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FUE as First Intention for Hair Reconstructive Surgery on Skin Grafts

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INTRODUCTION

“As a hair restoration surgeon, you sometimes feel the frustration of not saving lives. I am here to tell you that hair transplant surgery can save lives. To get this, I need to bring you directly into the firing line.”

—Dr. Felix Popescu

On October 30, 2015, in Bucharest, Romania, an unfortunate tragedy—the Collective nightclub fire—changed the destiny of more than 200 young souls. The fire killed 65 people and severely injured 160. Melted plastic, falling from the roof, increased the burned surface area in the superior part of the body of these victims mostly affecting the scalp, face, neck, hands, and back. After one year of treatments in different hospitals, our plastic surgery center started 30 individual projects in order to reconstruct areas affected by the fire and began hair restoration for those who needed it.

The three steps to approaching burn patients include the following:

1. Save the patient’s life. A burn victim is a critical medical emergency.
2. Conserve the functionality of body systems and the quality of life.
3. Recover, as much as possible, the previous cosmetic appearance of the patient for a normal social reintegration.

The following patient was presented at the 2018 ISHRS World Congress in Los Angeles, California. A video from the meeting can be found at the following link: <https://www.facebook.com/drfelixhairimplant/videos/430354884166909/>. The case presented was of a beautiful 27-year-old woman who managed to survive the fire after being in critical condition (Figure 1).

She spent more than two months in a coma and required three resuscitations during this time. When she recovered from the acute phase of her injuries, she came to us in a state of severe mental distress and depression. A year after the fire, we elected to begin her cosmetic transformation because she needed a morale boost. Just three days before her visit, another one of the survivors of the fire lost the desire to live and committed suicide. We treated this patient’s case as an immediate emergency, trying to obtain fast results in order to improve her situation. Below is a summary of her condition:

- Scalp and face condition: full face reconstruction with skin grafts; frontal-parietal-lateral scalp reconstructed with skin grafts
- Area to be reconstructed: both eyebrows full reconstruction; frontal and lateral hairline and more

FIGURE 1. Before burn (left), after burn (center), and after reconstruction described in the article (right)



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President's Message

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The Future of the Hair Transplant Industry

The ISHRS is changing to adapt itself as it enters a new era. We are enhancing our communications to the general public. The ISHRS was established as a medical society focused on medical education, research, and of course, collegiality—our three pillars. We have had a great time together during meetings, the world congresses, and workshops. Many friends have been made for the life “outside of medicine,” and we have enjoyed these friendships over dinners, parties, traveling, and even sports! We are so lucky to be part of such a big society with friendly members, bright minds, and loyal friends. This has to continue, for sure!

Nowadays, the world and the hair transplant industry are different. A deep change in the profile happened, moving from a highly exclusive procedure in a boutique office of an experienced physician to a massive discount-store model available at pop-up facilities; from doctors focused on refined techniques and the art to industrial assembly lines and greedy companies recruiting anyone willing to make a profit for them. Thousands of patients have been victimized by this new business model, and the public needs to be alerted to and informed about hair restoration surgery. The ISHRS is the largest and most representative global hair transplant society, and as such, we have an obligation to inform the public about these critical issues.

There are many forums and discussion groups that are debating the Black Market, but no other group is in the leadership position that the ISHRS is. Of course, we can and will collaborate with those who are truly protecting the patients. But we shall have an independent opinion that represents our members and our goals of offering high-quality hair transplantation by experienced, trained physicians and always protecting the patients.

Different from the past, the traditional media (e.g., television, newspaper, magazines) is only scratching the surface of the Black Market issues. The real battle with its deceptions is happening on the social media fronts, and mostly on YouTube. That's why we need to be there, to produce relevant content. But forget about a video with a traditional doctor sitting at a table with books behind him. A video like this probably won't last any longer. Consumers will just skip it. Surprisingly, notorious YouTubers make raw videos with minimal production. What counts here is interesting information (or fake info) and charisma. We need a friendly language and attitude to reach this specific population. We

are talking about young men, in their thirties or younger. These guys are on their phones searching for HT info. Inexperienced and highly motivated, they are an easy target for the unethical clinics and for unscrupulous imposters.

