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The Beard Issue

Robert H. True, MD, MPH, FISHRS New York, New York, USA editors@ISHRS.org

Welcome to "The Beard Issue" in which the entire issue will focus on beard hair reconstruction and harvesting. This is not an area that has been given a lot of attention in this (or any other) journal previously. Facial hair includes the eyebrows, eyelashes, beard, and moustache (mustache). Eyebrow and eyelash transplantation have been extensively explored in our literature and meetings, but the beard and moustache have not.

Such a focus is now timely as there is a worldwide increase in awareness and demand for facial hair transplantation of all kinds. In talking with our colleagues, I have learned that some are doing as many as 3-4 cases of beard and moustache transplantation per month. Many report that they are seeing an increasing number of patients who are seeking beard and moustache transplantation for cosmetic rather than reconstructive reasons. We hope this issue will provide a platform to begin coalescing and refining the art and science of beard and moustache restoration.

The issue will include a well-conceived comprehensive overview on the topic by Drs. Kapil Dua, Aman Dua, and Renu Kothottil followed by case presentations by Drs. Jeffrey Epstein, Bessam Farjo, Bijan Feriduni, James Harris, Antonio Ruston, Akaki Tsilosani, James Vogel, Bradley Wolf, and Ummer Yaseen and Shagufta Rather. I want to express my gratitude to all these surgeons for contributing examples of excellent work. In addition, Dr. Wasserbauer will challenge us with a beard hair quiz and How I do It will highlight a low-cost disposable motor for beard and scalp FUE. I think you will find this issue a good read.



Facial Hair Transplantation

Kapil Dua, MBBS, MS, Aman Dua, MBBS, MD, and Renu Kothottil, MBBS, MD Ludhiana, Punjab, India
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Beards are great for rubbing when deep in thought, they block the sun from burning your face, they hide neck flab, and they suggest a life free from razor burn. And while some men have thick growth of facial hair, others may not, due to a variety of reasons, and yearn to have it. With more and more people knowing about the possibility of the beard and moustache reconstruction, many are now undergoing transplant in these areas, and they can have different facial hairstyles.

This trend of the growing popularity of facial hair restoration is also catching up with ISHRS members. As was reported in the ISHRS 2013 Practice Census, about 7% of hair transplant surgeries were performed for non-scalp areas, out of which more than 90% were to the facial area.¹ This included restoration of eyebrows, eyelashes, beard, and moustache. At our clinic, the trend is similar in that facial hair transplant constitutes about 5% of our total surgeries. The majority of our facial hair cases are beard and moustache restoration; the remainder are eyebrows (Figure 1).

This article shares our experience on the reconstruction of the beard and moustache.

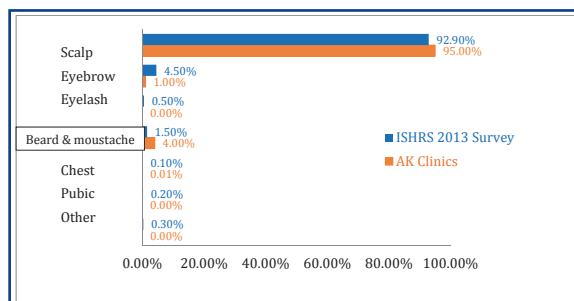


Figure 1. Frequency of hair transplant procedures by body area

Why do patients undergo moustache and beard transplant?

There are a variety of reasons patients choose this type of transplant, and many suffer from the following:

PLAN TO ATTEND!

www.ishrs.org/AnnualMeeting.html



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President's Message

Sharon A. Keene, MD, FISHRS *Tucson, Arizona, USA* skeene@ishrs.org



Many of you are already familiar with the research contributions of Dr. Shoji Okuda, a Japanese physician who performed and published results from a series of research studies in hair transplantation dating back to the 1930s. Dr. Okuda had even experimented with 1mm punch grafts to harvest donor hairs, making this the earliest report of the currently popularized method of donor harvesting, follicular unit extraction (FUE). The conflicts of WWII and the fact that his publications were written in Japanese impeded the distribution of his findings to Western publications. It was many decades before they were again brought to light and graciously translated to English by Dr. Yoshihiro Imagawa, to whom we also owe our thanks. After revisiting his work, the ISHRS has taken many steps to pay tribute to the remarkable pioneering contributions of Dr. Okuda. You may now find a permanent link to his articles and the translated Okuda papers, at <http://www.ishrs.org/content/okuda-papers-0>.

