FOLÍCULO

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PLANNING BEYOND THE TECHNICAL ASPECTS

How skull characteristics influence hair transplant, and what strategies help optimize grafts, the donor area, and natural-looking results

THE LEGACY OF A PIONEER

Dr. Carlos Eduardo Leão pays a moving tribute to Dr. Carlos Oscar Uebel, a world-renowned figure who left an indelible markon the history of hair transplant

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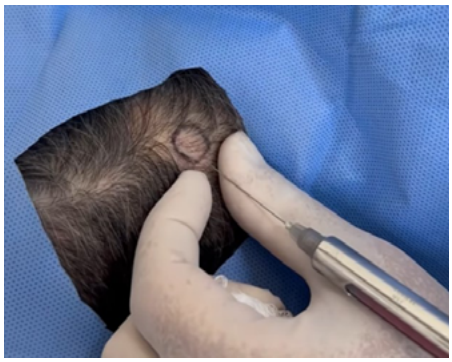
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Editorial



Dr. Solon Eduardo Gouveia Souza
CRM 126779 - RQE 39560



Dr. Gustavo Faro
CRM 198379 - RQE 83065

Dear ABCRC colleagues,

It is with great enthusiasm that we undertake the honorable mission entrusted to us by our friends, Dr. Henrique Radwanski and Dr. Marta Zollinger, to continue the editorial work of *O Folículo*, maintaining and elevating the high standard of quality the journal has achieved over the years.

Our goal is to bring this platform ever closer to our members and to all physicians interested in hair restoration surgery and the treatment of alopecia.

We also aim to strengthen the ABCRC's international profile, leveraging the English-language publication and our partnership with the ISHRS—the world's largest hair restoration society-to showcase the scientific output, ideas, and talent of Brazilian professionals.

We open this issue with a special editorial by Dr. Maxim Chumak, scientific coordinator of the upcoming ISHRS World Congress, inviting the Brazilian community to participate in this important meeting, which will take place in Rio de Janeiro this October. It will be a unique opportunity to bring together specialists from various countries to exchange experiences and discuss the latest advances in hair restoration surgery and alopecia treatment.

In our coverage of the specialty's major scientific events, Dr. João Pedro Pereira, Dr. Rubem Miranda, and Dr. Gustavo Pádua presents highlights from the latest congresses, sharing insights and trends that are shaping clinical practice.

In his traditional marketing column, Dr. Márcio Volkweis discusses one of today's greatest challenges: how to build a solid, ethical digital presence in a landscape defined by increasingly strict regulations and growing competition.

In this edition, I also had the pleasure of co-authoring an article with Dr. Mercadante on a topic increasingly relevant to daily medical practice: the advancement of wearable technologies. Smart glasses capable of recording consultations and procedures are already a reality in many practices, raising important ethical, legal, and practical questions that warrant reflection.

Drawing on a topic discussed at the Ricardo Lemos Forum, Dr. Antônio Flávio presents an original article sharing his approach to treating extensive alopecia in patients with brachycephalic skulls-essential reading for all surgeons dedicated to hair restoration.

Dr. Francisco Le Voci presents an extremely practical review of the scalp biopsy technique, enriched with demonstration videos that detail the procedure step-by-step. This material is highly useful both for those just starting out and for professionals wishing to refine their technique.

Complementing this edition, Dr. Flávia Dias provides an updated review of emerging therapies for the treatment of androgenetic alopecia, covering the latest evidence and prospects for future treatments.

Dr. Marcelo Ravasio contributes a striking case report on scalp reconstruction following scalping caused by a traffic accident, demonstrating the complexity of such cases and the extraordinary potential of reconstructive surgery for patients' functional and aesthetic recovery.

In honor of Dr. Carlos Uebel, who passed away last May, Dr. Gustavo Faro presents—in the Classic Papers section-one of Uebel's most emblematic articles: "Micrograft and Minigraft: A New Approach for Baldness Surgery," published in 1991.

Continuing this tribute, we conclude this issue with a moving testimony written by Dr. Carlos Leão to Dr. Uebel: his legacy lives on through his vast body of scientific work, his invaluable contribution to training generations of surgeons, and the lasting impact he made on plastic surgery and hair restoration surgery in Brazil and around the world.

As the new editors, we are committed to ensuring that *O Folículo* remains an increasingly relevant platform for sharing scientific knowledge, practical experience, and innovation within our specialty.

We wish you all an excellent reading.

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The Brazilian Association of Hair Restoration Surgery (ABCRC) is a nonprofit association composed of doctors Dermatologists and/or plastic surgeons who perform hair restoration surgery.

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Message to the Brazilian Hair Restoration Community



Maxim Chumak, MD, FISHRS, ABHRS
Chair, ISHRS World Congress Rio 2026

Dear colleagues and friends,

It is a great honor to address the Brazilian hair restoration community as Chair of the upcoming ISHRS World Congress in Rio de Janeiro.

Brazil has always held an important place in the global development of aesthetic and reconstructive surgery, and Brazilian physicians continue to bring exceptional creativity, technical excellence, and scientific contribution to our specialty. For this reason, hosting the ISHRS World Congress in Rio is especially meaningful.

The theme of this Congress, "Integrity Meets Excellence," reflects the moment we are facing as a specialty. Hair restoration surgery is evolving rapidly, but so are the challenges of misinformation, commercialization, and non-physician-driven models of care. More than ever, we must reinforce the value of ethical, physician-led, patient-centered hair restoration.

The Rio Congress will be designed not only to deliver the highest level of scientific education, but also to encourage meaningful interaction among colleagues from around the world. We are expanding opportunities for discussion, mentorship, Meet the Expert sessions, innovative case-based formats, and patient education initiatives that will help strengthen our role as trusted medical authorities.

I sincerely encourage all Brazilian colleagues to participate actively in this important meeting. Your presence, your experience, and your scientific voice will help make this Congress a truly memorable and impactful event for our international community.

I look forward to welcoming you in Rio de Janeiro.

Highlights of the 10th ABCRC Congress

The event was held in São Paulo on June 26 and 27, 2026.



Dr. Gustavo Pádua
Plastic Surgeon
CRM-SP 156.812 - RQE 71.786

What you will read in this article

- Key scientific and surgical highlights presented during the two-day congress.
- Trends in hair transplant, clinical treatments, artificial intelligence, and new technologies applied to the specialty.
- Debates on complex cases, advanced techniques, and current challenges in clinical practice.
- ·How the ABCRC solidifies its role in medical education, scientific output, and strengthening Brazilian hair restoration on the international stage.

The 10th Brazilian Congress of Hair Restoration solidified the scientific maturity of hair restoration surgery in Brazil and reinforced the ABCRC's role as a key player in continuing education, knowledge generation, and fostering collaboration between dermatologists and plastic surgeons dedicated to the field. Held in São Paulo under the theme **"Unveiling Androgenetic Alopecia,"** the congress brought together national and international specialists for two days of scientific updates and the exchange of experiences.

The program highlighted a defining characteristic of modern hair restoration: evidence-based decisions and personalized treatment. Surgery has evolved from an isolated procedure into part of a broader therapeutic strategy that encompasses precise diagnosis, clinical treatment, surgical planning, and ongoing patient follow-up.

Among the topics discussed, the understanding of androgenetic alopecia stood out, covering genetic, pathophysiological, and therapeutic aspects. Clinical management gained significant prominence, reflecting the growing understanding that long-lasting results depend on combining medical therapies with surgery when appropriately indicated.

Surgical sessions highlighted technical refinement. Advancements were observed in virtually every stage of hair transplant, from recipient area planning to extraction strategies, graft preservation, implantation, and the logistical optimization of the procedure. Technical details continue to account for significant differences in the quality of results.

Another highlight was the focus on procedures for special areas, such as the beard and eyebrows, where growing demand requires anatomical mastery, aesthetic refinement, and understanding of the technical particularities that differentiate this procedure from hair transplant for baldness and alopecia.

The congress also provided space for discussions on new technologies, the use

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of AI, devices, and auxiliary tools, always with a critical and ethical approach. It became evidente that the use of new solutions must be approached judiciously, prioritizing safety, reproducibility, ethics, and clinical benefit to the patient.

The quality of the discussions between the speakers and attendees deserves special mention. On many occasions, different approaches were presented for the same surgical challenge, demonstrating that the evolution of the specialty is also the result of the exchange of experiences, scientific debate, and a willingness to revise concepts considering the best available evidence.

Below is a summary of the key highlights from each day of the event.





First day, June 26, 2026.

General Session 1: Androgenetic alopecia

Moderation: Dr. Anna Cecília Andriolo (São Paulo-SP)

The congress began with a session dedicated to androgenetic alopecia (AGA), a central topic of the specialty. Dr. Thaís Abrão provided us with an update on the pathophysiology, diagnosis, and treatment of the condition, contextualizing the most recent advances in the literature. Then, Dr. Anna Cecília conducted a practical demonstration combining LED, Erbium: YAG laser application (Fotona laser platform), and MMP, highlighting the potential of complementary therapies in the clinical management of AGA.

Dr. Antônio Ruston presented a video demonstrating the FUE technique step-by-step, and Dr. Márcio Volkweis shared key "insider tips" for baldness surgery—execution details that make a difference in the outcome, including a "taping" technique to reduce postoperative facial edema. The session concluded with "What would you do and what did I do," presented by Dr. Katia Vargas Lutfi Pillegi and Dr. Marina Lages, fostering interaction and practical discussion based on a real clinical case.

Tips Session 1 - Putting It into Practice on Monday: Hairline

Moderation: Dr. Márcio Volkweis (Porto Alegre-RS)

The session moderated by Dr. Márcio Volkweis addressed the hairline design across its various dimensions. The moderator himself discussed the female hairline; Dr. Fernando Basto, one of the specialty pioneers in Brazil, presented his approach to the male hairline; and Dr. Domingos Coelho detailed strategies for a challenging corrective case involving a poorly executed hairline.

General Session 2: - Cicatricial alopecia

Moderation: Dr. Rafael Reinert (Blumenau-SC)

The management of cicatricial alopecia was highlighted in a session featuring high-level technical and clinical content. Dr. Thalita Carlesso and Lorena Visentainer opened the session with presentations on hair transplant for cicatricial alopecia combined with regenerative therapies—a topic that has been gaining increasing attention in both the literature and clinical practice. Dr. Letícia Contin conducted a practical demonstration of trichoscopy using Trichoview, showcasing the tool's capabilities in the diagnosis and clinical monitoring of patients.

Dr. Rafael Reinert shared key "insider tips" for treating cicatricial alopecia surgically, offering valuable details on the planning and execution of frontoplasty combined with hair transplant. To wrap up the "What would you do and what I did" session, Dr. José Rogério Regis and Dr. Letícia Contin came together to discuss the diagnosis, treatment, and follow-up of a patient with cicatricial alopecia.



Discussion Session 1 – New Developments and Precautions for Physicians in Charge

Moderation: Dr. Francisco Le Voci (São Paulo – SP)

Dr. Francisco Le Voci addressed the use of fat grafting in hair restoration procedures; Dr. Marina Barletta discussed the use of ...stem cells and their true clinical potential; and Dr. William Wiegandt presented concepts, current trends, and future prospects regarding the use of exosomes and PDRN in alopecia treatments.

General Session 3 – Giga Session

Moderation: Dr. Márcio Crisóstomo (Fortaleza – CE)

This session addressed one of the most challenging topics in hair restoration surgery: the giga session. The Dr. Gabriel Facchini opened with a presentation on the planning and execution of these surgeries, using customized equipment and cutting-edge technology. Dr. Márcio Crisóstomo presented a video demonstration of the FUE technique applied in this context, and Dr. Antônio Ruston presented an objective analysis of what is possible, what is not possible, and what should be expected as a routine result in most cases of extensive baldness. The clinical case format with Dr. Rafael Reinert, and Dr. Arthur Tykocinski concluded the session with a discussion on surgical choices in highly complex scenarios, such as cases of advanced baldness.

General Session 4 - Long Hair and NoShaving

Moderation: Dr. Maria Angélica Muricy (São Paulo – SP)

A moving tribute to the legacy of Dr. Ricardo Lemos, presented by Dr. Flávio Abboud, deeply touched those present. Dr. Patrícia Veloso presented key insider tips during long hair surgery, while Dr. Hudson Lázaro and Dr. Fernando Franco discussed real-life cases in an interactive session format.

The moderator herself, Dr. Maria Angélica Muricy, concluded the session authoritatively: she performed a live practical demonstration of hair follicle separation for the non-shaving technique and then delivered a comprehensive, educational presentation covering every aspect of long-hair and non-shaving tech-



niques—from patient selection to the postoperative period.

Artificial Intelligence Session 1 – AI in Hair Restoration

Moderation: Dr. Francisco Le Voci (São Paulo – SP)

One of the new features of this edition of the congress was the inclusion of two sessions dedicated to artificial intelligence. Dr. Rafael Reinert opened with concepts, possibilities, and an analysis of AI's influence on modern medicine; Dr. Dirlene Roth discussed the implications of AI for scientific publications, emphasizing the need for ethical and judicious use of the tool; and Dr. João Pedro Pereira presented key AI tools already applicable to hair restoration, addressing relevant points as well as the advantages and disadvantages of these technologies. The question is no longer "if" AI will enter the specialty, but "how" to use it responsibly and judiciously.

