may allow such smaller incisions and manipulation.

Dr. Zontos mentions the linear array of hairs, but I would differ with him to some extent. For single hairs, this does not matter. For 3-hair and 4-hair groupings, the hairs are usually offset and not in a picket fence arrangement. I think that 2-hair groupings are more likely to have the arrangement he describes, but because the distance between hairs is so small, the 2-hair grouping appears as a single bundle with an almost cylindrical overall appearance. In such a configuration, the bundle seems similar from all points of view. It is akin to a bouquet of flowers held together in a band at the bottom.

I personally find coronal incisions helpful for temporal areas and also use them as a way to differentiate for the placing of grafts in the recipient area. For instance, I can use the coronal sites to demarcate where I want the three hair grafts to be placed, which avoids confusion as to whether a recipient site is to receive a 2- or 3-hair graft.

Lastly, could one make the case that the ideal incision is a more circular or ovoid one such as that created with a needle? ■

Case Study from the ABHRS Diplomates: Linear Morphea en Coup de Sabre (LM ECDS)

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

ABSTRACT

Linear morphea en coup de sabre is a rare condition that presents with a linear band of alopecia and is suitable for surgical hair restoration. Hair transplant surgeons should be aware of the possibility of calvarial abnormalities when considering hair transplant procedures.

Key words: linear morphea en coup de sabre (LM ECDS), scleroderma, Parry-Romberg syndrome (PRS)

INTRODUCTION

Morphea, also known as localized scleroderma, is a rare disease seen in both adults and children. Most pediatric patients have the linear subtype, which can extend deeply into the subcutaneous tissue, muscle, and bone. Linear morphea on the head and neck, called en coup de sabre (ECDS), and Parry-Romberg syndrome (PRS), also called progressive hemifacial atrophy, are felt to be related variants within the morphea spectrum of disease.

CASE PRESENTATION

An 18-year-old female presented to the Farjo Hair Institute with a linear morphea en coup de sabre (ECDS) lesion left parieto-occipital scalp (Figure 1). The condition had presented in childhood and had been stable for many years. There were no extracutaneous stigmata, and although there was some fat atrophy, there was no overt bony abnormality.

FIGURE 1. 18-year-old female presenting with LM ECDS



PROCEDURE

The patient opted for the linear strip excision method of donor hair harvesting and had 1,903 follicular unit grafts implanted using forceps (Figure 2). Implantation density was conservative given the scarring nature of linear morphea. Post-operative healing was uneventful. The patient was reviewed at 10 months and was pleased with the results achieved (Figure 3) but wanted to increase density by repeating the procedure.

FIGURE 2. Patient immediate post-op



DISCUSSION

Surgical excision was offered as an option to the patient but would still have left a non-bearing surgical scar and was declined by the patient. Successful hair transplant in LM ECDS has been published in the medical literature.[1,2] A variety of neurologic symptoms have been reported, most commonly seizures and headaches.[3] In addition, computed tomography (CT) and magnetic resonance imaging (MRI) can reveal calvarial and intracranial abnormalities even in asymptomatic patients, so hair transplant surgeons should be aware of this when planning hair transplant procedures.

FIGURE 3. Patient at 10-month post-op



In this case, funding was sought from the National Health Service and granted, so there were no surgical costs to the patient.

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ABHRS President's Corner

Sara Wasserbauer, MD, FISHRS | *Walnut Creek, California, USA* |
drwasserbauer@californiahairsurgeon.com

Most hair surgeons were not originally hair surgeons. We are a diverse crowd drawing from backgrounds from general surgery and emergency room medicine to dermatology and plastic surgery. I was a general internist working in hospital ICUs and the like. Few of us practice our original trained specialty, instead focusing on this tiny medical/surgical niche. Most of us have never regretted that choice.

COVID-19 is the watchword of the day as I am writing this. Almost no one online, on the phone, or on TV is talking about anything else. Even when I bicycle to my office along a grassy trail in Northern California, the snippets of conversation I hear are not about bird songs or the light rain, they are about viruses, sickness, and coping strategies.