The difficult issue is that good and experienced doctors are not on their radar. What we say may sound boring to them. Therefore, we have to learn how to communicate with this public, who is usually outside our scope, but who are relevant in the internet world. More than that, they can easily set a trend and make anything go “viral” (highly ranked,

The ISHRS is the largest and most representative global hair transplant society, and as such, we have an obligation to inform the public about these critical issues.

with hundreds of thousands of views), even a fake video. And surprisingly, many informed, educated and not so young patients are listening to them... to the young generation. That makes them the relevant part of the equation. We need to address them and make them listen to us in order to combat the Black Market that is ultimately harming them. All we have tried different from this so far has failed.

The Black Market underworld with hundreds of clinics and unethical companies is spending millions of dollars on the internet to become relevant, to set a trend. They are achieving this through paid ads, videos, and hiring influencers. Though we don't have the resources to compete, and of course, we are a medical society focused mostly on education, we cannot pretend we are not seeing it.

The ISHRS as a society will try its best, but this is a war that all the good ones will have to fight side-by-side, surgeon-by-surgeon. All groups and societies truly interested in combatting these pirate clinics and to inform and protect the patients are welcome. This is a war no one can win alone, so we ask that you join us in the fight. ■

Co-editors' Messages

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You don't know what you have until it is gone. This is a phrase that certainly applies to our hair. We take it for granted; it is an integral part of our body and self-image. Only somebody who has personally experienced hair loss knows how it feels. It can be the first sign of aging and is a highly emotional issue. Depending on the situation and personality, it can markedly decrease life quality.

Our responsibility is to help patients get back control over their hair loss and provide them with proven, realistic options. Hair surgery, in most cases, is a reconstructive procedure to restore the former appearance lost by a hair disorder or trauma, and not a cosmetic procedure to actually alter the look.

This is especially true in case of burn victims. The reconstructive hair restoration described in the report by Felix Popescu is a great example of what can be achieved by a dedicated hair surgeon.

The study by Conradin von Albertini comparing the contamination of different gloves in FUE is thought-provoking. The additional alcohol disinfection of gloves seems more important. I wonder whether alcohol left on the gloves may also repeatedly disinfect the scalp. I would expect larger patient numbers and long-term clinical observations in the recipient area before changing the routine, as this is the area where we don't always shave but actually insert the grafts deep into the skin and really do not want any infection.

While planning the surgery for a patient with androgenetic alopecia, we should never forget that we are dealing with a progressive condition. The Balding Aggressiveness Index (BAI) described by Russell Knudsen may help to assess the future extent of alopecia and safety of the donor area.

To save our patients from this progression, we should combine hair surgery with medical treatments. The upcoming World Congress of Hair Research in Barcelona (www.barcelonahair2019.org) is an excellent opportunity to get an update on diagnostic techniques and treatment strategies as well as recent trends in hair science. ■



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While outstanding articles are presented to us for publication, the backbone of our *Forum* is the columnists and their columns. In this issue, our columns are particularly pertinent and educational beginning with Robert True, who presents his first Editor

Emeritus column. An immediate past *Forum* co-editor and mentor, Bob thoughtfully describes his FUE journey, which reflects the history of FUE. Arthur Tykocinski (our president), Greg Williams (Professional and Medical Ethics), and Robin Unger (Cyberspace Chat) have submitted well written columns that explore the Black Market that is affecting and infecting our specialty. Thanks to Vlad Ratushny (Hair Sciences) for enlightening us about olfactory receptors and adding an interesting study to our knowledge base. Knowing that olfactory receptors are present on the epidermis and can sustain hair follicle growth will most likely not change what we do in our practices, but it is important to know all we can about hair follicles and there is always something new to learn. Sara Wasserbauer (Hair's the Question) reviews non-AGA causes of hair loss. Diagnosing causes of hair loss other than androgenetic alopecia (AGA) is of paramount importance in our practices. The literature suggests the incidence of scarring alopecias is increasing worldwide. I have seen patients, referred to me by doctors for hair transplantation, who have an obvious (to me) scarring alopecia that was missed on examination (if an exam was performed!). We are often the first physician who sees a patient with these diseases, so it is imperative that we develop a high index of suspicion since hair restoration surgery is often contraindicated. In addition, we welcome Aditya Gupta as co-columnist (with Nicole Rogers) of our Literature Review column. He reviews two articles concerning immune related hair loss and treatment using topical JAK (janus kinase) inhibitors and (platelet rich plasma), interventions that most likely will become more common in the future.