General Discussion - Panel 1

- What to Expect from the Future of Hair Restoration?

Moderation: Dr. Anna Cecília Andriolo and Dr. Francisco Le Voci

This session brought together Dr. José Cândido Muricy, founder of the ABCRC, alongside representatives from the leading societies in the field: World FUE Institute (Dr. Antônio Ruston), ISD (Dr. Leopoldo Santos), ISHRS (Dr. Mauro Speranzini) and SBCP (Dr. Fernando Basto). Attendees debated the future of hair restoration, presenting differing viewpoints on the direction the specialty is taking, the growing prevalence of clandestine clinics, non-specialists and non-physicians performing



surgeries, and the alarming rise in corrective procedures.

Second Day, June 27, 2026

General Session 5 – Alopecia Areata

Moderation: Dr. Priscila Kakizaki (São Paulo – SP)

The second day began with alopecia areata, a condition that has gained renewed prominence with the advent of JAK inhibitors. Dr. Lorena Dourado opened with a presentation on pathophysiology, clinical presentations, and diagnostic pitfalls, complemented by a practical demonstration of laser and mesotherapy in its management. Dr. Priscila Kakizaki highlighted the "key insight" regarding the use of JAK inhibitors—currently the class with the most robust regulatory approval for severe alopecia areata. A presentation on the management of a complex clinical case by Dr. Flávia Stenberg and Alessandra Anzai concluded the session with a "what would you do vs. what I did" segment.

General Session 6 – Eyebrows

Moderation: Dr. Maira Merlotto (São Paulo – SP)

Eyebrow surgery was the subject of a session entirely dedicated to its aesthetic and technical complexities. Moderator Dr. Maira Merlo opened with a presentation on eyebrow anatomy: the harmony between art and technique that defines surgical success. Dr. Mary Matsuda gave a hands-on demonstration of SMP (miscalp micropigmentation), a highly valuable complementary resource. Dr. René Rodriguez, from



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Bogotá (Colombia), brought an international perspective with a video presentation on eyelash transplant surgery, while Dr. José Rogério Regis Jr. shared the planning and execution details that make the difference. "What I did and what you would do"—a clinical case presented by Dr. Christine Graf Guimarães and Marina Lages—concluded the session with a productive discussion.

General Session 7 – African Hair

Moderation: Dr. Maria Marta Zollinger (Salvador – BA)

Hair transplant for Afro-textured hair is a topic that ABCRC has been addressing with increasing depth. Dr. Alex Gonzalez (Mexico) presented his approach to mastering the technical nuances of Afro-textured hair. Dr. Sanusi Umar (USA) conducted a video lesson on the Sanusi FUE Scoring (SFS) Scale, a preoperative classification system that stratifies the difficulty of follicular unit extraction (FUE) based on the characteristics of the skin and hair in the donor area, assisting in surgical approach planning and predicting the complexity of the procedure. The moderator, Dr. Maria Marta Zollinger, shared her silver bullets in surgery, from patient preparation, surgical technique, surgical difficulties and challenges,



and possible postoperative complications. . Alongside Dr. Gonzalez, Maria Marta Zollinger presented a clinical case characterized by intense effluvium in the donor area and slow growth of the transplanted hairs, outlining the challenges involved and the options for managing the difficulties encountered.

General Session 8 – Beard and Body Hair

Moderation: Dr. Solon Eduardo (São Paulo – SP)

The expansion of hair transplant beyond the scalp was the topic of this session. Dr. Solon Eduardo presented a historical overview of beard and body hair transplant, followed by a live practical demonstration of the marking technique for beard transplant. Dr. José Cândido Muricy contributed a video-edited surgical demonstration showcasing his routine for hair restoration procedures that combine body hair and scalp hair. To conclude the session, Dr. Cleber Stuque presented a case of secondary cicatricial alopecia, outlining his approach and management of the case, followed by commentary and insights from Dr. José Cândido Muricy in the "What would you do and what I did" segment.

Discussion Session 2 – Beyond Day-to-Day Practice: What can't we afford to overlook?

Moderation: Dr. Francisco Le Voci (São Paulo – SP)

This session addressed regulatory, tax, and communication issues that every physician needs to understand. Nurse Leandra Carbonari presented key points regarding ANVISA regulations and CRM legal requirements for medical offices and clinics featuring various

types of surgical facilities (with and without sedation); Dr. Leonardo Villela explained the changes to be implemented by the new tax reform and their impact on medical practice management; and Dr. Gustavo Mercadante provided an up-to-date analysis of medical advertising and what specialists can do in an ethical and legal manner. The session was received with great interest, reflecting ABCRC's maturity in addressing issues related to medical management and careers.



Tips Session 2 – Complications

Moderation: Dr. Anna Cecília Andriolo (São Paulo – SP)

Complications are a reality in any surgical specialty, and this session addressed the topic with transparency. Dr. Antônio Ruston discussed the journey of the follicular unit during surgery and the possible causes of poor growth after transplant. Dr. Hudson Lázaro addressed persistent postoperative folliculitis, distinguishing between what is expected and normal and what should be treated as a complication. In addition to addressing how to manage these complications. Dr. Ludmila Ribeiro Pedrosa Naves discussed the consequences of discontinuing clinical treatment, offering suggestions and her own personal approach to increasing patient adherence to medication. Dr. Rafael Reinert discussed the impact of weight-loss pens (GLP-1 analogs) on balding and hair transplant outcomes. Meanwhile, Dr. Leandro Maia presented the various types of anabolic hormones, their relationship with the progression of androgenetic alopecia, and their impact on surgical results—topics increasingly encountered in clinical practice.

Artificial Intelligence Session 2 – New AI Technologies for Hair transplant

Moderation: Dr. Márcio Volkweis (Porto Alegre – RS)

The second AI session delved deeper into the topic, focusing on tools available on the market. Dr. Luciana Takata (USA) presented the use of Hairmetrix in her daily clinical practice via a video lecture; Dr. Felipe Pittella demonstrated ScalpScan and its new features (including donor area assessment and real-time hair density and caliber counting); and Dr. Koray Erdogan (Turkey) presented the KE Hair Analyzer—a tool developed by his own team in Istanbul—via a video lecture. The session highlighted the speed at which technology is evolving and becoming integrated into daily hair transplant practice, offering tools that assist with everything from surgical planning to results analysis.



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General Session 9 - Miscellaneous Topics

Moderation: Dr. Mauro Speranzini (São Paulo – SP)

The panel discussion on miscellaneous topics, moderated by Dr. Mauro Speranzini, began with the screening of a video lecture by Dr. William Rassman, who discussed his career path, the origins of the Follicular Unit Extraction (FUE) technique, and the most recent advances in the development of a robotic system capable of extracting a follicle from the donor area and implanting it in the recipient area in approximately three seconds. Although technology is still in the development phase, it was presented as a potential milestone in innovation for the specialty.

Then, Dr. Luiz Gustavo Martins discussed the importance of ergonomics for the surgeon and his team, highlighting the incorporation of tools such as ergonomic magnifying glasses and exoskeletons to reduce fatigue and improve working conditions during prolonged procedures.

In addition to moderating the panel, Dr. Mauro Speranzini presented his most recent work on the use of ectographic templates in planning recipient site density and designing the hairline, proposing a standardized approach to optimize surgical planning.

Dr. Antonio Flávio presented in detail his strategy for achieving good coverage in patients with advanced baldness and a large head circumference, emphasizing his personal techniques for graft distribution, temporal peak reconstruction, and appropriate hairline design to maximize the aesthetic result. To conclude the session, Dr. Fernando Franco demonstrated the application of the combined technique of Follicular Unit transplant (FUT) with long grafts and FUE in patients with advanced baldness and low donor area density.



General Discussion Panel 2 – Boundaries: Do we really know how to respect them?

Moderation: Dr. Arthur Tykocinski and Dr. Márcio Volkweis

The panel discussion was dedicated to addressing controversial topics in hair transplant surgery, fostering extensive interaction between the speakers and the audience. The program began with Dr. Maria Angélica Muricy, who presented her approach to mega-sessions, discussing their indications, limitations, and the criteria for performing them safely.

Next, Dr. Gustavo Melo gave a lecture on local anesthetics, emphasizing their mechanisms of action, risks, and potential complications. The presentation was an important reminder of the need for in-depth knowledge, proper planning, and the adoption of preventive measures capable of avoiding potentially serious adverse events during surgical procedures.

Then, Dr. Koray Erdoğan presented a study involving more than 10,000 patients of different nationalities, in which he analyzed the characteristics of the donor area, established average follicular density values, and discussed the safe limits for its surgical harvesting.

Dr. Mauro Speranzini presented cases involving the correction of artificial and disastrous hairlines, demonstrating techniques that combine anatomical principles, aesthetic planning, and surgical refinement to achieve more harmonious and natural results.

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The session concluded with a very enlightening discussion on the choice of the ideal diameter for the punches used in surgery. Arguments were presented in favor of both smaller and larger punch diameters, highlighting that there is still no definitive consensus on the topic and that it is likely to remain a subject of discussion and further exploration at future scientific meetings in the field.

Final Considerations

The event reaffirmed the importance of the ABCRC as a forum for bringing together specialists who share a commitment to excellence in hair restoration. The interaction between experienced colleagues and new specialists strengthened the collaborative environment.

At the conclusion of this tenth edition, it is clear that the Brazilian hair restoration field is experiencing a period of remarkable growth. The growing international presence of its specialists demonstrates that Brazil holds a prominent position on the global stage of hair surgery.

The 10th ABCRC Congress demonstrated that the future of the specialty will be shaped by a combination of science, innovation, critical thinking, and knowledge sharing—principles that guide the work of the ABCRC and its members. Ten editions are enough for an organization to establish traditions, and the ABCRC has managed to do so without sacrificing innovation. Including sessions on artificial intelligence, the coverage of regulatory and tax issues, the variety of formats, interactive clinical case presentations, and live practical demonstrations all demonstrate an association that is attentive to its members' day-to-day needs.

We had two intense days. We left with the certainty that the Brazilian hair restoration field has much to teach the world and continues to learn, with the humility of those who know that excellence is an ongoing process.

See you at the 11th Congress!

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9th Latin American FUE Workshop

The event was held in the Riviera Maya, Mexico, from March 27 to 30, 2026



Dr. João Pedro Pereira
Dermatologist
CRM 184.452 - RQE 85.645

What you will read in this article

- The main trends in hair transplant, including new technologies, Long Hair FUE, no-shave techniques, and regenerative medicine.
- Discussions on surgical planning, donor area preservation, and strategies for more natural and long-lasting results.
- Key takeaways from the live surgeries and discussions led by world-renowned experts in the field.
- Spotlight on ABCRC members, who played a significant role in lectures, surgical demonstrations, and scientific presentations throughout the conference.

The 9th Latin American FUE Workshop, held from March 27 to 30, 2026, in the Riviera Maya, Mexico, brought together leading figures in the field of hair restoration surgery from around the world for an intensive, hands-on, and comprehensive program. Inspired by a goal-oriented format, the event featured short lectures, discussions at the end of each session, and a strong emphasis on practical exchange among surgeons. The workshop served as a forum for comparing different schools of thought, equipment, strategies, and surgical philosophies, always with a focus on natural results, safety, and long-term predictability.

For the ABCRC, the congress held special significance. The significant presence of the organization's members at various points throughout the program reinforced the scientific, technical, and institutional relevance of Brazilian hair restoration surgery on the Latin American and international stages.

Friday, March 27

The first day began with a review of the fundamental principles of FUE, including applied anatomy, principles of excision, ethics in hair transplant, and common mistakes.

In the session "Donor Area – The Key", the donor area was placed at the center of surgical planning. This session featured an essential discussion on donor preservation, actual extraction capacity, reconstruction of depleted areas, and long-term planning. In this context, the lecture by Dr. Antonio Ruston, titled "Donor Supply: The Boss of Hair Restoration," was particularly important in reinforcing the idea that the quality and availability of

the donor area should always guide the surgical strategy.

There was also a discussion of how new devices, analysis software, and artificial intelligence tools can assist increasingly so in this process. Even so, the central message was clear: technology can help, but the final decision must continue to be guided by a critical eye, the surgeon's experience, and a long-term perspective.

Next, the session dedicated to FUE technologies featured presentations on various platforms and devices, including micromotors, WAW, Zeus, Gramax, robotic automation, and the new Pulsar from Trivellini Tech. One of the highlights was the introduction of the Pulsar, a device that incorporates a vacuum valve to increase suction pressure during excision and an adaptive force sensor capable of adjusting the device's parameters based on the resistance encountered in the skin. These features were presented as strategies to improve the quality, ease, and speed of the extraction process, offering the surgeon greater control during one of the most critical stages of FUE.

One of the day's main sessions was "Design & Strategy in Hair Restoration," which addressed planning for male and female patients, angles, temporal triangles, the crown, the hairline, and overall facial design. I was especially pleased to actively contribute to this session with the lecture "Global Face Design," discussing my technique for evaluating the patient's concerns and anatomy in an integrated manner. The aim was to discuss how combining hair transplant with beard transplant can help balance facial contours based on individual characteristics, aesthetic preferences, and, above all, a long-term perspective.