You—yes, YOU "Board-certified" Hair Doctor—have much to offer in this situation. Though you may not have chosen to study viral infections or worldwide epidemics, you understand so much more than the rest of your country's population. You are a doctor. You know how a virus works, why this situation is dangerous, and, most importantly, HOW to PREVENT sickness.

SO this is your moment to shine. Even in isolation, outside of the hospitals or working from your own office, you can spread the word. Make videos about good hand-washing technique, sterile procedures, and how to make a mask at home (to keep you from touching your face). Review the latest research and explain it in layman's terms so people can understand why some medications may work and some may not. Teach what "epidemiology" means and the odds of survival when you get put on a ventilator. Write up a list of helpful volunteer opportunities in your community so others can support the medical personnel on the front lines of this fight. Organize a blood drive.

Our patients are now even more hungry for knowledge about their hair, and now they have more time to contemplate it. Apply the same effort you took to study for the ABHRS Board Exam to this new endeavor. Email your patients and their families options for good hair care at home. Set up for your patients a group video conference about female hair loss, or brow surgery, or your favorite hair consult topic. Entertain them with hair trivia (some of your favorite questions from taking the ABHRS exam will work well). Reach out through all of the communication methods available to you; review the pros and cons of photobiomodulation, platelet rich plasma injections, or testosterone supplementation. The writings, videos, and comments you create will last long after this pandemic has moved into the history books (and it *will* move there).

Your patients trust you. Our entire profession is needed in this new fight (just like Fight the FIGHT), and we should arrive in force for our communities, fellow doctors, and individual patients in every way that we can.

See you on the other side. ■





Meeting Review

Rachael Kay, MBChB | *Manchester, UK* | rach.kay80@gmail.com

Review of the British Association of Hair Restoration Surgery Annual Conference *London, UK • 29 February–1 March 2020*

CURRENT PRACTICE AND WHAT'S NEW SATURDAY/FEBRUARY 29, 2020

Dr. Dilan Fernando opened the meeting, welcoming members from all different training backgrounds. He discussed how the BAHRS is a growing society that encourages collegiality, peer support, and interaction.

Session 1: Growth Factors for Genetic Hair loss

Saturday was aimed at non-surgical topics. **Dr. Ansar Mahmood** gave an insightful talk on PRP that started with the reflection that the definition of PRP is broad and essentially it can be described as a sample of blood with a higher concentration of platelets than in whole blood. It is recognised that most PRP preparations will have 1-1.5 million platelets per microliter, 5-6 times the natural concentration in whole blood. The variability in platelet concentrations, preparation methods, and delivery mechanisms highlights the need for clear protocol documentation, which can then be shared with colleagues. The importance of technique was discussed, not to deliver the PRP too deeply beyond the depth of the follicle, as well as the perceived benefit of simultaneous microneedling. Dr. Mahmood felt that 80%-90% of his patients responded but that it was the longevity of this response that could not be guaranteed.

Mechanisms of action of the growth factors released are thought to include increased vascularisation, extension of anagen, increased follicular regeneration, and reduced apoptosis.



Dr. Martin Wade, consultant Dermatologist, then talked about his approach to PRP, first advising on clarity of documentation with patients, ensuring there is evidence that all treatment options have been discussed, including the option of no treatment. Dr. Wade uses RegenLab's system, which requires only 10ml of blood to be taken, giving 5-6ml PRP. The depth of injection is 4mm; the PRP continues to be injected as the needle is being withdrawn, thus spreading the PRP from the bulge to the sebaceous gland. This treatment is monthly for the first 3 months with a reassessment at 6 months, using clinical photography. There is a beneficial effect to adding simultaneous minoxidil. Clinical indications in his practice include alopecia areata (AA), androgenetic alopecia (AGA), and telogen effluvium (TE). The importance of being transparent with patients—explaining that it may work but is not for everyone and that results can be subtle—were salient take away messages.

Dr. Ali Ghanem then gave a sponsored talk by Skin Gen, covering the application of topical growth factors with microneedling. The growth factors are applied topically, both in clinic and then given at home. In terms of discussing with patients, he explains there are no guarantees.