Furthermore, at this year's annual ISHRS meeting in Chicago, our distinguished colleague, researcher, and past Follicle Award winner Dr. Francisco Jimenez will present a lecture to review Dr. Okuda's research during the morning opening session. Finally, the ISHRS Board of Governors has voted to award the distinguished Manfred Lucas Lifetime Achievement Award, the highest award given by our Society, in posthumous recognition of Dr. Okuda's pioneering contributions to the field of hair restoration science. To our delight, Dr. Okuda's grandson, Dr. Takahiko Okuda, a professor of anesthesiology at Kyoto University in Japan, has graciously accepted our invitation to receive the award at the annual Gala dinner.

In addition to the Okuda lecture, we have several other distinguished faculty who will strive to improve our understanding of hair biology and the treatment of hair loss in men and women. The faculty includes Valerie Horsley, PhD, of Yale University, who will present "Extrinsic Regulation of Hair Follicle Stem Cells"; Ranjit Bhogal, PhD, from Unilever in the U.K., who will present "Natural Ingredients for Activating Biological Targets in Hair and Skin"; Mohit Khera, MD, Professor of Urology from Baylor College of Medicine, who will provide an important "Update on Post Finasteride Syndrome"; and Andrew Messenger, MD, Professor of Dermatology from the University of Sheffield, who will lecture on "Female Pattern Hair Loss—of Androgens and Genetics."

Even as ISHRS members maintain their commitment to studying and learning about the science of medical and surgical treatment for hair loss to improve our care to patients, we are aware of forces in our specialty that threaten to undermine commitment to quality care and patient safety. For example, medical boards in the United States have been investigating reports where doctors with little or no experience in hair restoration surgery have purchased medical devices that assist in donor harvesting, and have hired technicians to operate them—allowing these assistants to perform the entire surgery. It is the ISHRS's view that this activity represents the unlicensed practice of medicine. While some medical boards have become aware, the ISHRS has warned all medical boards in the United States of this activity and has discouraged members from allowing unlicensed technicians to perform surgery. Our consumer alert last year took the same position internationally. The ISHRS has learned from legal advisors that regional legal standards for medical practice may provide the basic safeguards for medical practice, but they do not necessarily require the highest standards. We have become aware that while most jurisdictions do not allow delegation of incisions/excisions to unlicensed technical assistants, there are areas and localities of the world that apparently do mainly due to ambiguous regulatory guidelines. The ISHRS is not a regulatory body and has no ability to police the activities of any doctor. Where legal, we have no ability to circumvent laws that allow this type of delegation. However, we are committed to encouraging "best practices" among our members—which we believe will help optimize quality of care and safety for patients—and that serve to

Co-editors' Messages

Mario Marzola, MBBS Adelaide, South Australia editors@ISHRS.org

Congratulations to my Co-editor Dr. Bob True for putting together this comprehensive review of beard/moustache transplantation. As he says, we are seeing more patients asking for this service as wearing a beard is becoming more popular today. This edition of the *Forum* will become known as the Beard Edition and be used as a reference for many years to come. Even Dr. Sara Wasserbauer gets into the act with her very entertaining Hair's the Question column.

The ISHRS CME Committee is also to be congratulated for their module entitled "Who Does What" in an effort to define best practices in our hair specialty. It is worthwhile reading every word if we are serious about producing the best outcomes for our patients. In this era of hyper delegation, it is important to know where we stand, where we draw the line on delegation. It is an area of some difference amongst our members, some delegate very little while others delegate the whole procedure! For me, this has been the elephant in the room for some time. My hope is that we will soon acknowledge these differences, debate the issue openly, and come to a consensus. As in politics, my position is that of a moderate on this issue. It's impossible to change the opinions of those on the far right or the far left of any argument. However, good robust dialogue, in goodwill, will surely increase the number of moderate opinions. Throw the book at those who have a machine and offer a turnkey hair transplant service to inexperienced medical practices but maybe give a little in other

areas. It might be time to relook at the amount of delegation that is reasonable in the offices of experienced doctors who also supervise experienced technicians.

It should be quite clear that the ISHRS is not against delegation of parts of our hair restoration procedure to our technicians. Witness Emina Karamanovski-Vance's report in this issue of the ISHRS Regional Workshop for Assistant Training, which was a great program, much appreciated by the assistants who attended.

What is it that attracts us to a career in hair restoration? Is it the expression of our artistic abilities in our eyes and our hands, the grateful patient no longer afraid of mirrors, or the ability to mix good medicine with a good business model? It may be all of those things and more, and Dr. Bob True and I hope the *Forums* we edit have all these aspects represented in one way or another. Please let us know if we are not covering any area sufficiently.