Also during that session, Dr. Antonio Ruston's lecture on temporal hair follicles was extremely relevant. The topic raised an important warning about excessive reconstruction in this anatomical region, especially when performed without considering the chronic progression of hair loss. Aggressive reconstruction of the temporal peaks, or reconstruction performed with poor technique, can lead to artificial, conspicuous results that are difficult to correct.

The Long Hair FUE session featured strong participation from Brazil and ABCRC members. Dr. Carlos Calixto presented his experience with the Long Hair technique in women, while Dr. Patricia Veloso shared strategies for maximizing the number of grafts in procedures using long grafts. The sessions demonstrated the expertise and leadership of Brazilian specialists in this field, including a discussion on giga sessions involving more than 3,500 grafts using the Long Hair method.

In the following session, dedicated to graft implantation, the participation of Dr. Marcelo Pitchon—one of the world's leading authorities on long-hair transplant—was particularly noteworthy.

The first day also featured a panel on hairline design simulation, in which I had the honor of participating alongside one of the world's leading experts on the subject, Dr. Ron Shapiro, author of several important publications on hairline design, as well as Dr. Alba Gómez, who also made very pertinent contributions, especially with regard to female patients.

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Saturday, March 28th

Saturday was entirely dedicated to live surgical procedures, which took place in the Kaloni operating room.

One of the major highlights was the hands-on demonstration of the new Pulsar By Trivellini Tech. The device was used for long-hair extraction by Dr. Patricia Veloso and Dr. Roberto Trivellini, as well as for shaved-hair extraction by Dr. Antonio Ruston, in both cases on male patients. These demonstrations provided a practical opportunity to observe how the device's new features can influence the excision process, particularly in terms of control, speed, and graft quality.

There was also a long-hair transplant performed on a female patient, underscoring the growing importance of less noticeable and socially more discreet techniques, especially for women.

Another major highlight was the two eyebrow transplant surgeries—one on a female patient and the other on a male patient—masterfully performed by the outstanding Brazilian surgeons Dr. Christine Graf and Dr. Veruska Moskata.

One surgery that attracted a great deal of attention was the eyelash transplant, a topic that remains controversial and technically challenging due to the high rate of potential complications and the need for extensive mastery of the technique. The procedure was brilliantly performed by the Brazilian doctors Dr. Thalita Carlesso and Dr. Lorena Visentainer, who are leading experts in the field.

Also, on the day of the surgery, Dr. Maria Angélica Muricy made a highly significant contribution by demonstrating her "no-shave" technique with pre-trimming, which allows for the extraction of follicular units with short hairs without the need to shave the donor area extensively.

Dr. Maria Angélica Muricy's contribution deserves special mention because it addresses one of the major current demands in hair restoration: offering procedures that are increasingly less noticeable, while maintaining technical quality, productivity, and safety. Her approach demonstrates how individualized shaving, when well-planned, can expand surgical possibilities and improve the patient's postoperative experience.

Sunday, March 29

The third day began with a session dedicated to eyebrow transplant, reviewing important concepts related to design, angulation, graft selection, and the prevention of complications. The Brazilian highlight was once again Dr. Christine Graf, whose technique had been demonstrated the previous day with great precision.

In the session on eyelashes, beards, and mustaches, the technical difficulty of eyelash transplant was once again emphasized. Dr. Thalita Carlesso gave an excellent explanation of planning, proper technique, and patient selection, while Dr.

Lorena Visentainer addressed the management of potential complications.

Also, during this session, Dr. Antonio Ruston made a very important contribution regarding the use of body hair. Always illustrating his points with real-life cases, he highlighted the potential long-term unsightly visual effects when these hairs are used without proper selection or precise planning.

Next, the reconstructive hair transplant session addressed a topic that is increasingly prevalent in clinical practice, especially given the global growth of the hair transplant market and the rise in cases of patients who have previously undergone surgery with unsatisfactory results.

An extremely instructive moment was the practical demonstration of the principles of a successful surgery—performed from start to finish by the physician—presented by the Brazilian Dr. Arthur Tykocinski. With a refined technique and very clear step-by-step instructions, he demonstrated how controlling all stages of the procedure can contribute to more consistent and predictable results.

The two clinical treatment sessions also addressed very current topics. New evidence regarding mesotherapy with dutasteride in sessions spaced every three months as an adjunct or alternative to conventional clinical treatment was discussed. The promise of a slow-release minoxidil was also addressed, which could allow for the use of higher doses of the medication and, possibly, greater therapeutic benefits without a proportional increase in side effects.

Regenerative therapies were also highlighted. Dr. Lorena Visentainer, Dr. Thalita Carlesso, and Dr. Francisco Le Voci—all representing the Brazilian presence and the scientific strength of the ABCRC in a very positive light—presented important contributions regarding, respective-

ly, regenerative support in hair transplant for androgenetic alopecia, the use of nanofat and PRP in cicatricial alopecia, and the improvement of scar tissue quality to serve as a recipient bed. The cases presented by Dr. Francisco LeVoci were excellent and demonstrated very visually how the improvement of scar tissue can be a decisive factor in the success of reconstructive procedures.

In the session dedicated to cicatricial alopecia, Dr. Lorena Visentainer presented her technique and experience with transplant in these cases, highlighting excellent results.

The session on small sessions and megasessions featured Brazilian physician Dr. Gabriel Fachini, who presented his approach to high-volume sessions. His technique involves precise planning of the donor area using software such as TrichoLAB, careful patient selection, and extensive extractions using extremely small punches. The presentation demonstrated that sessions involving more than 6,000 grafts can be safely performed on appropriately selected patients, provided there is a thorough assessment of the donor area, proper planning, and refined technical execution.

Monday, March 30

The final day began with a session dedicated to Unshaven FUE—one of the most highly valued areas in contemporary hair restoration, driven by the growing demand for more discreet procedures with minimal social impact. Brazilian physician Dr. Veruska Moskata presented her long-hair technique, demonstrating the importance of careful planning, appropriate case selection, and technical refinement in achieving good results without shaving the scalp.

Also deserving of special mention is the participation of Dr. Maria

Angélica Muricy presented her "pre-trimming" technique. Her approach offers greater extraction efficiency and increases the number of grafts obtainable in a single session, without requiring extensive shaving of the donor area.

Dr. Maria Angélica Muricy's presence throughout the congress underscored her significant role in developing and promoting less conspicuous FUE techniques.

Her practical, efficient approach demonstrates how no-shave surgery can be optimized without compromising extraction quality, donor area preservation, or the natural look of the final result.

During the graft quality control session, Brazilian surgeon Dr. Gustavo Martins discussed transection rates in shaved versus non-shaved techniques, prompting important reflection on the efficiency, safety, and technical limitations of no-shave approaches. Meanwhile, Dr. Arthur Tykocinski addressed the importance of suction in FUE surgery—a topic directly linked to extraction quality and the preservation of follicular units.

In the final technical session, Dr. Antonio Ruston presented his own technique, concluding the congress with a message that had resonated throughout the event: hair restoration must be guided by planning, prudence, aesthetic sensibility, and a long-term perspective. His participation throughout the workshop was notable precisely for offering practical insights—grounded in real-world cases—on how to avoid artificial-looking results and maintain a natural appearance over the years.

The strength of the ABCRC on the international stage

One of the highlights of the 9th Latin American FUE Workshop was the significant participation of Brazilian physicians affiliated with the ABCRC. The organization was well-represented across various aspects of the program—ranging from theoretical lectures to live surgical demonstrations—reinforcing its role in upholding the scientific, technical, and ethical standards of hair restoration in Brazil.

Prominent members in attendance included Dr. Carlos Calixto, Patricia Veloso, Marcelo Pitchon, Christine Graf, Veruska Moskata, Maria Angélica Muricy, Thalita Carlesso, Lorena Visentainer, Francisco Le Voci, Gabriel Fachini, Gustavo Martins, Arthur Tykocinski, Antonio Ruston, and João Pedro Pereira. he wide scope of the topics presented by these colleagues demonstrates the maturity of the domestic hair restoration field and the strength of the ABCRC as the representative of a technically skilled medical community that is gaining increasing international recognition.

The Brazilian contingent covered key areas of the specialty: Long Hair FUE, female hair transplant, facial design, temporal peaks, megasessions, quality control, cicatricial alopecia, regenerative medicine, eyebrows, eyelashes, no-shave, pre-trimming, reconstructive surgery, and live demonstrations.

Beyond a quantitative presence, the participation of ABCRC members demonstrated technical leadership. The presentations and surgeries showcased experience, innovation, team mastery, and the ability to make meaningful contributions to high-level international discussions.

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14th World Congress for Hair Research

The congress was held in Seoul, Korea, at the end of May



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CRM 37674 - RQE 20276

What you will read in this article:

- ·Highlights from the congress and perspectives that could transform clinical practice in the coming years.
- Key developments in the treatment of alopecia areata, androgenetic alopecia, and cicatricial alopecia.
- Insights from research on new therapies, such as prolactin receptor blockers, androgen receptor degraders, and innovative minoxidil formulations.
- The latest evidence regarding JAK inhibitors, dutasteride, the safety of anti-androgens, and other emerging approaches.
- Takeaways from the congress that can already influence clinical practice versus those requiring confirmation in future studies.

From May 28 to 31, Seoul hosted the 14th World Congress for Hair Research (WCHR)—held in conjunction with the Korean Hair Research Society for the first time. The event offered new insights for a better understanding of various types of alopecia, leading to new therapeutic options. Trendy topics, such as exosomes and peptides, were barely addressed, most likely due to the lack of scientific evidence. Of the many subjects presented, a few merit special mention

Regarding the treatment of alopecia areata, JAK inhibitors (baricitinib, ritlecitinib, deuruxolitinib, upadacitinib) have confirmed their superior efficacy, with a trend toward early use. In practice, the recommended approach focused on optimization: treat early, wait at least three months before assessing the response, and switch molecules in the event of treatment failure, as a response to one JAK inhibitor does not guarantee a response to another. Low-dose oral minoxidil emerged both as a potent enhancer of baricitinib during the first six months of use and as a rescue therapy for non-responders, more than doubling the likelihood of a response by the ninth month. Another factor highlighted was the importance of using the PAVE criterion—which incorporates the psychosocial impact into the disease severity classification—alongside the SALT score.

In androgenetic alopecia, it was questioned whether the follicular miniaturization process might be too complex to be driven solely by androgen receptor signaling. Among the numerous presentations describing studies aimed at demonstrating new mechanisms and treatment options, I highlight the role of prolactin in AGA. Evidence showed that the male frontotemporal hair follicle is both a target and a source of prolactin; the hormone induced a premature catagen phase and reduced the pool of epithelial stem cells (K15+/CD34+).

Of the follicle, contributing to the miniaturization typical of androgene-

tic alopecia (AGA). A partir daí foi apresentado o ABS-201, anticorpo monoclonal desenhado por IA para bloquear o receptor de prolactina (PRLR). In human skin ex vivo, it reversed prolactin-induced catagen, prolonged the anagen phase, increased growth factors such as IGF-1 and FGF7, and protected follicular stem cells from apoptosis. In primate studies, this agent outperformed 5% topical minoxidil in hair regeneration, with a sustained effect lasting up to four years after treatment discontinuation—a durability unprecedented among current therapies.

Initial human data, released by the company in June, showed good tolerability across four single-dose cohorts (150 to 1,800 mg, IV), with no serious adverse events and a half-life of at least 65 days, suggesting the potential for quarterly or every-four-month dosing in the future. The multiple-dose phase in patients with AGA began in the second quarter of 2026, with complete data expected only in 2027. Although it is an experimental therapy, we are beginning to see a new target for treating AGA that could optimize established treatments.

Several lectures highlighted the well-established use of low-dose oral minoxidil (LDOM), showing that treatment discontinuation due to adverse effects occurred in only 1.5%, with mild events in about 20% of patients. The new frontier now lies in pharmacokinetics, specifically the attempt to deliver minoxidil to the follicle in a sustained manner, avoiding the plasma peaks that raise cardiovascular concerns. Two approaches are competing in this space. The American company Veradermics presented VDPHL01, a prolonged-release minoxidil gel, currently in phase 2/3 trials in 519 men (8.5 mg once or twice daily) and in 500 women with female pattern alopecia. This is one of



the largest studies ever conducted for this indication, with results expected in 2026. If approved, it would become the first oral minoxidil formally registered for AGA. An Asian group, meanwhile, introduced the same compound under the concept of "follicular exposure optimization," with a more stable release curve. Neither initiative has yet published peer-reviewed data.

Dutasteride 0.5 mg continues to outperform finasteride in vertex and frontal scalp regrowth, as it blocks both isoforms of 5-alpha-reductase. A real-world Spanish study involving 307 men showed improvement in 90% of patients on the full dose, while the low-dose weekly regimen (2 to 3 capsules of 0.5 mg) resulted in a discontinuation rate of only 3% and zero side effects, albeit with a slightly lower improvement rate (66%) compared to the daily dose. An algorithm presented at the congress now positions oral dutasteride—whether combined with minoxidil or not—as the treatment of choice for male AGA, reserving low doses for patients concerned about tolerability or those in the maintenance phase. Daily 0.2 mg dutasteride was also presented; the study demonstrated efficacy comparable to the 0.5 mg dose but with fewer side effects.