Dr. Martyn King followed with an innovative talk on needle-free injection technology, a low-trauma method of delivering products such as growth factors into the scalp transdermally. Whilst Med-Jet suggests its device delivers a uniform distribution of product, questions were raised as to how this may be objectively measured or assessed.

Session 2: Other Injectables for Scalp Conditions

Dr. Manjit Kaur opened the next session with an excellent talk on the use of triamcinolone in scarring and non-scarring alopecias. With alopecia areata, 30%-50% will recover fully in 1 year, and up to 15% may progress to alopecia totalis. The most effective use of triamcinolone is thought to be in those patients who have exclamation mark hairs and a positive pull test. Dr. Kaur has also had some success with triamcinolone injections for frontal fibrosing alopecia (FFA), along with topical calcineurin inhibitors, and for lichen planopilaris (LPP) when combined with doxycycline.

Dr. Shadi Zari followed with a talk sponsored by Regenera Activa® that demonstrated the use of progenitor-enriched autologous micrografts to improve hair density in female pattern hair loss (FPHL) as an alternative to medications or surgery. Three punch biopsies are taken from the post-auricular area during preparation, before being added to the Regenera system and then reinjected. It is essential that the diagnosis of FPHL is confirmed prior to treatment and patient selection is key. Ideally, greater than 25% of hair has to be in miniaturization, confirmed on dermoscopy. Using trichoscan analysis, Dr. Zari felt the mean hair count increased and that the treatment lasts 1-2 years. This could be an exciting avenue for future treatments for those not suitable for other therapies.

Dr. Sophie Shotter discussed her three-pronged approach to delivering growth factors and amino acids via mesotherapy, alongside microneedling and in conjunction

with TrichoTest™, to help determine which treatments might be best suited to the individual.

Dr. Kapil Dua then shared his expertise and approach to managing the non-surgical patient. "Evaluate, Establish, Execute" is his motto. By focusing on the patient's expectations and whether or not the hair loss is stable, Dr. Dua is able to plan his next steps. Trichoscopy is used to ensure the correct diagnosis of AGA, evaluating hair shaft diameter that is non-uniform in AGA. Other investigations include a biochemistry panel to check for vitamin and thyroid issues, as well as baseline PSA levels in men about to start finasteride if they are over the age of 50. A cyclical nutritional regime might be recommended, along with PRP or finasteride therapy, and more recent therapy can include topical finasteride and minoxidil with good effect.

Q&A: Ask an HT Surgeon Anything

The Q&A was perhaps one of the most valuable sections of the day, providing an open forum that enabled less-experienced doctors to ask a variety of questions to the more senior surgeons in the field. The subjects ranged from how to gain experience in the field of hair restoration, to case-based discussions and troubleshooting, to very specific discussions on how to improve surgical technique.



Session 3: Understanding Female Hair

Dr. Sophie Shotter opened the afternoon with a discussion on how scalp hyperhidrosis might be treated with botulinum toxin therapy very successfully in specific patient groups, such as young women who like to attend the gym before work and peri-menopausal women. Anecdotally, she has noted increased hair growth as a result. **Dr. Gill Westgate**, another of our guest speakers, gave a wonderfully visual talk about why hair curls and why it can be more vulnerable to environmental stresses.

The talk began with an impressive insight into the structure of the curly hair follicle and its evolution. The higher the degree of curl, the higher the likelihood of it to be vulnerable to stress. For example, straightening curly hair with heat increases tension, horizontal cracking, and breaking of the hair shaft. Surfactants found in many hair products can disrupt the lipid content of the hair follicle. **Tony Maleedy** followed with his advice on how to avoid moisture levels in hair becoming so low that damage occurs. Humectants can make a big difference to maintaining moisture levels. To optimize moisture levels, dampen the hair, "prewash" with conditioner or mask to be left on for an hour under a plastic cover or cap, then wash out what remains after an hour. Equally, oil can be helpful when applied to damp rather than dry hair, so that the cortex is hydrated, not just the cuticle.