The year is passing so quickly. Here we are thinking already about our 23rd Annual Scientific Meeting in Chicago this September. The program has something for everyone thanks to the hard work of our program chair Dr. Nilofer Farjo and the Program Committee. It's a hard call, but it may well be the best meeting ever. The one not to be missed! See you there. ♦



Robert H. True, MD, MPH, FISHRS New York, New York, USA editors@ISHRS.org

Beard Hair vs Scalp Hair

The professional literature is lacking in descriptive studies of facial hair, however, a study published in 1983 by Tolgyesi, et al. (A comparative study of beard and scalp hair. *Journal of the Society of Cosmetic Chemists*. 34(7):361-382) provided some fundamental information about the significant differences between beard and scalp hair. The study compared beard and scalp hair in Caucasians, Asians, and Africans. In all three groups, it was found that beard hair has nearly twice as many cuticle layers as scalp hair, accounting for the bristly quality often noted in beard hair and complained about by wives and girlfriends. Caucasian beard hair averaged $125.6 \pm 10.9\mu$ diameter compared to $69 \pm 9.3\mu$ for scalp hair. Asian and African beard/scalp hair comparison showed similar size difference.

The study observed that "Caucasian scalp hairs were round or oval in cross-section, while the beard hairs usually had more asymmetric shapes. African scalp and facial hair fibers had twisted ribbon shapes... Sharp twists along the fiber axis produced kinky hairs. Chinese scalp hairs were straight and regular, with

circular or slightly oval cross-sections; the beard hairs, however, showed the widest range of shapes. Measuring the cross-section areas and ellipticity via optical microscopy, the cross-sectional area of beard hair was found to be 70-100% greater in all three racial groups than that of the corresponding scalp fibers. Beard fibers were more irregular in shape than the scalp fibers, giving larger ellipticity indices." The following chart excerpted from their report details the differences. ♦



	Axes	Major μ	Minor μ	Ellipticity
Caucasians	Scalp	110	67	1.6
	Beard	164	79	2.2
Chinese	Scalp	106	83	1.3
	Beard	171	94	1.9
African	Scalp	118	66	1.9
	Beard	172	85	2.1

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

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

Submission deadlines:

August 5 for September/October 2015 issue

October 5 for November/December 2015 issue

December 5 for January/February 2016 issue



Notes from the Editor Emeritus

Jerry E. Cooley, MD *Charlotte, North Carolina, USA* jcooley@haircenter.com



As I enter my 20th year in the hair restoration field, I have taken a moment to reflect on the subject of time as it relates to hair restoration and the progression of hair loss. According to Jean Racine, "There are no secrets that time does not reveal." So here are some of the things I have learned about hair loss and hair restoration thanks to the passage of time.

We usually promote the idea that hair transplants are permanent. This is mostly true, but has to be tempered with the fact that there may be aging, graying, and thinning of the transplants over time. This is no different than other cosmetic procedures that suffer the ravages of time, such as the face-lift that eventually droops or the augmented breasts that sag and require revision. But the real issue with what we do is the impermanence of the surrounding native hair due to the natural balding process. It is this phenomenon that really sets hair restoration apart from other types of elective cosmetic procedures in my opinion.

When finasteride became available almost 20 years ago, I thought this would be the simple answer to the problem of ongoing hair loss. While this medication has indeed proven incredibly useful, there are problems with it that have only been revealed with the passage of time. One of the first problems that became apparent to me was patient non-compliance. I naively assumed that patients would understand and follow through on my recommendation to stay on the medicine indefinitely.

An example of this was the young man who came to see me in 2003 (Figure 1). I put him on finasteride and performed two FUT procedures totaling 2,500 grafts. When I last saw him in 2004, he looked great and I was quite proud of my work, not fully grasping how much of the improvement was due to finasteride. I did not see him again until 2010 when he came in seeking another hair transplant. He had discontinued finasteride in 2008 not

because of any side effects, but by his own admission, because he had gotten lazy and didn't bother to get his refill. The original transplant had held up pretty well and with another 3,200 grafts and the resumption of finasteride, we got him looking pretty good again. But it made me wonder how many of my previous patients were wandering around out there who had stopped their finasteride. How did my work stand up with the progression of the balding process?

Another fairly common scenario plays out on a regular basis. I see the patient in consultation and recommend a certain number of grafts and prescribe finasteride. When the patient returns for their surgery, which may be 4-6 months later, I ask how it's going with the finasteride and often hear: "Oh, I still have the prescription but haven't decided whether to start taking it yet." Sometimes it's a fear of potential side effects and sometimes it's just a general wariness of taking any pharmaceutical for an indefinite period of time, both of which I hear more frequently these days.

But what about the patient who continues to take finasteride over time? I remember being surprised and dismayed when the 5-year data on finasteride was published. The positive spin was that after 5 years, patients were still thicker than baseline and that the difference between taking finasteride versus placebo becomes larger over time. But what I focused on was the deterioration in hair counts in patients taking finasteride between years 1 and 5. What was clear was that at some point, they would slip below their baseline and continue to thin, albeit at a much slower rate. I have now seen this play out in many of my patients who have been on finasteride for longer than 5 years.