Regarding the psychiatric safety of 5-alpha-reductase inhibitors, two studies offered some reassurance. A pharmacovigilance analysis in the FDA's FAERS database, with more than 11,000 reports from 2004 to 2024, confirmed that sexual and psychiatric symptoms (erectile dysfunction, decreased libido, depression, anxiety, suicidal ideation) are reported mainly in young men, though without evidence of causality. However, a meta-analysis published in European Urology Focus, involving over 2.2 million patients, found no statistical association between these medications and the risk of depression or suicide, even at the 1 mg/day dose used for androgenetic alopecia. The takeaway in Seoul was one of balance: post-finasteride syndrome should not be dismissed, but the focus ought to shift from debating its existence to better screening psychologically vulnerable patients, with risk communication that does not fuel the nocebo effect.

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Other fronts under development for the treatment of AGA that were addressed at the congress include:

- **Topical clascoterone:** a 5% topical anti-androgen applied twice daily; currently in Phase 3 (SCALP program), it avoids the systemic effects associated with oral anti-androgens.

- **GT20029 (PROTAC):** a technology adapted from oncology—instead of merely blocking the receptor, it degrades the DHT receptor via the proteasome; it is advancing to Phase 3.

- **PP405:** an inhibitor of the mitochondrial pyruvate carrier that directly stimulates follicular stem cell proliferation. In Phase 2a (78 participants), it met safety targets with no detectable systemic absorption.

- **Laser and phototherapy:** Asian research groups are emerging as pioneers in the clinical use of non-ablative fractional lasers and photobiomodulation for AGA, yielding positive results.

- **Intradermal bicalutamide:** an experimental protocol (0.5% solution with 2% lidocaine, administered monthly over three sessions) serving as a topical-injectable alternative for local androgen blockade; currently in the preliminary phase.

In the section on primary cicatricial alopecia—frontal fibrosing alopecia (FFA), central centrifugal cicatricial alopecia (CCCA), folliculitis decalvans, and dissecting cellulitis—studies indicated that systemic metabolic dysfunction may be more of a cause than a consequence. A 2025 meta-analysis involving nearly 33,000 patients with CCCA revealed significantly higher diabetes (OR 1.67, 26% prevalence) and dyslipidemia (OR 4.46, 54% prevalence) in this population, as well as higher rates of hypertension compared to controls. A study published in JAMA Dermatology in 2024 showed that low-dose metformin (500 mg/day) reduced pro-fibrotic gene signatures in patients with CCCA—including those without pre-diabetes—via a mechanism likely involving TGF-ß and the angiotensin II axis. The recommendation discussed in Seoul was straightforward: screen for insulin resistance (HOMA-IR) or HbA1c in every patient with CCCA and FFA, even in the absence of known metabolic history.

In FFA—an "emerging epidemic"—treatment remains multimodal, with recommendations to discontinue topical products containing fragrances and chemical sunscreens (switching to physical/mineral filters), regulate hormones when estrogen-androgen imbalance related to menopause is present, and use anti-inflammatory agents (hydroxychloroquine, doxycycline, methotrexate, mycophenolate mofetil, cyclosporine), in addition to combining therapy with minoxidil and dutasteride.

So, what are the takeaways for clinical practice?

In alopecia areata, JAK inhibitors remain a therapeutic cornerstone, but the next leap in efficacy is expected to come from combination strategies.

For AGA, dutasteride and low-dose oral minoxidil remain solid first-line options, while a new generation of therapies—such as prolactin receptor blockade and androgen receptor degraders—shows promise.

And regarding scarring alopecia, perhaps the most applicable message today is the simplest one: monitoring a patient's metabolic health may be just as valuable as any topical prescription.

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Proceedings of the 14th World Congress for Hair Research (WCHR). Seoul, Republic of Korea. May 28–31, 2026.

Emerging therapies for the treatment of androgenetic alopecia: where are we heading?



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What you will read in this article

- An overview of key strategies currently under development for treating androgenetic alopecia and their potential implications for the future of trichology.
- New medications that act directly on the androgen receptor, beyond DHT inhibition.
- Innovative therapies targeting prolactin, follicular stem cells, and hair regeneration.
- Research on autophagy, cellular aging, thyroid hormones, and new minoxidil formulations.
- The current state of scientific evidence and future prospects for treating androgenetic alopecia.

For over three decades, the gold-standard treatment for androgenetic alopecia (AGA) has relied primarily on stimulating hair growth with minoxidil and reducing the production or action of dihydrotestosterone (DHT) using 5-alpha-reductase inhibitors (finasteride and dutasteride)—for both men and women—and androgen receptor blockers (spironolactone) for women. Recently, this landscape has begun to change. New therapeutic strategies aim to act on different biological targets, such as topical androgen-receptor antagonism, prolactin-signaling inhibition, activation of follicular stem cells, and modulation of metabolic and cellular-aging pathways. The goal is to enhance therapeutic efficacy, improve the safety profile, and increase patient adherence, thereby overcoming some of the limitations of currently available therapies.

Direct Androgen Receptor Antagonism

Unlike finasteride and dutasteride, which reduce DHT production by inhibiting the enzyme 5-alpha-reductase, these therapies act directly on the androgen receptor.

Clascoterone, already approved for the treatment of acne, is currently being studied for AAG. It is a topical androgen receptor antagonist that competes with DHT for binding to receptors present in the sebaceous glands and hair follicles. One of its main advantages over other antiandrogens is that, after topical application, the molecule is rapidly metabolized into inactive corticosterone, which may reduce the risk of systemic effects.

More recently, GT20029 introduced a new concept for the treatment of AGA. Instead of merely blocking the androgen receptor, as conventional anti-androgens do, this molecule promotes its degradation through PROTAC (proteolysis-targeting chimera) technology. As a result, it eliminates the primary target of DHT's action in the hair follicle, representing a potentially more long-lasting strategy. Although it is still in Phase II clinical trials, the initial results are promising.

Inhibition of prolactin signaling

Another promising strategy, still in the early stages of clinical development (phase I), is the inhibition of prolactin signaling through biological agents, such as HMI-115 and ABS-201.

Although prolactin is traditionally associated with lactation, studies show that it also plays an important role in hair follicle biology. The human hair follicle not only expresses



prolactin receptors but is also capable of producing this hormone locally, suggesting an autocrine and paracrine action in the regulation of the hair cycle.

Experimental studies have shown that prolactin can reduce hair-shaft growth, induce premature entry into the catagen phase, and decrease proliferation of matrix keratinocytes in the hair follicle. Furthermore, its effects appear to vary by sex and scalp region, which may contribute to the characteristic pattern of AAG. Genetic studies have also identified a susceptibility locus for AAG near the prolactin gene, reinforcing interest in this pathway as a therapeutic target.

Based on these findings, HMI-115 and ABS-201 are being developed to block the prolactin receptor, representing an approach that differs from traditional anti-androgen therapies.

Although preclinical results are promising, these medications remain under investigation, and clinical studies are still needed to confirm their efficacy and safety.

Activation of Follicular Stem Cells and Regenerative Therapies

The reactivation of quiescent follicular stem cells through metabolic modulation represents an important area of research in AAG. Among the key topical molecules currently in development are PP405 and ET-02, which are designed to stimulate resting follicles. This strategy is based on evidence that alterations in signaling pathways—such as Wnt/ß-catenin, Sonic Hedgehog,

BMP, and Notch—impair follicular regeneration in AAG.

Another therapy under investigation is AMP-303, an injectable agent for local application to the scalp designed to stimulate the re-entry of follicles into the anagen phase. Although clinical data are still limited, this approach is part of a growing group of regenerative therapies aimed at restoring follicular activity.

In parallel, systematic reviews have shown promising results with other regenerative strategies, such as conditioned media, platelet-rich fibrin (PRF), and stromal vascular fraction (SVF), with improvements in hair density and shaft thickness across different studies. However, the wide variability in protocols, techniques, and evaluated outcomes still makes it difficult to compare results and to establish recommendations for clinical practice.

Modulation of thyroid hormone receptors

Another line of research involves KB-141, a selective agonist of the thyroid hormone ß receptor. Unlike antiandrogen therapies, this approach aims to modulate the signaling of thyroid hormones, which are known to be involved in regulating the hair follicle cycle and hair growth.

The interest in this pathway stems from the well-known association between thyroid dysfunction and hair loss, as well as experimental evidence showing that thyroid-hormone signaling participates in cell proliferation, maintenance of the follicular cycle, and interaction with other pathways important for hair growth, including Wnt/ß-catenin. To date, however, clinical data on KB-141 remains limited, and its role in the treatment of AAG will depend on the results of ongoing studies.

Modulation of pathways related to cellular aging

Another area of growing interest involves drugs already used to treat other conditions, such as rapamycin and metformin, which can modulate processes related to cellular aging and autophagy.

Preclinical studies suggest that autophagy-activating molecules—including rapamycin, metformin, α-ketoglutarate, and α-ketobutyrate—can stimulate telogen-phase follicles to re-enter anagen, thereby promoting hair growth. This effect disappears when autophagy is pharmacologically inhibited, reinforcing the role of this pathway in follicular regeneration.

Furthermore, studies using human follicle cultures have demonstrated that rapamycin stimulates hair growth and increases pigmentation by promoting intrafollicular production of α-MSH, even in graying follicles. In experimental AGA models, the drug also reduced DHT-induced hair loss, which is further exacerbated by UVA radiation, likely by restoring autophagy and reducing senescence in dermal papilla cells.

Although these results are promising, the evidence is still largely limited to preclinical studies, and clinical trials are needed to confirm its therapeutic potential in androgenetic alopecia.

New minoxidil formulations

New minoxidil formulations are also under development, including extended-release and sublingual delivery forms.

These strategies aim to optimize drug administration, improve treatment adherence, and potentially reduce adverse effects. However, more robust clinical studies are still needed to confirm their efficacy and safety.

Perspectives

The treatment of AGA is entering a new phase. For the first time in decades, research is moving beyond an exclusive focus on DHT and beginning to explore the diverse mechanisms involved in hair-follicle biology, including stem cells, tissue regeneration, cellular metabolism, autophagy, aging, and new hormonal pathways. This shift expands the possibilities for more targeted treatments and, in the future, for therapeutic combinations capable of acting on different disease mechanisms.

Despite the great potential of these new approaches, evidence remains limited, and most studies are in the early stages of development. Therefore, larger clinical trials with long-term follow-up will be required to confirm their efficacy, safety, and clinical applicability. Until such data become available, minoxidil and anti-androgens remain the mainstay of pharmacological treatment for AGA.

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Dr. Carlos Uebel's innovative technique helped lay the foundations of modern hair restoration



Dr. Gustavo Faro
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What you will read in this article

- ·Principles of the technique that helped lay the foundation for modern hair restoration.
- How the use of micro-grafts and mini-grafts revolutionized hair transplant in the 1990s.
- Key characteristics of the technique and its application in reconstructing a more natural hairline.
- Advantages over the methods used at the time, reducing artificial appearance and scarring.
- The impact of this work on the evolution of current hair transplant techniques and the pursuit of increasingly natural results.

The article "Micrograft and Minigrafts: A New Approach for Baldness Surgery", Dr. Carlos Oscar Uebel describes an innovative hair transplant technique using micro-grafts (one to two hairs) and mini grafts (three to four hairs) as a solution to the unsightly scarring and artificial results associated with the hair transplant surgeries performed up to that time. The technique represented a significant advancement over the surgeries using larger punches that were common at the time.

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The technique described aimed to achieve a more natural result, particularly at the frontal hairline, reducing the artificial appearance ("doll hair") and unsightly scarring associated with traditional transplants.

The donor area consisted of an elliptical strip of scalp from the occipital region, an area less susceptible to androgenetic alopecia. The excised strip was divided into thin slivers and, subsequently, into micrograft (one to two hairs) and minigraft (three to four hairs), while preserving a small portion of fat to protect the hair bulbs.

The grafts were inserted individually using microsurgical forceps after small incisions were made in the scalp with a fine blade. As no recipient tissue was removed, there was less surgical trauma. Micrograft, preferably containing a single hair, were placed along the frontal hairline to recreate a natural transition, whereas minigraft were subsequently used to increase density.

The technique enabled significantly more natural results than the methods available at the time and laid the foundation for modern hair transplant. The author reports a high graft survival rate, good hair density, and high aesthetic satisfaction. Complications consisted mainly of folliculitis and cysts. Arteriovenous fistulas were uncommon.

DISCUSSED ARTICLE

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Reconstructive hair transplant on the scalp following extensive scalpel surgery

Sequential, multi-stage hair reconstruction



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What you will read in this article

- The main challenges of hair transplant on a scalp with extensive scarring following scalpel surgery.
- As with fat grafting, sequential transplantation and adjunctive clinical treatments contributed to preparing the recipient site
- The surgical strategies used to preserve vascularization and gradually increase hair density.
- ·The potential of reconstructive hair transplant to restore not only hair coverage but also the self-esteem and quality of life of patients who have undergone complex reconstructive procedures.