Dr. Shadi Zari's lecture on Investigating and managing FPHL non-surgically completed the third session of the day. Dr. Zari focused initially on establishing the correct diagnosis, and reflected how androgens have a less significant role in FPHL compared to male pattern hair loss (MPHL). However, it is important to establish hyperandrogenism in those patients where it may be relevant, by excluding conditions such as polycystic ovary syndrome (PCOS). FPHL can also present as cyclical telogen effluvium, and so other causes of this must also be excluded. A variety of treatments were discussed where relevant, including anti-androgens such as Dianette® oral contraceptive pill, spironolactone, and topical and oral minoxidil, and topical/oral finasteride in post-menopausal women.

Session 4: Looking Forward

The final focused on what the future holds, particularly for allied health professionals in the fields of trichology and scalp micropigmentation.

Stephanie Moore explained the evolution of the Trichology Professional Development programme, set to start next year, to improve proficiency and standards within clinical practice. **Emma Furlong** highlighted the valuable option of integrating scalp micropigmentation (SMP) into a hair transplant procedure, increasing the perception of density and reducing the appearance of scars. The future may see pigment delivery via a "no needle" technique.

Tim Moseley then gave a fascinating sponsored talk on the role of exosomes and how they can potentially change cell signaling. The mesenchymal stem cells have a role in providing extra-cellular matrix, angiogenesis, anti-inflammatory signals, and tumour suppressant signals. In particular, bone marrow–derived stem cells are those thought to have a positive influence on cell support, wound repair, and releasing growth factors and cytokines. Products based on this principle could provide an exciting option for treating our patient demographic.

Emma Furlong discussed the future of SMP and stressed the importance of safety in this field since it is unregulated but rapidly gaining popularity.

Dr. Christos Tziotzios completed our first day by sharing his knowledge on FFA. He reminded us to ask about any systemic hair loss, which may predate scalp loss, and any associated thyroid disease. A detailed analysis of the complex genetic element of this disease then followed, including a list of potential chromosomes that may be involved in its inheritance. Suggested treatments included hydroxychloroquine in combination with oral prednisolone, and possibly JAK/ILI5 inhibitors in the future.

SUNDAY/MARCH 1

Session 5: Transgender and Female Pattern Hair Loss

Michael Beattie opened Sunday, which was aimed at surgically related topics, with an excellent session dedicated to a better understanding of, and better communication with, our transgender patients. The language utilised in our consultations is incredibly important as it can have significant psychological impact. The lecture reviewed more sensitive approaches to asking about how gender assignment at birth

➤ PAGE 110

CONTINUED FROM PAGE 109

may differ from the gender identity that the patient now adopts. Patients should not be expected to explain their sexual orientation. Clarifying the pronouns with which patients prefer to be addressed is also very important, as is having this clearly documented so to avoid repeatedly asking the same questions. Awareness of how the stigma and negative social influences can increase low mood and incidence of suicide in this patient group is also essential. **Dr. Haseeb** followed with his approach to looking after transgender patients who require hair surgery, usually doing this once hormonal therapy has commenced.

Dr. Andrew Messenger gave a detailed talk on FPHL aetiology and treatment. Suggestions included screening for hyperandrogenism by checking testosterone levels, particularly if presenting with male pattern loss. Importantly, this can reveal androgen secreting tumours that have not yet presented. It may be clinically indicated to check the Free Androgen Index (FAI) and perform an ultrasound of the ovaries to exclude PCOS, should FPHL and/or hirsutism be the presenting complaint. Finasteride (where indicated)/spironolactone may help this group of patients. Minoxidil will help for a subset of patients with FPHL, but less so if the primary cause is hyperandrogenism. For those in who minoxidil will be effective, there may be signs of improvement at 4-6 weeks, peaking at 12-16 weeks.