Another thing I have learned is that patients will compare themselves to their baseline, not to where they would be at that point in time without treatment. So a patient who has been on finasteride for 10 years and has ongoing thinning will compare their current state to where they were at year 1 or 2, and not where they would have been 10 years down the line with no treatment, which would be the appropriate comparison. They will find out rather quickly how much the medicine was helping them if they discontinue it, just as my patient did.

I now draw this "Hair vs. Time" chart for all of my new patients so they can hopefully develop a more realistic sense of what to expect over time. I extrapolate out to over 10 years so they can see what may happen in the future (Figure 2). When I am seeing a patient who has been on finasteride for more than 5 years and is complaining of ongoing thinning, I may switch them to dutasteride, put them on topical minoxidil or caffeine, perform PRP injections, or recommend more hair transplants. The younger they are, the more likely it is they will need combinations from this menu of options. While this kind of frank discussion may scare new consults, I am convinced it is better to be up front about what they are getting into than to have unhappy patients reappear over time claiming they were not informed. It is our ethical duty to inform our patients about everything that may realistically happen to them.

The longer a physician practices hair restoration, the more

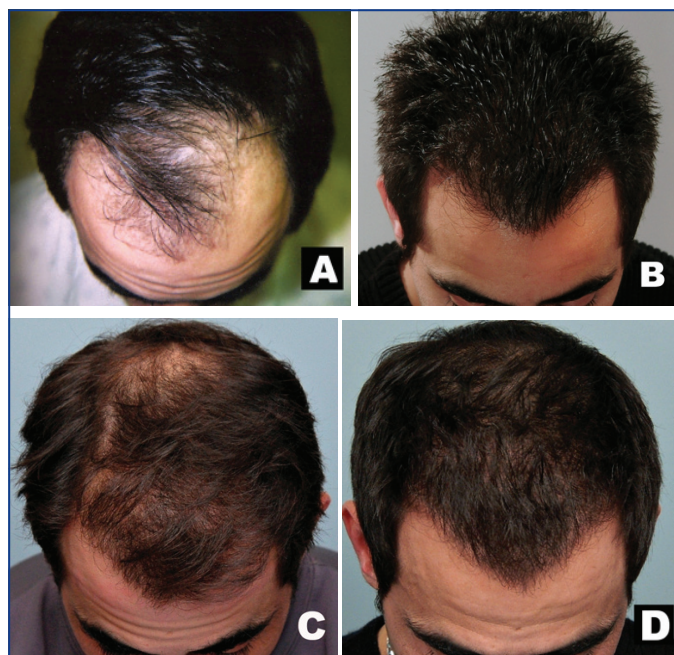


Figure 1. In 2003, a 26-year-old male presented with type IV AGA (A). We put him on finasteride and performed 2,500-graft FUT over two procedures. In 2004, he returned for follow-up and was very pleased (B). He was advised to continue finasteride and return as needed. In 2008, he stopped taking finasteride. He returned to the clinic in 2010 (C). We restarted finasteride and performed 3,200-graft FUT. He is shown in 2012 (D).

Editor Emeritus from page 137

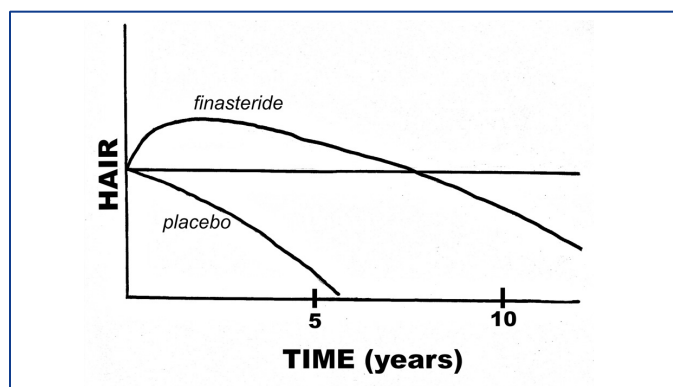


Figure 2. Hair vs Time graph. The published studies on finasteride show that with treatment, hair improves over the first couple of years but gradually declines thereafter. Without treatment (placebo), hair steadily declines. The difference between finasteride and no finasteride becomes greater over time. The slopes represent averages. The actual slope for any given individual will depend on his or her genetic programming and what other non-finasteride hair maintenance treatments he or she may be using.

he or she will be impressed with the limitations of our current medical treatments and the need for better options. Some may require any new treatment to have passed the rigors of randomized

placebo controlled trials, just as finasteride and minoxidil have done. I believe such a standard is unrealistic and these physicians will be left with little to offer their patients. By understanding the scientific rationale for various alternatives, a customized program can be formulated for each patient. One of the gifts of time is experience and observing how our patients respond to these alternative treatments can give us a richer armamentarium to offer others. Such “anecdotal medicine” is better than nothing in my opinion, and when offered in an ethical and realistic manner, can help our patients better weather the ravages of time.