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Introduction

Hair transplant in scarred areas represents one of the greatest challenges in restorative hair surgery, especially in patients who have previously undergone multiple reconstructive scalp procedures. Vascular changes, extensive fibrosis, tissue thinning, and anatomical distortions resulting from skin grafts, tissue expansions, and flap rotations make surgical planning highly individualized and often unpredictable.[1-4, 8-10]

Patients who have suffered scalp avulsion present particularly complex deformities, initially requiring reconstructive procedures for skin coverage and, subsequently, hair-restoration strategies aimed not only at aesthetic improvement but also at recovering the patient's facial and social identity.[1-4]

The present report describes a case of reparative hair reconstruction in a patient who suffered extensive scalp avulsion and had previously undergone multiple reconstructive scalp surgeries, using a strategy of sequential, multistage hair transplantation combined with recipient-site preparation through fat grafting and adjunctive clinical therapy.[4,8]

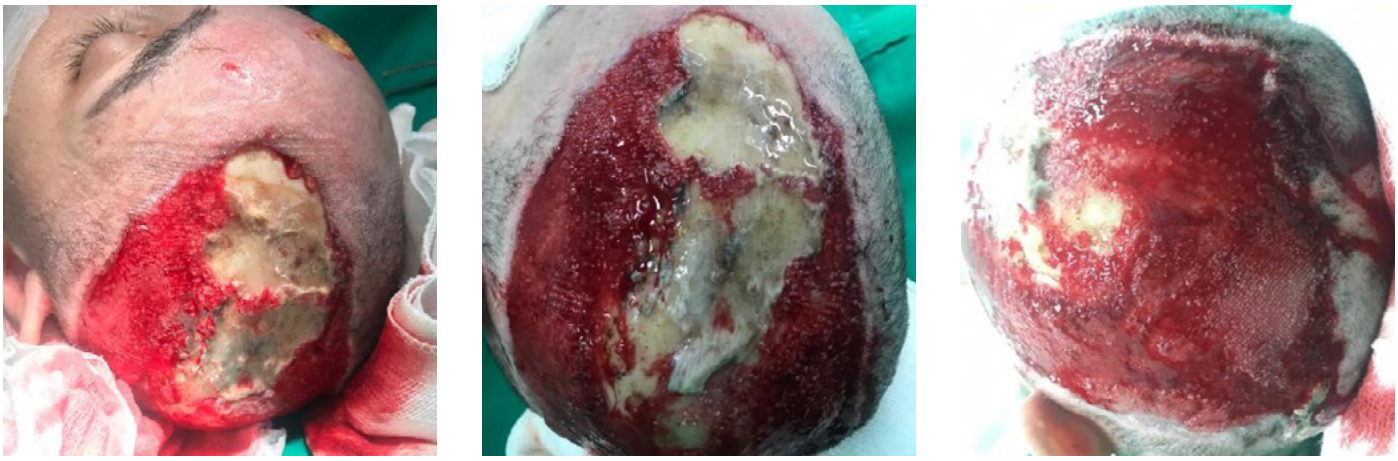


Figure 01 - Extensive scalp injury undergoing treatment with negative pressure therapy

CASE REPORT

A 26-year-old female patient was involved in a traffic accident—a collision between a truck and a motorcycle—in January 2019. She sustained multiple traumatic injuries, including scalp avulsion, resulting in significant loss of the frontal, parietal, and vertex scalp. While awaiting transfer for reconstruction at Balneário Camboriú Hospital, she underwent treatment with negative pressure therapy (NPT), which resulted in the coverage of exposed skull bone with granulation tissue. The patient was transferred to the Hospital de Clínicas de Porto Alegre (HCPA) in March 2019. Thanks to the success of NPWT, the pre-transfer reconstruction plan, which had originally called for an autotransplant (microsurgical flap), was modified to use the partial-thickness skin graft technique. The patient underwent reconstruction using pre-expanded grafts and flaps from March 2019 to September 2022.

After the skin grafts had healed, the timeline was as follows:

- January 2020: start of the first stage: placement of tissue expanders;
- September 2020: removal of the tissue expanders and advancement of the expanded flaps;
- May 2021: start of the second stage: placement of a new tissue expander;
- September 2021: removal of the tissue expander, advancement of the expanded flap, and fat grafting;
- June 2022: start of the third stage: placement of a new tissue expander;
- August 2022: final procedure of the tissue expander phase, involving removal of the expander and advancement of the expanded flap.

The expanders were inflated with saline solution every one or two weeks, increasing the total

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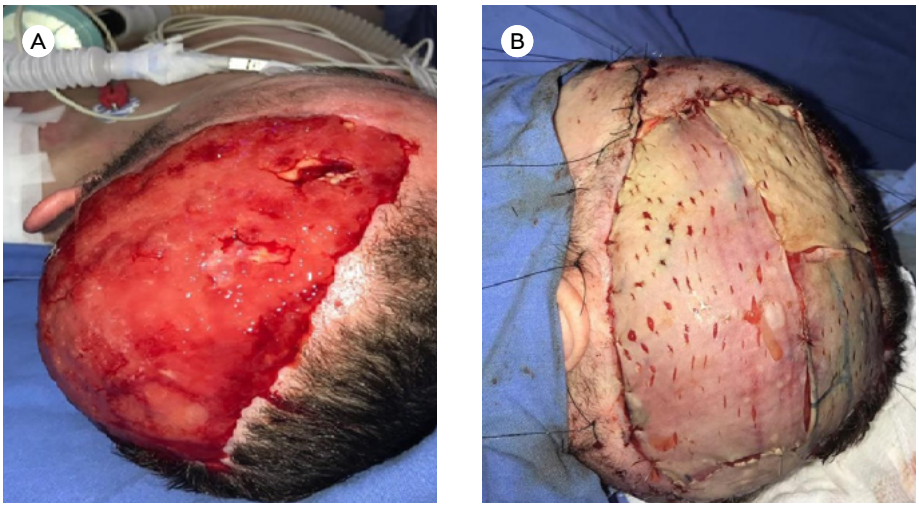


Figure 02 - (A) Appearance of the wound after completion of negative pressure therapy and before skin grafting; (B) Intraoperative view of the skin grafting procedure.

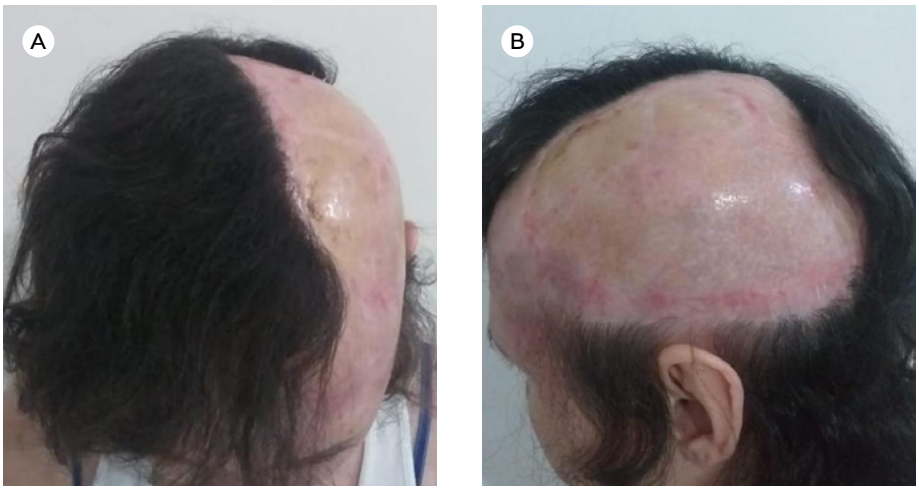


Figure 03 - Late postoperative appearance of the skin graft. (A) Superoanterior view; (B) Left profile.



Figure 04 - Preoperative appearance of the expanded scalp, inpreparation for flap advancement. (A) Left anterolateral; (B) Left posterolateral.

volume of each expander by 10 to 20 percent, depending on the patient's tolerance. An effort was made to wait at least six months between each phase, but there were delays due to administrative procedures due to judicial procedures, since the treatment as authorized through a court injunction. Three stages of expansion were necessary because, during the second stage, part of the expanded grafts became significantly thinned, making it impossible to continue, resulting in an outcome that fell short of what was planned. The situation was resolved, however, with a third and final stage.

In September 2022, wound care was completed at HCPA, and the patient was referred to the Diamond Clinic to continue her reconstructive treatment.

After stabilization of the reconstructive condition and clearance by the plastic-surgery team responsible for the skin-coverage procedures, approximately four years after the trauma, planning for hair reconstruction was initiated.

Due to significant scarring changes in the recipient site, it was initially decided to perform fat grafting in the grafted and scarred areas of the scalp, with the aim of improving tissue quality, increasing local thickness, and optimizing the recipient site for future follicular implantation.[4,8]

Subsequently, the patient underwent three sequential hair transplant procedures over the course of three consecutive years, with an interval of approximately one year between each surgery.

The surgical strategy was based on progressive and conservative implantation, initially prioritizing reconstruction of the frontal hairline



Figure 05 - Result after skin coverage; (A) Superoanterior; (B) Left profile

and facial frame, followed by gradual densification of the remaining affected areas.[1,2,6,9]

Throughout all procedures, implantation densities of approximately 20 to 25 follicular units per square centimeter were used, deliberately avoiding higher densities due to the elevated risk of local vascular compromise, skin necrosis, and impaired follicular integration in a recipient site previously subjected to multiple surgical manipulations.[1,5,6]

In the subsequent densification surgeries, the recipient incisions were carefully planned between the previously implanted hairs, allowing for a progressive increase in density without significant compromise of local vascularization. Thus, the final hair density was built up cumulatively over the course of the different surgical procedures.

The patient was concurrently maintained on clinical treatment with oral minoxidil at a dose of 1 mg/day throughout follow-up, aiming to improve the thickness and quality of the remaining hairs, especially in areas previously subjected to tissue expansion and consequently presenting relative thinning.[2,4,9]

DISCUSSION

Hair transplant on a scalp with extensive scarring requires continuous technical adaptation and individualized planning, especially in patients who have previously undergone multiple reconstructive procedures. [1–4,8–10]

In the present case, several fundamental concepts guided the entire surgical strategy:

- Preparation of the recipient site;
- Sequential, low-density implantation;
- Vascular preservation strategy;
- Multistage reconstruction;
- Individualized surgical planning.

Prior preparation of the recipient site through fat grafting played an important role in improving local trophism and increasing the thickness of the grafted areas, thereby providing better conditions for subsequent follicular implantation.[4,8]

Even after tissue preparation, several regions exhibited significant thinning of the grafted skin. In certain areas, there was insufficient thickness to allow proper accommodation of follicular grafts through more conventional, perpendicular incisions . Consequently, it was necessary to adjust the angle of the recipient incisions intraoperatively, making them more

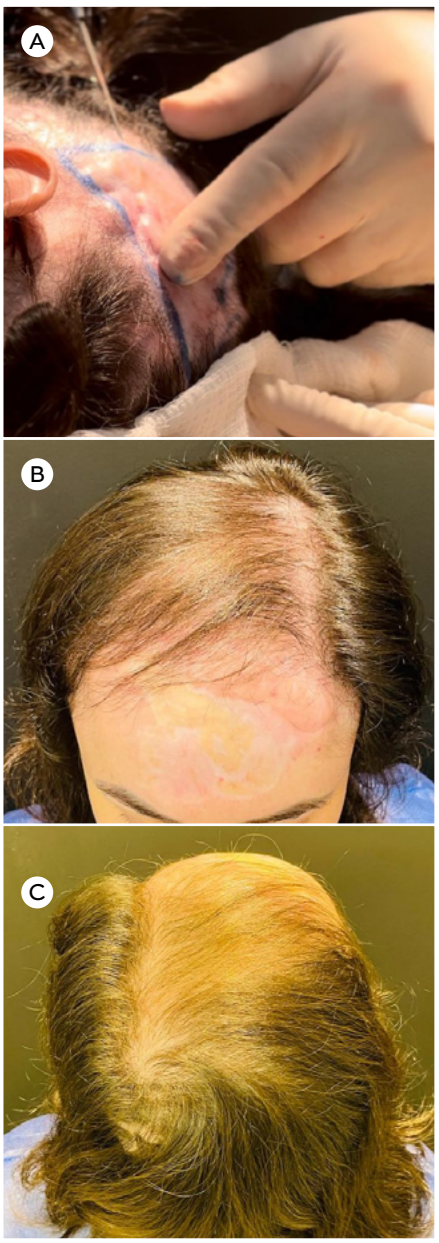


Figure 6 - (A) Fat grafting prior to the first hair transplant; (B) Appearance after fat grafting, superoanterior view; (C) Appearance after fat grafting, superoposterior view.