Dr. Kapil Dua, our esteemed guest speaker from India, shared his approach to hair transplant surgery in female patients. He emphasised the importance of a multidisciplinary team approach involving dermatologists, hormonal and nutritional evaluation, as well as 3-6 months of medical treatment prior to any surgery. Pre-op examination should include trichoscopy, looking for anisotrichosis, and close evaluation of the donor area for miniaturisation. It is also important to explore patient expectations in terms of outcome and desired styling. Dr. Dua also stressed the importance of the patient being mentally well prepared for the surgery, for the potential of shock loss, and for how the hair will look when it regrows with a short spiky texture. Practical tips included to use headband to reduce swelling immediately post-procedure and to substitute adrenaline for saline where possible as a potential way to reduce shock loss.

Session 6: What's New

Albert Mascarell from Fagron opened the session on emerging therapies with a sponsored talk to introduce the concept of TrichoTest, the use of genetic testing for hair loss patients. DNA profiling from a simple swab test can analyse specific genetic factors that then produce an individualized report. This report can suggest particular treatments specific to the individual. The test may look at a particular enzyme and receptor activity. For example, the enzyme SULT1A1 activates minoxidil into minoxidil sulphate. If there are low levels of SULT1A1 detected, then minoxidil may not be as effective as in those patients where the enzyme level is normal.

Kate Gilbert, sponsored by HydraFacial, gave a sponsored talk on topical growth factors for scalp condition that identified the benefits of optimizing scalp health. Such steps include cleansing and exfoliating to boost scalp circulation prior to the topical delivery of the product, which contains various growth factors. Subjective improvements have been reported in terms of reduced hair loss and improved overall appearance.

We were lucky enough to have **Dr. Zari** and **Dr. Moseley** run through their lectures from the previous day, providing an additional opportunity to ask questions.

Session 7: Hair Transplant Surgery Successes and Pitfalls

Janine Revill gave a sponsored talk from Cosmetic Insure entitled, "Malpractice, public liability, and professional indemnity—who needs it?" She clarified the different terminology, and she discussed how to avoid being sued and what to do with complaints.

Esther Hansen, a psychologist, gave an excellent talk entitled, "My Experience of Counseling Men with Genetic Hair Loss."

Session: Unusual Cases—Hair Transplant Surgery Success Stories

This was a very useful session where a number of hair transplant surgeons shared interesting and unusual cases that were treated successfully with hair transplant surgery and scalp micropigmentation.

MEETING END

Dr. Kapil Dua gave the closing talk of the meeting entitled, "Combining Beard, Body, and Scalp Hair for Maximum Results." He demonstrated his techniques and work flow and showed his excellent outcomes.

There was a raffle with prizes awarded including a bottle of vintage Dom Perignon. The meeting concluded with closing remarks from course director **Dr. Greg Williams**, BAHRS president, who thanked sponsors, faculty, and attendees. ■



Hear from the Assistants

Marwan Noureldin, MSc | *Cairo, Egypt* | marwannoureldin@hotmail.com

If you would like to nominate an assistant from your practice to be interviewed for this column, please email me.



Laura Krys, a registered nurse, is this year's vice chair of the ISHRS Surgical Assistants committee. Laura graduated from University of Surrey, England in 2009. In 2012, she joined Dr. Ezequiel Panno in Marbella, Spain, as a trainee and now she is responsible for the day to day running of the practice. She is the senior nurse, along with another registered nurse and three registered healthcare assistants. Laura helps organize an annual meeting—Annual Master of Aesthetic Medicine—held at the University of Cordoba.

I had an enjoyable conversation with Laura. Efficiency in work is crucial in all hair transplant procedures, so I asked Laura about how to get the best out of her team. Her advice: *"Always have someone floating and managing the room, as they can see the bigger picture and guide the staff, cover the breaks, keep an eye on the time, and spot-check the work the team is doing."*

Since she has been the theatre manager, one of her greatest challenges has been training the staff to implement a new technique or to use a new instrument. *"You are in the middle of the fine balance between teaching and managing technicians to be well skilled, efficient, and motivated,"* Laura said. *"The doctor wants to be innovative, experimental, and proud of his final results, and it is my duty to assist him in reaching his goals."* She adds that she must deal as well with the infamous task of holiday requests and days off, which is a repeated challenge faced as the head nurse of the team.