Hair restoration surgery is generally not a specialty filled with emotional moments. We don't save lives or limbs. We certainly feel good when we see the effects of a great result or see a long-term patient who we have gotten to know well over the years. The emotional presentations at meetings have been the amazing results from Operation Restore cases and seeing the looks on the patients' and their families' faces immediately after a "long hair preview" case. The most emotional presentation I've seen in 26 years of meetings was that of Felix Popescu in Los Angeles during the 26th annual ISHRS World Congress. Felix submitted this story, which I thought was important to present. The amazing journey of his patient is our cover story. Please be sure to watch the video link provided. ■

than 100cm² on frontal-parietal-lateral scalp to be restored with hair.

STRATEGY

“As a surgeon, I have the utmost trust in my own hands.”

All procedures were performed using 100% manual Follicular Unit Excision (FUE). The FUE technique was chosen as the first intention surgery because of the following reasons:

1. The scalp surface area to be transplanted was an area (110 × 140mm) covered by multiple skin grafts that could not be reduced.
2. There were irregularities of the healthy scalp due to multiple areas of burns covered by skin grafts. The grafts lacked elasticity, were fragile, and contained areas of hypotrophy (deterioration due to loss of cells).
3. The frontal hairline required restoration.
4. Multiple micro scars were present in the available, limited donor area.
5. Eyebrow reconstruction was necessary.

Hair restoration was achieved with three consecutive hair transplant sessions, each taking place six months apart. One session for the eyebrows and two sessions for the scalp reconstruction were performed using a total of 6,547 hairs.

The face project

We decided that the first session would be for reshaping her face. The main goal was to reconstruct both eyebrows. In the same session, we also performed a small cheek reshaping with contouring and small enhancement of the lips with hyaluronic acid.

The eyebrow reconstruction was more difficult than we expected due to the presence of three different skin grafts with tractional scars that were slightly hypertrophic. We chose a medium density of 40-50 grafts per cm² with a medium ratio of 2.2 hairs per graft on the new redesigned areas.

Extraction was performed with 0.8mm-diameter manual punches and implantation was done with Choi pen implanters. The principles of eyebrow reconstruction are: 1) symmetry, 2) shape, and 3) natural hair growth angle (Figure 2).

Six months after the eyebrow reconstruction (Figure 3), we decided to begin the scalp project. By this time, her eyebrows were looking very good and her entire face had become more attractive. Furthermore, her morale had

FIGURE 2. Example of symmetry, shape, and angle (different patient)



FIGURE 3. Burn patient following eyebrow reconstruction



significantly improved and she was excited to start the new project.

The scalp project

Our objective was to define the face by reconstructing the hairline on the frontal and lateral parts of the scalp. The surface area consisted of four different skin-grafts covering the affected area (Figure 4). Hypotrophy of the entire area was noted with areas of low perfusion on the skin-graft borders. The patient had seven attempts of skin grafting with multiple rejections prior to hair transplantation, which caused concern and caution prior to hair restoration.

For this case, the treatment followed the next steps:

1. Cannula lipo-filling was done under the skin grafts to increase the trophicity in the affected areas and introduce adipocyte stem cells and growth factors to accelerate vascular neogenesis. This increases the stability of the entire area.
2. Double centrifuged PRP was injected monthly.
3. Hair was transplanted when the area was able to support the graft implantation.

What we did

The patient pressured us to transplant at a high density because she desired to resume a more normal social life as soon as possible. We acknowledged the risk of skin-graft rejection and necrosis due to this decision. The goal was to create a new hairline with natural density. We covered about 45% of the affected area (Figure 5). Extraction was performed with 1.0mm-diameter manual punches and implantation was done with Choi pen implanters.

Due to the reduced thickness of the skin grafts, we left some low-density areas to make them more stable. Unfortunately, complications started on day 15 with the development of an isolated area of necrosis (Figure 6). We began treatment with a broad spectrum of antibiotics for seven days. The first signs of skin rejection occurred

FIGURE 4. Surface area of patient’s scalp consisting of four different skin-grafts.