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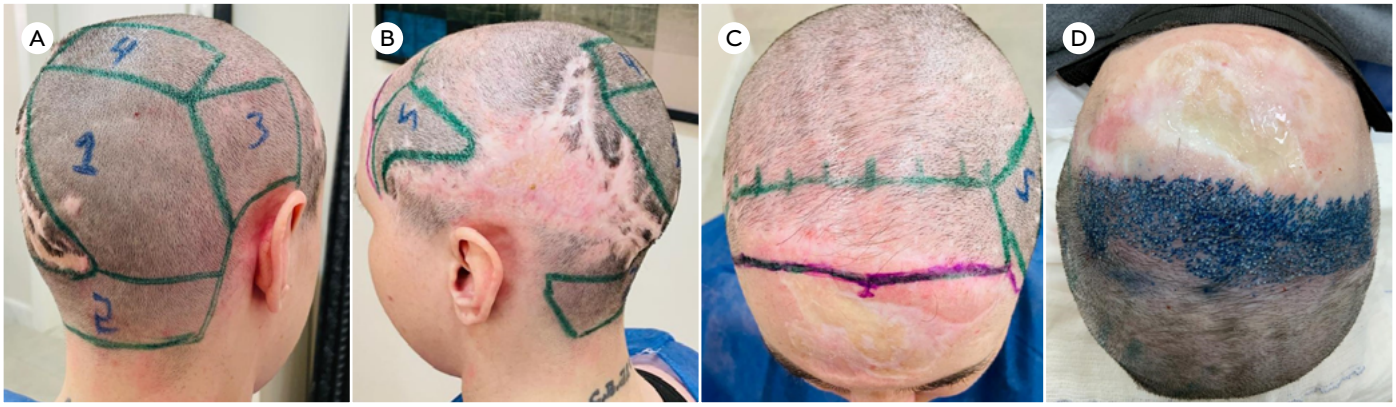


Figure 07 – (A) (B) (C) Preoperative planning for the first hair-transplant procedure; (D) Immediate postoperative result.

parallel to the skin plane to better accommodate the grafts and reduce the risk of vascular compromise.

Another significant technical challenge was the limited size of the donor site. The patient had multiple scars resulting from prior tissue-expansion procedures and flap rotations, leading to significant anatomical distortion of the natural hair-growth direction A multidirectional pattern of hair growth was observed in various regions of the donor area, significantly complicating the predictability of follicular extraction.

Furthermore, the patient was female, with hair availability limited exclusively to the donor area of the scalp, with no practical possibility of using alternative areas. The presence of scarred areas in the donor region further reduced follicular availability, requiring an extremely conservative approach to extraction.

The decision to limit the implanted density to between 20 and 25 follicular units per square centimeter in each session was based primarily on concerns regarding vascular compromise in the recipient site and loss of graft integration. Unlike conventional hair transplantation, in which high immediate density is often sought, in this case a biologically sustainable, progressive reconstruction approach was chosen.[5,6 1,6 1,5,6,9]

In subsequent sessions, densification was carefully performed among the previously implanted hairs, allowing for a gradual increase in coverage over the course of the treatment without any signs of necrosis or vascular compromise.

Adjunctive clinical therapy with oral minoxidil also played a relevant role in the outcome, contributing to improved thickness and quality of the remaining hairs and increasing the visual coverage index of the scalp.[2,4,9]

This case demonstrates that hair transplantation can play a fundamental role within reconstructive surgery for patients who have suffered complex scalp trauma, provided it is performed with deep respect for the biological limitations imposed by the recipient site.[4,8-10]

Reconstruction of the scalp wound was performed according to current protocols. Initially, skin grafts may be used when there is a favorable recipient site. Otherwise, the treatment of choice is autotransplant (microsurgical flaps). Once the defect has healed, a tissue expansion protocol can be used to harvest flaps containing hair. Even so, hair coverage usually remains insufficient and combining it with hair transplantation greatly enhances the overall reconstructive outcome.[8,10]

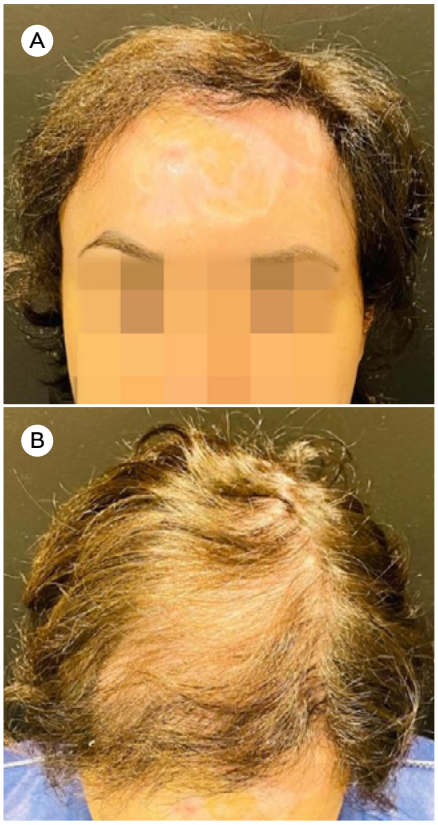


Figure 08 - Postoperative appearance one year after the first hair transplant. (A) Anterior view; (B) Superior view.

A relevant discussion in cases of scalp avulsion is whether the initial coverage could be more effectively achieved with autotransplants (microsurgical flaps), since these provide better thickness and vascularization, making the area more favorable for subsequent hair transplant. [8,10]

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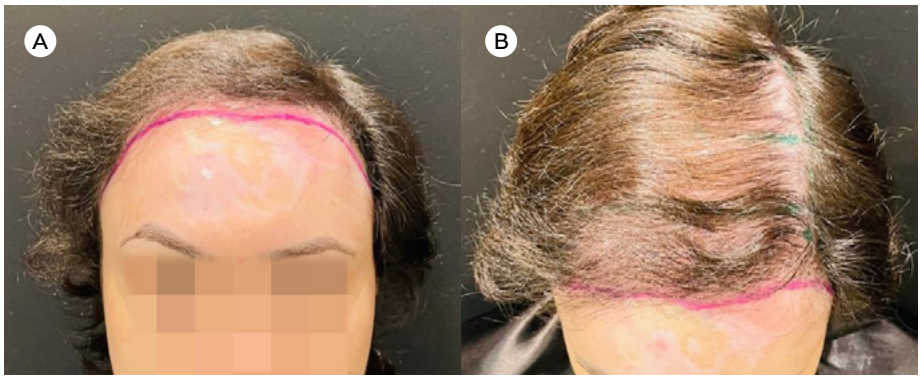


Figure 09 - Postoperative appearance after the second hair transplant; (A) Anterior; (B) Superior.



Figure 10 - Postoperative appearance one year after the third hair transplant. (A) Anterior; (B) Superior; (C) Left profile; (D) Right profile; (E) Posterior.

CONCLUSION

Reconstructive hair transplant on a scalp with extensive scarring following scalpel surgery is a highly technically complex procedure, requiring individualized planning, reconstruction in multiple stages, and careful consideration of the vascularization of the recipient site.

The use of strategies such as prior scalp preparation with fat grafting, low-density implantation, progressive sequential densification, and the combination with adjunctive clinical therapy allowed for satisfactory hair coverage and significant aesthetic improvement in an extremely challenging reconstructive scenario.[4,8]

This case underscores the importance of hair transplant as a complementary tool in modern reconstructive surgery, contributing not only to aesthetic recovery but also to the restoration of identity and quality of life for patients who have suffered mutilating scalp trauma.

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A Strategic Approach to Hair Transplant in Patients with Mesocephalic and Brachycephalic Skulls



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What you will read in this article

- A practical approach for patients with mesocephalic and brachycephalic skulls, highlighting strategies that helps optimize graft distribution, preserve the donor area, and achieve a more natural and harmonious result.
- How the anatomical characteristics of mesocephalic and brachycephalic skulls impact hair transplant.
- The main technical challenges in planning for large areas of baldness.
- A six-step protocol for defining the hairline, reconstructing temporal peaks, distributing grafts, and positioning the crown.
- Strategies for optimizing the donor area and enhancing natural appearance and patient satisfaction.

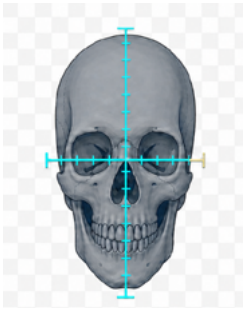
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Introduction and Anatomical Contextualization

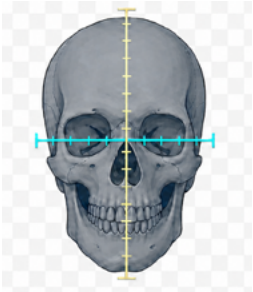
The brachycephalic skull—characterized by an increased transverse diameter, reduced longitudinal length, and flattening in the occipital region-is an anatomical variation prevalent in populations of Asian and Indigenous American descent (Figure 01). In Brazil, due to extensive racial mixing, this characteristic is found throughout the country, with higher frequency in some states of the Northeast Region. From the perspective of hair restoration, managing this group of patients presents a significant technical and aesthetic challenge.

The phenotypic proportions of brachycephaly often result in a visual perception of an excessively wide or flattened head, requiring specific filling strategies to achieve a harmonious outcome. Despite the high regional clinical demand, the scientific literature still lacks practical and systematic guidelines for this approach.

In terms of surgical planning for patients with this cranial type, many surgeons choose to design the anterior hairline with a broader forehead and more pronounced temporal recessions, avoid reconstructing the temporal peaks, use body hairs, perform megasessions, and schedule more than one procedure to cover the entire bald area[1,2].



Dolichocephalic
Greater vertical than horizontal growth



Mesocephalic
Balance between vertical and horizontal growth



Brachycephalic
Greater horizontal than vertical growth

Figure 01 - Difference between dolichocephalic, mesocephalic, and brachycephalic skulls.

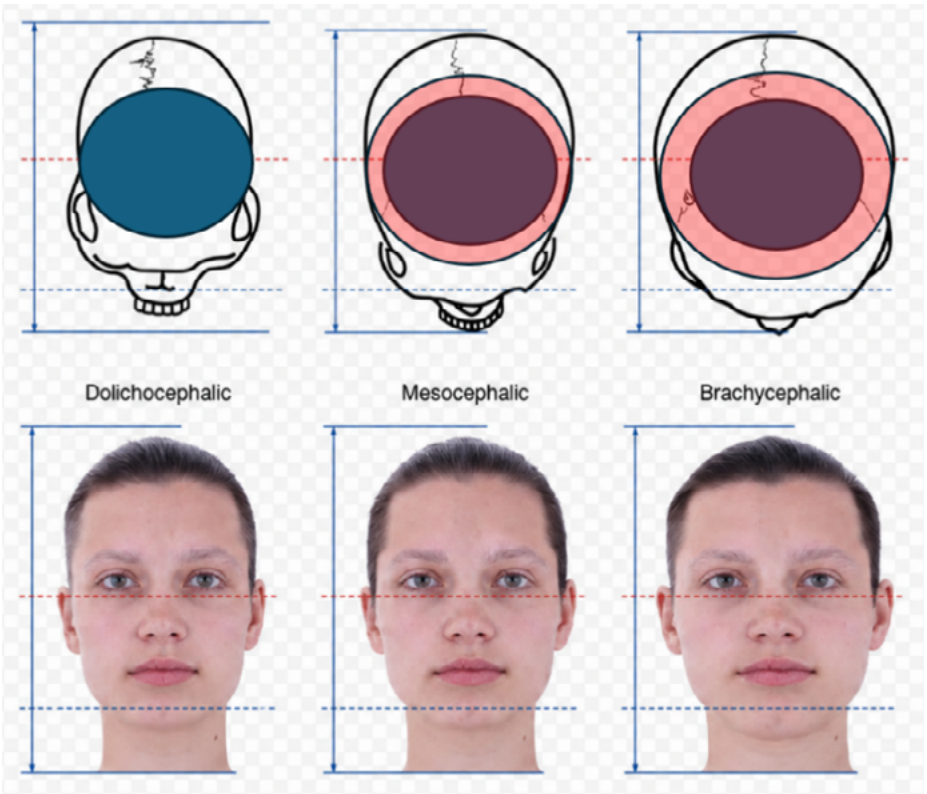


Figure 02: When comparing the extent of the bald area on a dolichocephalic skull with that of other skull types, it can be observed that the bald area on the latter has a larger radius.

TECHNICAL AND LOGISTICAL CHALLENGES

1. Calculating Follicular Area and Demand

The main obstacle lies in the mathematical correlation between the cranial radius and the total area to be treated. Using the principle of the area of a circle ($A = \pi r^2$), it can be observed that as the radius of the bald area increases, there is an exponential increase in the area of baldness to be covered compared to dolichocephalic skulls with the same pattern of alopecia (Figure 02).

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This characteristic has two direct impacts:

- Surgical Planning: A greater need for follicular units (FUs), which may require a schedule involving multiple sessions, in addition to adjustments to the surgical team's logistics.

- Density Control: There is a high risk of premature depletion of the donor area if density is excessive in certain zones of the scalp.

2. Proportion of the Upper Third

Brachycephalic patients often exhibit the upper third The upper third of the face is rounder and proportionally larger than the middle and lower thirds. This characteristic requires a carefully planned hairline design to prevent the facial disproportion from becoming more pronounced.