Next, we talked about her pleasure in the hair field: *"By far, my greatest joy is seeing patients at their follow-up appointments. Being part of something that makes a person extremely happy and that caused a significant change in this person's self-esteem and confidence."* She then added something I found to be very interesting: *"I always love to share my pleasure with the rest of the team. I try to make technicians pop into the consultations frequently so they can see how their work makes people happy; it is very motivating and gives them pride in their work."*

Months earlier, when we were in Bangkok, Laura and I were talking about the "patient's point of view" on the day of the surgery and how to make sure that the patient has a positive and comfortable experience. Laura offered: *"During training, I like to do a mini empathy workshop so the staff have a moment in the shoes of the patient. So, when a new member of staff starts with us or someone needs a refresher, they take their turn in the chair. This involves lying face down, then the team will make unnerving gasps, maneuver their body without notice or permission, and have private conversations over the head. In my experience, this is a really great way of making your team understand the physical comfort and vulnerability of the patient."*

Then, I asked her about how work flows in their office. *"Everyone is responsible,"* she said. *"We have one case per day and five staff. I will manage the theatre by dividing the work, making the team work efficiently with their time, and check graft quality, technique, and speed. Then, a nurse will always be alongside the doctor at the head for assisting in strip removal or FUE extraction. Then, we have two more technicians who also extract or prepare and preserve the grafts. We all place at different levels of experience so rotating the team is important. In any free time, the staff have their other responsibilities like orders, sterilization, etc."*

Afterwards, I asked her a question that I regard very crucial: If you could give any advice to Dr. Panno or any other hair transplant surgeon, what would it be?

Laura offered: *"Lead by example and make it routine. In my experience, the most skilled hair transplant technicians are born from having being trained exclusively by their surgeon. I have been working as an assistant since 2012 and have seen many different teams at work and always the tech with the most talent was taught by the surgeon when they started out."*

She added, *"New staff always follow the doctor or myself until they are ready to be working alongside the rest of the team. By this, we make sure they have learnt good skills and habits and can perform what they learnt automatically. Also, I have a tick list of key stages of the day on the wall so we are sure things are done in order and not forgotten."*

Next, we shifted to developments in the hair transplant field. Laura stated that she felt the most important innovation in the FUE procedure has been the introduction of the implanters and how it saved the grafts from over manipulation and unnecessary handling although it takes some time and training to get used to the implanters. She added that in strip surgery she has observed that the trichophytic closure with an internal stitch has improved the finesse of the scar. In addition, the Haber Spreader has helped Dr. Panno during his strip extraction. Then, I asked her if they are now doing anything different than before. *"We are now placing extracted grafts onto wet gauzes IN ORDER, like soldiers, side by side, in groups of 50. At the beginning, it took a few days for the staff to become fast, but once they got a hand for it, this sped up the surgery. We did not need a technician to touch the grafts again to put them in order, all they had to do is check the quality and count and clean any grafts that were in need."*

Before we concluded our meeting, Laura had a thought about the black market: *"Over the past couple of years, there has been a huge threat to my profession. It is extremely concerning to me that unlicensed people are assuming the role of a surgeon and tarnishing the reputation of the hair transplant technician. At this moment in time, my job title is constantly being battered with negative energy and media. Every day, we have clients emailing wishing us to help them restore an ill performed surgery. For all the good and hard work our team does in hair transplant, and the countless other doctors and technicians around the world, it is hard to be seen or heard. We must stay positive and keep striving for the best so our clients keep choosing professional teams over cost."* ■