The novice surgeon can accelerate the learning curve by listening to the wisdom of those who have been in the field for over 10 years. As a result of this contact, beginning surgeons will find their hairlines and overall grafting plans becoming more conservative. They may become more open minded to the need for combining surgery with any and all forms of hair maintenance, whether it is traditional finasteride and minoxidil, or alternative “lotions and potions,”—treatments such as PRP and ACell, low level laser, as well as various nutritional supplements. This is what the ISHRS is for, to bring us all together to share our observations and experiences. See you in Chicago! ♦

President's Message from page 134

illustrate this commitment and set the example to all doctors who engage in the practice of hair restoration surgery.

In this edition of the *Forum*, we have included the findings of our expert panel to establish “best practices” for “Who Does What” (page 162) and in the next issue will cover “Anesthesia and Donor Harvesting” in hair restoration surgery. The best practices standard of the ISHRS encourages members to perform all incisions/excisions on patients, including all donor harvesting and recipient site incisions. Please have a read through the best practices standards as printed in this edition. We hope if you have not yet adopted these practices, that you will strive to do so. As a medical society, we can set a standard of best practices and we encourage all doctors in the specialty to follow it—and reward those who do. High standards in our field of specialty depend on our members’ commitment to these standards—and having them sets an example for business entities who market to our profession. We will be including a lecture on legal delegation of tasks in the general session, provided by one of the ISHRS attorneys. We know you will find this enlightening.

The annual meeting will also offer hands-on training courses that provide valuable information and experience for a hair restoration practice, stimulating discussion to learn from others in the field, and collegial interaction with your peers from around the world. The meeting culminates with a lively and spirited masquerade ball and awards ceremony. Please mark your calendars for September 9-13, 2015, and plan to attend the annual ISHRS meeting in Chicago. I look forward to seeing you there! ♦

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Facial Hair Transplantation *from front page*

- Scars due to trauma, burns, or surgery (Figure 2)
- Traction alopecia (especially in Indian Sikh population) (Figure 3)
- Congenital hypotrichia/atrichia (Figure 4)
- Post-folliculitis scarring
- Long-standing alopecia areata

In addition, many men simply want to improve the density in certain areas of their beard or moustache depending on certain styles they would like.

Is it any different from the routine scalp hair transplant?

Yes, it is slightly different from scalp hair transplantation. But before going into the details of the procedure, it is imperative to review the anatomy of the beard and the difference between the characteristics of the scalp and beard hair.

Beard and moustache hairs consist of mainly single-hair follicular units. The beard growth starts during puberty, under the influence of androgens, and increases in density until the mid-30s. This is in contrast to the scalp, where the increased action of androgens causes hair loss.²

There are differences among different ethnic groups. Indian and Middle Eastern men have denser beards.³ Caucasians and Africans also have good density; they have more hair in the beard compared to Orientals.⁴

For the purpose of facial reconstruction, we divide the face into lateral and frontal aspects (Figure 5). The lateral aspect includes the sideburns, the cheek beard, the jawline beard, and the submandibular beard area. Out of these four areas, the cheek beard



Figure 2. Burn scar



Figure 3. Traction alopecia



Figure 4. Congenital hypotrichia

is cosmetically the most important. In the frontal aspect, the fore beard, comprised of the mustache and goatee (chin and sublabial beard), is the prominent feature and higher densities are present in this area. In its pure definition, the goatee does not include the moustache. The hair below the chin and jawline that extends onto the neck is also usually considered to be part of the beard.

The density of the hair is less compared to the scalp. Kulachi reported in a sample of her patients beard density of 25-30 FU/cm² and moustache density of 30-45 FU/cm².⁵ These figures are probably low for many men. We found that the maximum density was over the chin and mid portion of the moustache. The caliber of the beard hair is more compared to that of the scalp (Figures 6 and 7). Beard hair is also typically more elliptical in shape compared to the circular or oval shape of scalp hair.

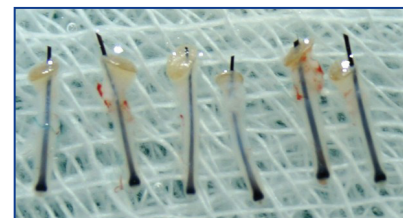


Figure 6. Beard graft



Figure 7. Scalp graft

Is the planning of a case of facial hair transplant different from that of scalp?