FIGURE 5. Post-op scalp hair transplant covering 45% of affected area



FIGURE 6. Post-op day 15—isolated area of necrosis



FIGURE 7. Post-op day 45—rejection in remission



in an area of low blood perfusion at the junction of the three skin grafts. After a few days, additional changes occurred along the skin-graft junction, triggering a rejection of the skin graft. We avoided a new skin graft and elected to apply topical rifampin. The granular tissue stopped proliferating and the healing process began. On the 45th day, full remission of signs of rejection was noted (Figure 7).

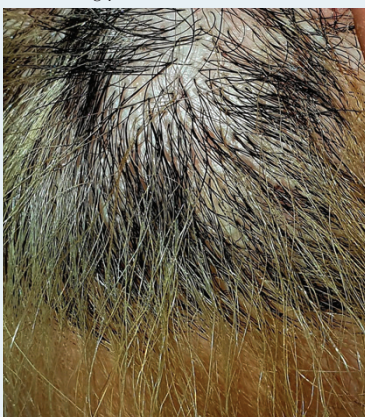
The combined action of a wide spectrum of oral antibiotics (amoxicillin and clavulanic acid) and topical treatment with rifampin was the key to success. Rifampin kept the wound free from bacterial infection and also reduced the local inflammatory process. We did not cover the wound but we recommended that she keep it in a controlled, clean environment.

FIGURE 8. Two months post-op—still in remission



After two months, the necrotic process was still in remission (Figure 8). We did not encounter any further complications and the final survival of the grafts not in the area of rejections was greater than 95% (Figure 9). Unfortunately, all hair grafts in the former small necrotic area were lost (Figure 10). With regard to the quality of the skin grafts after the hair transplantation, we observed a significant improvement of skin graft thickness and blood perfusion (Figure 11).

FIGURE 9. Excellent growth and density surrounding prior necrotic area



commend our approach unless you have a patient in a similar condition. We hope that by sharing our expertise we can help other physicians successfully deal with complications in the future. Our patient's journey is shown in Figure 12.

By transplanting hair on skin grafts, and performing eyebrow and facial hair reconstruction, we've established the basis of the Hair Reconstructive Surgery. This has led us to open the first Hair Reconstructive Hospital dedicated to severe pathology and very complicated cases. We are in close contact/collaboration with burn hospitals around Europe,

and the FUE technique we present during plastic surgery congresses has been highly embraced by the specialists in this field. The whole procedure used by us leads to a standardized recovery through hair reconstructive surgery.

In the near future, we plan to organize Fellowship Training Programs for doctors who wish to prepare themselves for similar cases. ■

FIGURE 10. Two months post-op—all hair grafts in the former necrotic area were lost.

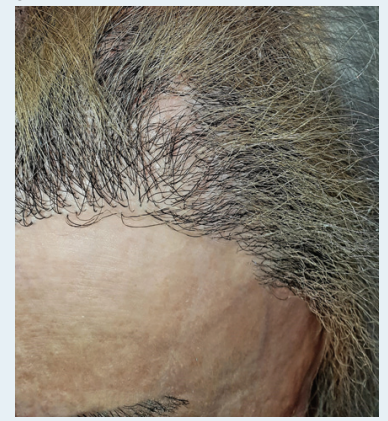


FIGURE 11. Four months post-op—significant improvement of skin graft thickness and blood perfusion

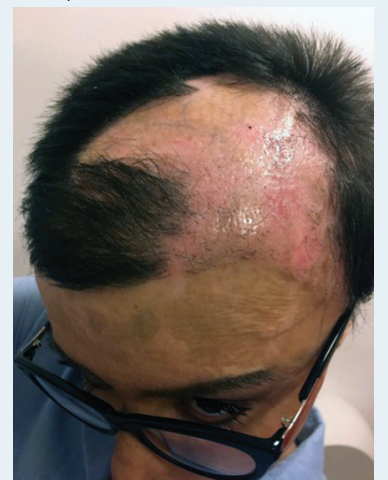


FIGURE 12. Burn victim's restoration journey