Message from the ISHRS 2020 World Congress Program Chair

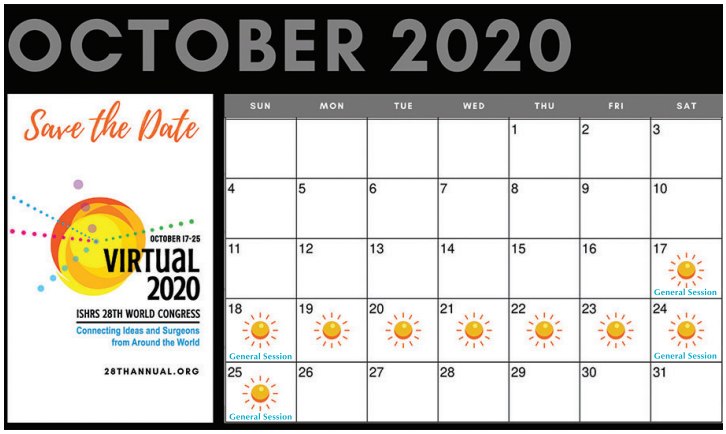
Bradley R. Wolf, MD, FISHRS | *Cincinnati, Ohio, USA* | htwolf@wolfhair.com

What a difference two months make! We have gone from eagerly anticipating the 28th consecutive in-person ISHRS World Congress, in Panama, to many questions concerning the future of our practices as well as many other existential questions. The good news is THERE WILL BE A MEETING. The ISHRS Board of Governors discussed all possible options and prioritizing the safety and best interest of our members, decided to pivot to a total virtual meeting. The technology exists that will allow us to present a virtual experience you can attend from your home or office. The meeting will take place October 17-25 with the general sessions taking place on the weekends, October 17-18 and 24-25. The other activities, including focused sessions (workshops), discussion tables, and opportunities to view the exhibits as well as interact with the exhibitors, will take place during the week of October 19. We (the Board of Governors, Scientific Planning Committee, and ISHRS management team) are getting a crash course in the latest technology including platforms that allow presentation of the content in a dynamic and interactive fashion. We will need everyone's help and are excited with the possibilities available.

Thanks to all who submitted abstracts for lectures, posters, and videos; we are in the process of sorting through them. Due to fewer and shorter general sessions, fewer abstracts will be presented as traditional lectures. The good news is that opportunities to showcase your poster or abstract will be expanded. A second "Call for Abstracts" has gone out and these abstracts, plus the earlier submissions from the first round (not accepted for a lecture), will be the subject of "Abstracts with the Experts," a new discussion format. Authors will have their choice of presentation format including PowerPoint presentation (with or without voiceover), poster, or video. There will be a dedicated "room" (or page) in the online platform where this content can be downloaded by the author and reviewed by attendees. We plan on having these "tables" on Thursday, October 22, for two one-hour sessions. The authors of the abstracts, videos, and posters will be available to answer questions about their submissions. **The deadline for the second call for abstracts is June 8.** Please take advantage of this opportunity to have your ideas presented.

In this issue we spotlight our third featured speaker, Maksim Plikus, PhD, Associate Professor, Department of Developmental & Cell Biology, University of California Irvine Stem Cell Research Center, Irvine, California. His laboratory studies how complex tissues and organs regenerate under normal conditions and in response to injury. Recently, he was able to study the collective behavior of adult stem cells using the model of hair regeneration. He will be presenting the Advances in Hair Biology Lecture.

We hope you and your families are well and that you will be able to join us in October. It will be a unique and rewarding experience. ■



2nd round CALL FOR ABSTRACTS deadline June 8, 2020. Go to 28thannual.org.

Classified Ads

Seeking Hair Transplant Physician and Technicians

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

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Calendar of Hair Restoration Surgery Events