The basic principles of hair transplantation are the same but need to be planned in a different way. The physician needs to examine the whole face in detail when figuring out how many grafts will be required for every area of the beard and moustache that needs reconstruction. The most common patients that we encounter are the ones with congenital hypotrichia or atrichia. They often need as many as 2,500 grafts to re-create all of the beard and the moustache. Grafts are removed from the donor area in the same way as in a routine FUE. But the main difference is in the distribution of grafts and recipient site creation.

We can harvest with FUT for facial hair reconstruction but for lesser numbers of FUs most of our patients don't want an invasive procedure with sutures and the resulting scar. Beard-to-beard is done if small scars are to be reconstructed requiring less than 100-150 grafts or for moustache reconstruction and the patient is willing to take grafts from the area under the chin. For the rest of the cases, scalp-to-beard is preferred.

Out of the seven zones of the beard, the sideburns and the cheek zone are the most important parts in the lateral profile. We prefer coronal slits because they help to ensure alignment of the hair acute to and parallel to the skin. Density is more in the upper part of the sideburn as the hair will grow in a downward direction and will provide better coverage inferiorly due to the overlapping effect of the hair from above. It is the same principle as we use to give a higher density in the part line of the scalp. The total number of grafts usually implanted in this area is around 200 per side.

When we reach the area of the cheek, the slits are directed in a skewed pattern as they turn laterally and downward. But this is quite a big zone and we further divide it into two parts, the border and the body. In the cheek border, we give less density and try to place the single-hair grafts to give it the look of the feathering zone.

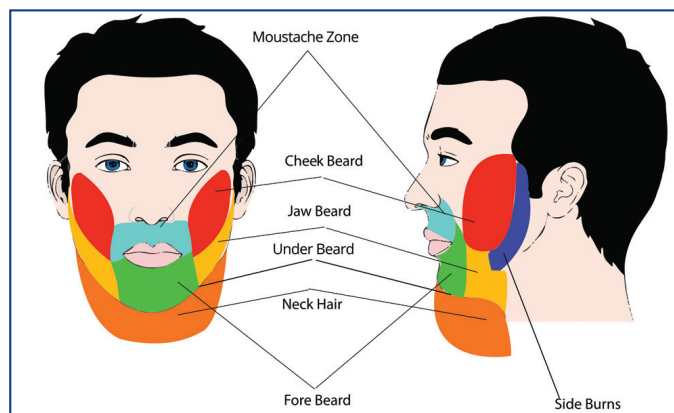


Figure 5. Anatomy of the beard

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The cheek body is where we give a higher density so that the maximum effect of a full beard can be achieved in this area. We usually place 2- and 3-hair grafts of scalp hair in this area. The density is less in the lowermost part of the cheek beard that merges with the jawline beard. There are 500-600 grafts required for the cheek beard on each side.

The jawline beard is again an area where a fullness effect is usually given by the hair layering from above, so a lesser number of grafts is required in that area. We usually do not implant any hair in the under area of the beard in the first sitting, as it is a shadow (or less cosmetically important) area and we want to implant a higher number of grafts in the more visible areas. The only exception is the alopecia caused by traction in the Sikhs, like the one shown in the image above, in which we need to reconstruct the undersurface of the beard (Figure 8).

The frontal aspect is cosmetically more important than the lateral aspect and requires a higher number of grafts compared to the lateral aspects. The total number of grafts for moustache and goatee reconstruction is usually around 1,000-1,100.

The moustache usually needs around 400-500 grafts. The density is higher (around 35-40 FU/cm²) and the hairs are directed downward. We tend to use sagittal slits in this area and make sure that the angle of the slit is as parallel to the skin as possible. We place a slightly higher number of grafts in the upper part as compared to the lower part of the moustache as the layering of the hair compensates for the lesser number of grafts in the bottom part. The single hair grafts are placed in the topmost row to give it a natural look.

The goatee is another area where a higher number of grafts is required (600-700). The main direction of the slits is inferior. In the upper part of the goatee, care must be taken not to apply too much force for making slits, as the skin is thin and the blade could penetrate the oral mucosa.

While making slits, adequate stretching and infiltration of saline is done to make the skin taut, as the facial skin is very loose. Thus, during creation of the recipient slits as well as during implantation, traction by surgeon and counter-traction by the assistant is done to stretch the lax facial tissue. Giving very superficial tumescence also helps to increase the turgidity and thus makes it easier during the procedure. At the time of implantation also, sometimes stretching is required to open the sites (Figure 9).

We usually make pre-made slits, but sometimes, the slits close before graft placement. When this happens, application of counter-traction to stretch the skin will reopen the sites for placement. Sometimes we use the stick-and-place method in which this problem of site closure does not happen.