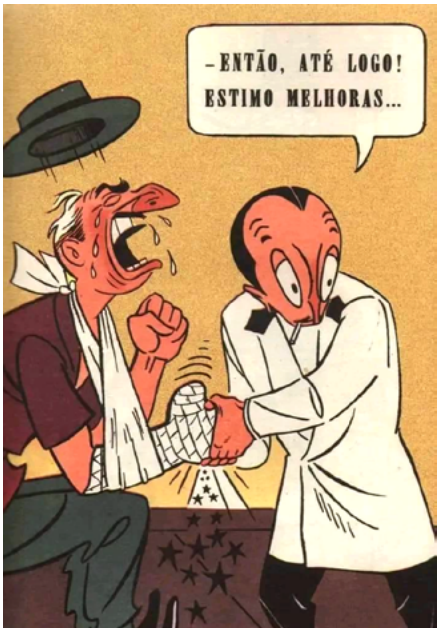


Figure 03 – "Amigo da Onça" character. Example of a caricature of a person with a brachycephalic skull, showing a hairline with a long, rounded arch. Note that the proportion of the upper third is exaggerated in this drawing style. It is also important to note that when the lower third is narrower, the perception of a rounded upper third becomes even more pronounced.

3. Facial Width and Temporal Recessions

The prominent facial width characteristic of this biotype can create the impression of a broad forehead or even make it appear as though the patient is wearing a hair prosthesis when the frontal hairline is advanced during hair transplantation without correcting the deficiency in the temporal peaks.

SIX-STEP APPROACH TO HAIR TRANSPLANT FOR EXTENSIVE HAIR LOSS IN A BRACHYCEPHALIC SKUL

Step 1: Aligning expectations and patient education

In cases of advanced hair loss, it is essential to advise the patient on the volumetric limitations of the donor area relative to the size of the recipient area. A homogeneous and diffuse distribution of grafts across the entire scalp in a single session should be contraindicated when baldness is extensive, as this practice results in generalized low density and an unsatisfactory aesthetic appearance. In such cases, the surgical plan must anticipate—and clearly communicate—the need for two or more procedures to achieve full coverage.

Step 2: Hairline Planning

Many surgeons use facial thirds as a guideline for defining the hairline. In brachycephalic patients, however, this line can be positioned slightly higher than the classic proportion, regardless of the physician's usual practice, with the goal of reducing the total number of strands and achieving a more rectangular facial proportion. Additionally, to harmonize the globose upper third, the hairline design should include subtly planned recessions. Purely concave lines or long, rounded arches tend to visually accentuate the width and spherical shape of the skull. If this step is performed improperly, caricature-like shapes may result due to failure to account for this anatomical difference.



Figure 04 – AI-generated image showing a realistic representation of the caricature of the character "Amigo da Onça." Note how this type of "receding" hairline in the upper third increases the perceived size of the skull.

Step 3: Reconstruction of Temporal Peaks

We recognize that, in patients with other skull types, a more conservative approach may be adopted regarding reconstruction of this region. However, the temporal peak approach is almost mandatory in brachycephaly when

there is a lack of hair in this area. Proper reconstruction of this area reduces the perception of a widened forehead and softens the rounded appearance of the skull, giving it a more rectangular shape that is aesthetically more desirable among men.

Many physicians advocate avoiding the temporal approach at all costs, with a view to preserving the donor area in the long term. However, patients who undergo a transplant seek, above all, a good appearance. Another important point is that the number of follicular units required for an aesthetically pleasing result in this region is not very large — we typically use 800 to 1,200 FUs for the anterior hairline in a brachycephalic skull, but only 250 to 350 FUs in the temporal peaks to achieve an excellent outcome. Finally, if we consider future approaches as baldness progresses, a high forehead is always preferable to an artificial appearance, similar to that of a hairpiece.



Figure 05 – Example of a person wearing a prosthesis. Note how the receding temporal peaks make the image look disproportionate and the forehead appear wider, revealing the artificial nature of this modification.



Figure 06 - "Tiara" effect: – When hair is concentrated solely in the front region, with the aim of providing greater density to the first few centimeters of the front region, but without distributing it strategically across the rest of the head.

Step 4: Distribution Strategy and Density Gradient

We recommend performing intraoperative monitoring focused on the absolute number of hairs implanted per square centimeter, although this count can be carried out using any other strategy, such as calculating follicular units alone or using the coverage value. We routinely prioritize the implantation of UFs consisting of 3 to 4 hairs in the anterior zone, immediately behind the fine hairline, which is composed of single hairs. This approach reduces the number of microincisions in this zone, thereby lowering the risks of vascular compromise and tissue necrosis.

The aesthetic transition protocol adopted in our practice follows these guidelines:

- Start in the frontal zone with an average of 100 to 120 hairs/cm², and gradually reduce toward the posterior zones, establishing a minimum limit of 60 hairs/cm². Note: These figures may vary depending on the extent of hair loss, hair thickness, and the treatment plan agreed upon with the patient.
- This gradual reduction prevents the "tiara effect," which is common when there is high density concentrated strictly within the first few centimeters of the recipient area.
- If the crown area needs to be left uncovered to prioritize the anterior area, the demarcation line should be drawn with intentional irregularity, avoiding abrupt and artificial boundaries.



Figure 07 – Note that, in this case, there was a demarcation with an abrupt break in the hair strands of the recipient area—a phenomenon that does not occur in nature—giving the transplant an unnatural appearance.

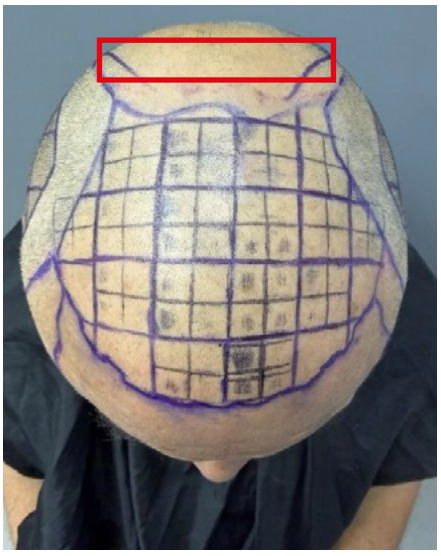


Figure 08 – The red outline shows how we plan for the irregularity in the posterior region, following the approximate outline of the crown.

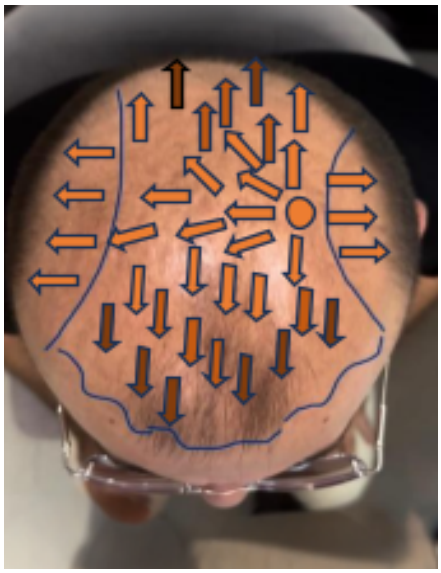


Figure 09 – Whirl positioned as close as possible to the vertex. Note that the arrows pointing toward the occipital region were intentionally colored darker to represent a greater number of overlapping hair strands in that region. As this occurs naturally; we achieve greater coverage in this area with fewer threads.

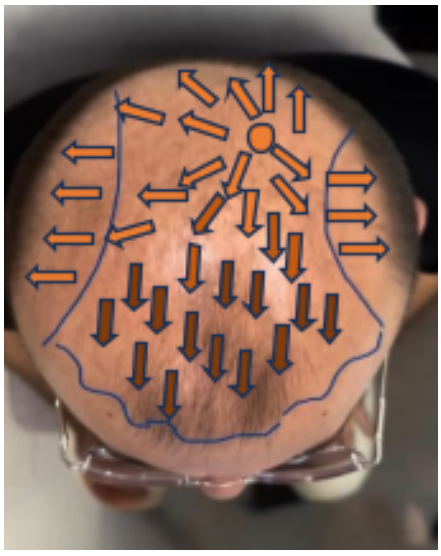


Figure 10 – In this second diagram, the arrows in the posterior region were not shaded in a darker color, as the greatest overlap of hair strands is in the anterior region of the skull, since the whorl was not positioned as far forward.

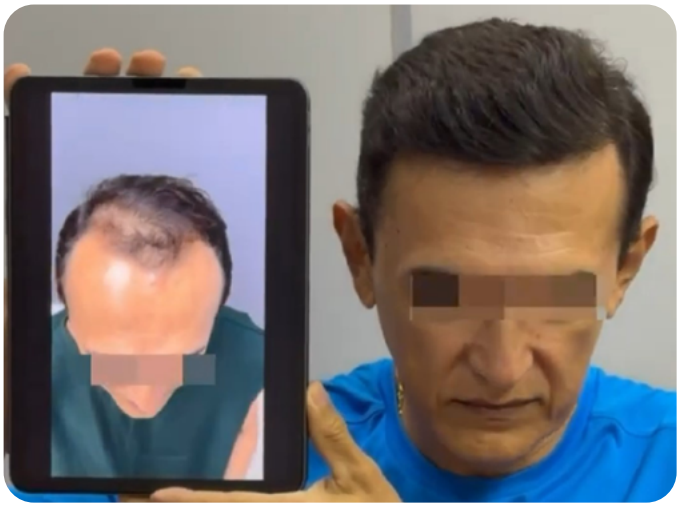
Step 5: Strategic Positioning of the Vortex

To achieve the greatest optical illusion of coverage with the least use of grafts, the point of convergence of the whirl—when it is absent due to hair loss—should be positioned as close as possible to the top of the vertex (moving the whirl as far forward as possible). By directing the hair from this region toward the occipital (posterior) area, the visual coverage of the crown is optimized. This technique compensates for the scarcity of remaining follicles, since most are used to provide greater density and, consequently, a more natural appearance in the frontal zone.

It is important to highlight that the illustrations also depict the structure of the lateral hump (or parietal hump) — the crescent-shaped elevation of the lateral (parietal) hair region, which not only helps reduce the amount of hair needed in the central area but also provides a more visually appealing aesthetic for these skull shapes. Another point to note is that we position the cowlick very close to the lateral hump in order to take advantage of the direction of the hair strands in that structure, and we always choose the side of the lateral hump that makes it easier for the patient to comb their hair.

Step 6: Optimized Follicular Unit Extraction (FUE)

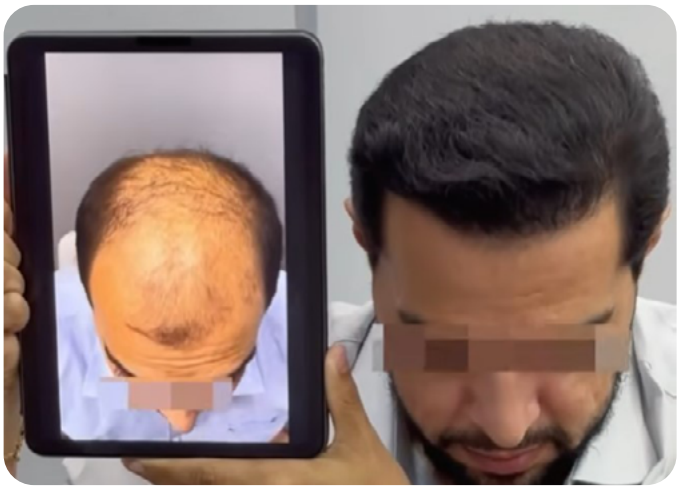
The magnitude of the recipient area in brachycephalic skulls requires a reassessment of the traditional concept of the “safe area” of the donor zone, originally proposed to obtain the best grafts in the FUT technique. Given the need for mega-sessions, a hybrid approach is adopted: extraction



Click to watch video 1



Click to watch video 2



Click to watch video 3

is performed predominantly within the safe zone but extends—in a controlled manner and to a lesser extent-into the area considered “unsafe”. This technique not only increases the overall follicular yield but also creates a more natural gradient effect in the donor area, preserving aesthetic homogeneity and preventing sharp transition lines or signs of over-harvesting.

RESULTS

We presented some videos demonstrating the results of patients operated on following the steps suggested in this article.

CONCLUSIONS

These six steps constitute our routine Click to watch video 1for approaching brachycephalic and mesocephalic patients. We observe a high level of satisfaction among patients who choose to undergo surgery following these steps. The use of body hair, in addition to micropigmentation, can also be adopted in more complex situations starting from the second surgery, with each case evaluated individually.

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Scalp biopsy



Dr. Francisco Le Voci,
Former President of AB-CRC, President of SBCD (2025-2026 term)
CRM 65931 | RQE 13762

What You Will Read in This Article

- When a scalp biopsy is indicated and its importance in the diagnosis of alopecia.
- The step-by-step procedure, from marking the area to the removal and suturing of the specimen.
- Practical tips for optimizing collection, preserving sample quality, and facilitating dermatopathological analysis.
- Why mastering this technique is essential for the hair restoration surgeon prior to recommending a transplant.

Scalp biopsy is a crucial procedure in our practice; following the patient's clinical examination, we may observe signs suggesting an inflammatory process that could indicate scarring alopecia or another scalp pathology. With this in mind, we will present a series of videos showing how we normally perform the procedure.

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Click to watch video 1

When selecting the biopsy site, usually with the aid of trichodermatoscopy, the area to be biopsied should be marked and isolated so that it remains clearly visible and well-delimited. It may also be helpful to slightly trim the hair at the biopsy site, which facilitates the accuracy of the procedure.