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

DATES	EVENT/VENUE	SPONSORING ORGANIZATION(S)	CONTACT INFORMATION
* ~~JUN 12-14, 2020~~ Canceled	ISHRS Euro 2020: European World Live Surgery Workshop *Athens, Greece*	International Society of Hair Restoration Surgery	http://euro2020ishrs.org/
JUN 13-14, 2020	Annual Meeting of the Hair Restoration Society of Pakistan (HRSP) *Islamabad, Pakistan*	Hair Restoration Society of Pakistan (HRSP) in collaboration with Academy of Aesthetic Medicine and Surgery	Muhammad Ahmad, MD plasticsurgeonpk@yahoo.com
~~JUN 18-20, 2020~~ Postponed to June 2023	19th EHRS Meeting *Sheffield, UK*	European Hair Research Society	www.ehrs2020.org
* ~~JUL 24-25, 2020~~ Postponed to July 2021	12th Annual Hair Transplant 360 Cadaver Workshop & FUE Hands-On Workshop *St. Louis, Missouri, USA*	Saint Louis University School of Medicine, Practical Anatomy & Surgical Education In collaboration with the International Society of Hair Restoration Surgery http://pa.slu.edu	pa@slu.edu
~~JUL 29-AUG 1, 2020~~ Canceled	8th Brazilian Congress of Hair Restoration *Rio de Janeiro, Brazil*	Brazilian Association of Hair Restoration Surgery	eventos@abcrc.com.br
* OCT 17-25, 2020	28th World Congress of the ISHRS *Virtual (online)*	International Society of Hair Restoration Surgery www.28thannual.org	www.28thannual.org

* 2020 meetings that qualify for the ISHRS member educational maintenance requirement

REMINDER

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

ISHRS WORLD CONGRESS SCHEDULE

28TH WORLD CONGRESS	29TH WORLD CONGRESS	30TH WORLD CONGRESS	31ST WORLD CONGRESS
October 17-25, 2020 Virtual (online)	October 20-23, 2021 Lisbon I Portugal	October 26-29, 2022 Panama City I Panama	Dates to Be Determined, 2023 New Delhi I India

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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Workgroup on Re-entry Protocols: Robert H. True, MD, MPH, FISHRS
Workgroup on Webinars: Robert S. Haber, MD, FISHRS
Task Force on Artificial Hair Fibers | Shady El-Maghraby, MD, MSc

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Arab Association of Hair Transplantation
Argentine Society of Hair Recovery
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Japanese Society of Clinical Hair Restoration
Korean Society of Hair Restoration Surgery
Paraguayan Society of Hair Restoration Surgery
Polish Society of Hair Restoration Surgery
Swiss Society for Hair Restoration Surgery
Thai Society of Hair Restoration Surgeons

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

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

Submission deadlines:
June 5 for July/August 2020 issue
August 5 for September/October 2020 issue
October 5 for November/December 2020 issue
December 5 for January/February 2021 issue

Please note submission address:
forumeditors@ishrs.org

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Due to the COVID-19 pandemic, the previously scheduled in-person meeting to occur in Panama this Oct. 2020 will now take place virtually. Please mark your calendars and watch for registration details.

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

OCTOBER 17-25

ISHRS 28TH WORLD CONGRESS

VIRTUAL 2020

https://www.28thannual.org/

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FEATURED SPEAKERS



"Cell Coordination and Organ Regeneration"

Maksim Plikus, PhD

Editor, Experimental Dermatology; Associate Professor, Department of Developmental & Cell Biology, University of California Irvine, Stem Cell Research Center, California, USA



"Hair Follicle Bioengineering Producing Human Hair Follicles In Vitro Using 3D Printing Technology"

Angela M. Christiano, PhD

Professor, Departments of Dermatology and Genetics & Development; Vice-Chair and Director of Research, Department of Dermatology, Columbia University, College of Physicians & Surgeons, New York, USA; Recent elected member to the National Academy of Sciences



"What Patients Say, What Doctors Hear"

Danielle Ofri, MD, PhD

Clinical Professor of Medicine, NYU School of Medicine; Contributing Writer, *New York Times* and *Slate Magazine*; Editor-in Chief, *Bellevue Literary Review; Physician, Belview Hospital*



"Hair Regeneration: Using induced pluripotent stem cells (iPSC) derived from dermal papilla cells with a 3D biodegradable scaffold"

Alexey Terskikh, PhD

Associate Professor of Neuroscience, Developmental Biology and Aging Program, Del E. Webb Neuroscience, Aging and Stem Cell Research Center, Sanford Burnham Prebys Medical Discovery Institute; CEO, Stemson Therapeutics, La Jolla, California, USA



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