Figure 8. Direction of hair in different beard areas: SB (sideburns)—downward direction; Ch (cheek beard)—lateral and downwards; JB (jawline beard)—down and laterally

Donor Area

We prefer scalp as the donor area for beard, and scalp as well as beard if moustache or small areas of beard are reconstructed. We take out the grafts from the mid-occipital area by FUE and mostly 1- or 2-hair grafts are extracted (Figures 10 and 11).

Precautions During Implantation

During implantation, 1-hair grafts are placed over the superior outline similar to scalp hairline, and 1- or 2-hair grafts over the other areas. Two-hair or paired grafts can be used to increase the thickness. Implantation takes a longer time compared to scalp (Figure 12).

What is the technique of giving local anesthesia in the recipient areas?

Local Anesthesia

Local anesthesia is very painful in the facial area (Figure 13). Therefore, we have started giving nerve blocks. The blocks that we give are as follows:

- **Auriculotemporal nerve:** This is blocked as it ascends in front of the auricle over the posterior root of zygoma, behind the superficial temporal artery. The needle is inserted about 1.5cm anterior to the ear, at the level of tragus behind the superficial temporal artery pulsations and around 1ml of 2% Lidocaine with 1:200,000 Adrenaline is injected.⁶ This nerve supplies the skin over the parotid gland, the external ear.

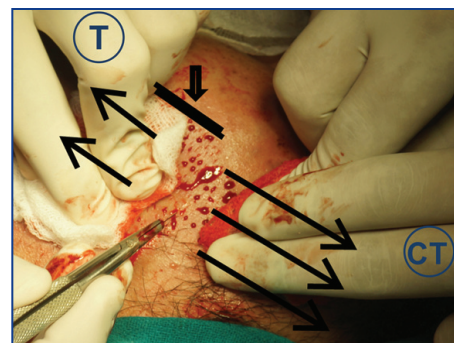


Figure 9. T (traction), CT (counter-traction). Note the direction and acute angle of the blade.

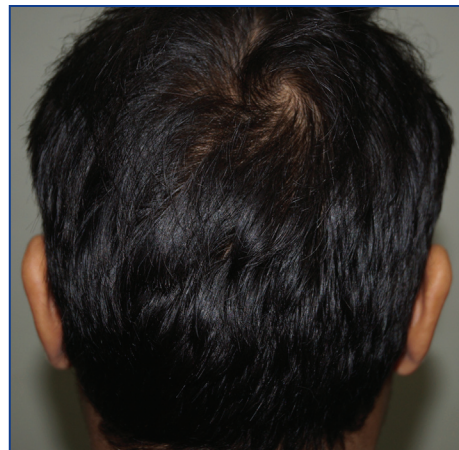


Figure 10. Donor scalp; mid-occipital area is preferred.



Figure 11. Donor scalp trichogram; 1- and 2-hair grafts preferred



Figure 12. Upper zone for single hair grafts only

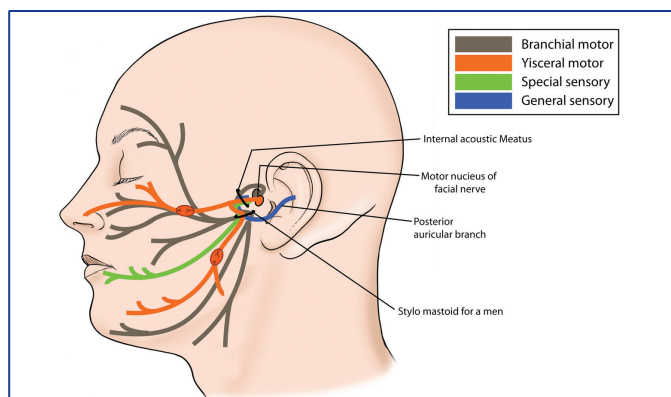


Figure 13. Nerve supply of the face

- **Infraorbital nerve:** This is blocked by giving 1ml of the 2% Lidocaine with 1:200,000 Adrenaline through the intraoral route by inserting the needle vertically upwards with tip pointing towards the foramen in the gingivolabial sulcus between the canine and the first premolar. This anesthetizes the infraorbital area, upper lip, and moustache area.
- **Mental nerve:** The nerve is blocked as it emerges from the mental foramen, which is located at the gingivolabial sulcus between the two lower premolars (1ml of 2% Lignocaine with 1:200,000 Adrenaline) This helps to numb the lower lip and chin area.
- **Long buccal nerve:** This is blocked by injecting 2-3cm lateral and superior to the angle of the mouth with needle pointing towards mouth and in a fanning manner. This nerve supplies the cheek area.⁷

After the nerve blocks, field anaesthesia is given starting from in front of the ear advancing downward to the lower border of the beard, then across the lower border and then over the upper border (Figure 14).



Figure 14. Giving local anesthesia to the beard area

Post-operative Precautions

During the post-operative period, some drooling may occur on the first day due to the local anesthesia, so we advise semisolids on the day of surgery after discharge. Hair growth begins around 3 months and improves over the next year. Superficial tumescence can also cause post-op ecchymosis, which disappears over a couple of days.

Results after Facial HT

Results from facial transplantation are shown in Figures 15-19.

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Figure 15. Patient 1, before (left) and immediate post-op (right)



Figure 16. Before (left) and after 1 week (right)



Figure 17. Patient 2, before (left) and after 6 months (right)



Figure 18. Patient 3, before (left) and (100grafts) after 1 year (right)



Figure 19. Patient 4, before surgery (A); immediate post-op (B); and after 2 years (C)

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Growth and Disorders. 1.8.7 Duration of the Hair Cycle. Table 1.5, page 13.

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Case Studies

Cicatricial Alopecia

Burns

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Diagnosis: Cicatricial Alopecia Secondary to Burns

Method: FUT Strip Scalp to Beard

The 26-year-old patient came to me in 2013. He had burns to his face from scalding at age 5 that resulted in significant scars and the inability to grow a full beard to hide them.

He had no significant family history of hair loss and did not want to shave donor for FUE. We discussed lower yield due to scars. I suggested 1,000 grafts FUT × 2 to achieve density. This was determined based on the size of his recipient area but aiming for a packing rate of 25 per cm² due to scarring (but also lower requirement for density in the beard).

Surgery was performed in July 2014. There were a total of 1,145 total grafts: 182 × 1's in 21G needle incisions placed in the top feathery zone on the cheeks; 674 × 2's in 19G needle incisions; and 329 × 3-4's in 18G needle incisions in the center of each cheek.

All sites were made perpendicular to hair direction (coronals) to achieve more acute angulation and to avoid graft compression appearance in such a highly visible location.

I have read that it is advised to use 1's and 2's only, however, I think 3's, etc. are ok in this case as you can see in the photos, especially since this patient intends to keep his beard growth to hide the scars.

The patient was given 10mg diazepam orally pre-op, which the patient responded very well to. If he hadn't, I was prepared to try intravenous diazepam. The face is more sensitive especially in the case of scars.

Otherwise, anesthesia achieved with 1% lidocaine mixed with 1:200,000 epinephrine in a ring block fashion. The post-op analgesia provided was ibuprofen 600mg three times a day for 5 days. The patient also was asked to keep his grafts misted with saline every 1.5 hours for 3 days post-op, and then to start gentle dabbing with water before slow washing with hands after day 5.

Figures 1-3 were taken January 2015 (6 months post-op). The patient is planning to return for another procedure soon. ♦

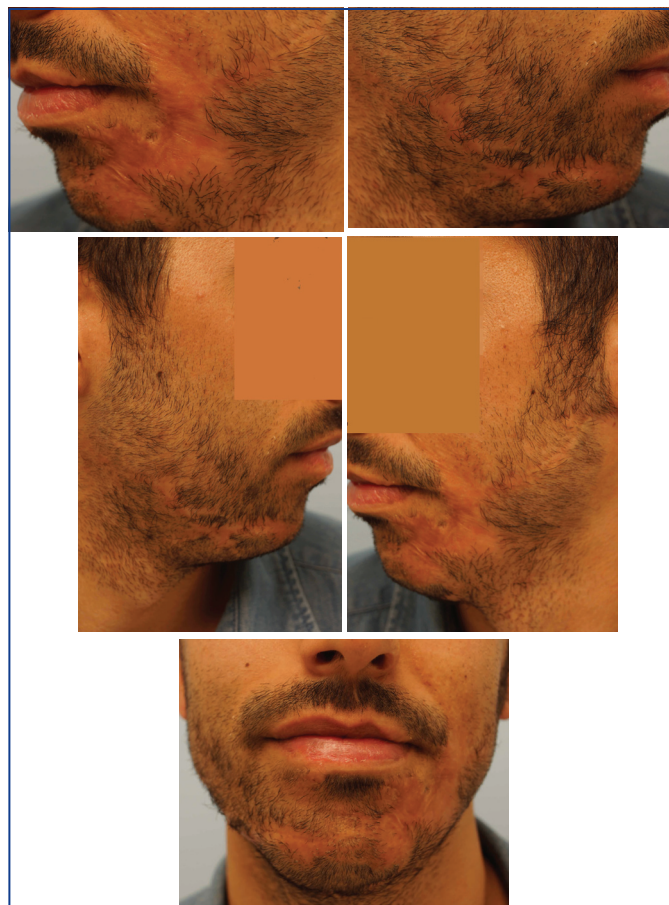


Figure 1. Photos taken before treatment.