Click to watch video 2

"After asepsis, anesthetic infiltration is performed using a 2% lidocaine cartridge with vasoconstrictor.



Click to watch video 3

Adequate anesthetic supplementation should be ensured by infiltrating both the superficial and deeper planes, which guarantees that the patient will not experience pain during the procedure





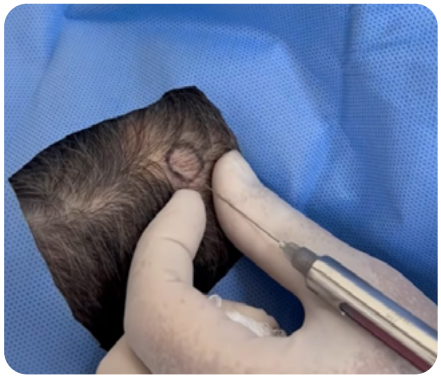
Click here to watch videos 4 and 5

Here is a tip that helps with performing the procedure. We draw 3–5 ml of saline solution into a syringe. Part of this solution is infiltrated into the biopsy site after anesthetic infiltration, helping to promote hemostasis and providing greater tissue firmness, which facilitates the placement of the 4-mm punch and the subsequent extraction of the scalp fragment that will be sent to the dermatopathologist.



Click to watch video 6

We waited approximately 5 minutes and then, using a 4 mm punch, proceeded to remove the specimen. It is important to note that the excision must extend down to the subcutaneous tissue, ensuring the specimen is not transected, so that the material is in optimal condition for the dermatopathologist's analysis.



Click to watch video 7

Finally, suturing is performed using 4-0 nylon thread. In this case, suture removal is recommended between 7 and 10 days. Monocryl can also be used, as it is absorbable and does not require removal

CONCLUSION

Thus, performing a scalp biopsy allows for an accurate diagnosis of any underlying condition, enabling appropriate treatment. Hair transplant surgeons must master this technique, as we often see patients interested in the procedure who present with an inflammatory condition; these patients require proper diagnosis and treatment before surgery is recommended.

NEW TECHNOLOGIES AND THE RECORDING OF MEDICAL CONSULTATIONS

Ethical and legal implications for physicians and patients



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CRM 126779 - RQE 39560



Gustavo Graça Mercadante – Attorney since 1984, specializing in the defense of healthcare professionals, with a practice covering litigation, arbitration, and private mediation; attorney for the ABCRC since 2019. OAB/MG 38.255

What you will read in this article

- The key ethical and legal aspects involved in recording medical consultations and procedures. .
- What the Code of Medical Ethics, the CFM, the CREMESP, and the LGPD say about the subject.
- How physicians should handle patients using devices capable of recording.
- Necessary precautions when the professional themselves creates audiovisual recordings, to mitigate ethical, legal, and data protection risks.

In recent years, the physician–patient relationship has begun to face new challenges arising from rapid technological advances, particularly those related to image capture and recording during medical consultations and procedures.

The first smart accessories/wearable devices capable of audiovisual recording began to gain prominence in 2013 with Google's LAUNCH Glass[1]. In 2016, Snap Inc. launched Snap Spectacles[2], expanding the concept of first-person recording in everyday life. Various other models subsequently appeared; however, this type of technology achieved widespread popularity following the partnership between Meta Platforms (formerly Facebook) and Ray-Ban, which launched Ray-Ban Stories[3] in 2021. In September 2023, the second generation of the product was released, named Ray-Ban Meta[4], incorporating artificial intelligence, live streaming, and improved recording quality. In 2025, the Ray-Ban Meta Display Gen 2 was introduced, consolidating



smart glasses as devices widely used in everyday life.

In this context, it is becoming increasingly common for physicians and patients to use devices capable of recording consultations, examinations, and surgeries — a situation that may generate important ethical, legal, and sensitive-data protection implications.

Although there is no specific legislation regarding the recording of medical consultations using wearable devices, certain regulations and legal interpretations are essential for understanding the topic.

The Medical Ethics Code, updated by CFM Resolution No. 2,217/2018[5], initially establishes in Article 33 that physicians are prohibited from refusing care to patients in situations of urgency or emergency when no other professional or service is available. Article 36, in turn, states that a physician may withdraw from providing care when circumstances undermine the physician–patient relationship or the proper exercise of professional duties, if continuity of assistance is ensured

Furthermore, according to the legal opinion issued by the Legal Department of the Federal Council of Medicine in SEJUR Ruling No. 386/2016[6], a recording made by the patient of the consultation in which they participate does not automatically constitute an unlawful act, especially because the patient is the holder of medical confidentiality. However, it is emphasized that the Federal Constitution guarantees protection of the physician's image, honor, intimacy, and private life, as established in Article 5, item X[7]

Along the same lines, CREMESP Opinion-Consultation No. 122.508/18[8] states that patients may record medical consultations in audio or video, even without the physician's prior authorization, since they directly participate in the conversation and are the holders of the information related to their health. However, the opinion also recognizes the physician's rights regarding image, voice, and the preservation of the therapeutic relationship, recommending dialogue, transparency, and documentation of the situation in the medical record. The opinion further acknowledges that, in elective consultations and in situations involving a breakdown of trust, the physician may refuse the recording or even withdraw from providing care, if appropriate continuity of assistance is ensured. In urgent and emergency situations, however, the ethical duty to assist the patient prevails.

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Another relevant document is CFM Resolution No. 2.314/2022[9], which regulates telemedicine in Brazil The regulation reinforces that any recordings of teleconsultations must comply with medical confidentiality, the protection of sensitive personal data, confidentiality, image protection, and the requirements of the General Data Protection Law (LGPD). The resolution also allows audiovisual records to be incorporated into the medical chart when stored by the healthcare service.

From a practical standpoint, when faced with a patient using smart glasses or another device capable of recording during consultations, it is possible to suggest a basic conduct protocol:

- Question the patient regarding the existence and purpose of the recording;
- Request that the patient sign a confidentiality and physician image-and-voice protection agreement, documenting the situation in the medical record.
- If the patient refuses to sign the agreement, record the refusal and obtain the signature of a witness, such as an administrative staff member or secretary."
- In non-urgent situations, if the relationship of trust is broken, the physician may refuse to provide care based on Article 36, §1 of the Code of Medical Ethics[5], if continuity of care is ensured;
- Inform the patient of the legal liabilities arising from the misuse of the professional's image and voice.



On the other hand, the legal and ethical implications become more sensitive when the physician themselves records consultations or surgical procedures using similar devices. This occurs because the physician is responsible for the technical and legal custody of the patient's sensitive health data and is therefore subject to heightened duties of confidentiality, privacy protection, and professional secrecy.

When recording is performed with the patient's free and informed consent, a legitimate purpose, secure storage, and compliance with the General Data Protection Law (LGPD), the ethical and legal risks are significantly reduced. In such situations, the recording may be incorporated into the medical record, serve as technical documentation, function as a teaching tool, or be used as a means of professional defense.

However, when the physician records without the patient's consent, the legal risks increase, potentially involving ethical accountability before the Medical Councils, civil liability for moral damages, violation of the LGPD, and, in certain circumstances, criminal liability for invasion of privacy or improper disclosure of images

Thus, it becomes essential for healthcare professionals to remain attentive to contemporary technological transformations and to continuously adapt their practices to the ethical, legal, and social evolution of the physician–patient relationship

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ETHICS, CONNECTION, AND AUTHORITY

The definitive guide to digital marketing for doctors



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What you will read in this article

- How patient behavior has transformed medical marketing in the digital age.
- Key CFM (Federal Council of Medicine) rules regarding medical advertising and social media presence.
- Strategies to strengthen professional authority through content, SEO, Google Business Profile, and social media.
- The role of paid traffic and reputation building in achieving sustainable growth aligned with medical ethics.

The Patient behavior has changed drastically over the last decade. While choosing a doctor used to be based exclusively on recommendations from family members or a health insurance provider's list, today the journey begins with search engines. Even before scheduling an appointment, the modern patient Googles symptoms, looks up professional profiles on Instagram, and reads reviews on Google Maps.

> *As Martha Gabriel points out, hyperconnectivity has transformed the consumer into an active agent who demands convenience, transparency, and immediate access to information before making any purchasing decision or engaging services.*

In this context, digital marketing for physicians has shifted from being a competitive advantage to becoming a necessity for survival and market positioning. However, medical advertising is subject to strict rules and a unique dynamic, where the primary objective should never be aggressive "selling".

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Referring to Theodore Levitt's classic concept of "Marketing Myopia," the healthcare professional should not focus on selling "consultations," but rather on offering what the patient truly seeks: health, well-being, empathy, and relief from pain. In the digital environment, this translates into building authority, promoting health education, and earning trust.

THE ETHICAL PILLAR: NAVIGATING CFM REGULATIONS

Unlike any other market sector, medical marketing is strictly regulated. In Brazil, the Federal Council of Medicine (CFM) sets the rules through CFM Resolution No. 2.336/2023. To operate in the digital space without risking ethical-professional disciplinary proceedings, physicians must keep a few fundamental principles in mind:

- Mandatory Identification: Every publication, profile, or website must clearly display the professional's name the title "Physician" (or "Medical Doctor"), the registered specialty, and the CRM (Medical Council registration) and RQE (Specialist Qualification Registry) numbers.
- Prohibition of Sensationalism: The use of terms that promise guaranteed results,
- miraculous cures, or exclusive techniques without scientific evidence is prohibited.
- Rules for "Before and After": Although the new resolution permits the display of patient photos for educational purposes, this must adhere to strict criteria, requiring the patient's express authorization and avoiding sensationalist self-promotion or humiliating exposure.
- Remote Consultations: Telemedicine is a reality, but advertising cannot replace the actual practice of medicine or promise definitive diagnoses via social media (Direct messages or comments).

Ethical medical marketing focuses on providing information of public interest.

When a professional positions themselves as an educator, attracting patients becomes a natural consequence of the value generated for society.

ESSENTIAL DIGITAL POSITIONING STRATEGIES

To build a solid and sustainable digital presence, a physician must invest in three key pillars based on attraction and permission.

1. Educational Content on Social media

Platforms such as Instagram, TikTok, and LinkedIn are excellent channels for humanizing the brand and fostering closer connections. The most common mistake is turn-



ing the profile into a "digital flyer" featuring repetitive posts like "Book your appointment." This practice ignores the concept of Permission Marketing coined by Seth Godin, which argues that modern marketing should be anticipated, personal, and relevant rather than intrusive On social media, doctors should focus on demystifying common conditions within their specialty, explaining symptoms in simple terms, and offering prevention tips. By providing value for free, the professional builds a trusting connection with their audience.

2. Professional Websites and Content Marketing (SEO)

Social media platforms function like "rented land." A dedicated website serves as the doctor's "home" on the internet. This strategy is directly based on the concept of Inbound Marketing—developed by Brian Halligan and Dharmesh Shah—which aims to have the client find the company (or professional) at the exact moment they are seeking a solution.

Through SEO (search engine optimization) techniques, when a patient searches Google for "What causes chronic lower back pain?" and finds a detailed article on an orthopedist's blog, the perception of authority—and the likelihood of converting that visit into a consultation—increase exponentially.

3. Local Presence with Google My Business

For physicians who work in physical offices, this is an essential positioning tool. In his theories on competitive strategy, Michael Porter points out that differentiation is a key factor in an organization's success. The proper completion of the local profile, combined with positive reviews from satisfied patients, serves as a powerful element of differentiation and social proof within the physician's geographic area of practice.

PAID TRAFFIC: ACCELERATING RESULTS

Although organic growth is valuable, it takes time. In the current market transition — which Philip Kotler defines as Marketing 4.0 and 5.0, where online connectivity merges with offline experience — the use of data and paid media accelerates the reach of the right audience. For physicians who are opening a new practice, two tools are indispensable:

- Google Ads (Search Network): This is the highest-converting tool for the "bottom-of-funnel" audience. When a user types "Pediatrician in Porto Alegre," the physician's ad appears in the top results, capturing the patient at the exact moment of need.
- Meta Ads (Instagram and Facebook): Ideal for building brand awareness and reaching people segmented by specific interests or demographics related to that medical specialty.

CONCLUSION: THE VALUE OF THE LONG TERM

Success in digital marketing for physicians is not measured by the number of followers or likes, but rather by the quality of patients visiting the practice and the consolidation of the professional's reputation. As Marcos Cobra aptly summarizes regarding the Brazilian market, consistency and adaptation to local needs are fundamental to the survival of any market strategy.

Investing in digital marketing within medicine is a medium- to long-term commitment. When carried out ethically, in compliance with CFM regulatory standards, and focused on the patient's real needs, the internet becomes the most powerful tool for connecting medical science with those who need it most.

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A Tribute to **Carlos Uebel**



Dr. Carlos Eduardo Leão
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CRM 14.076 - RQE 1862

Writing about Carlos Oscar Uebel is perhaps one of the most difficult tasks-and, at the same time, one of the greatest honors-of my life.

A friend, mentor, advisor, and companion on countless scientific journeys around the world, Uebel was much more than an extraordinary surgeon. He was a rare man.

Cultured, elegant, refined, and profoundly human, he cherished life in its finest expression: good conversation, loyal friendship, science, the art of welcoming, and the joy of sharing moments with those he loved.

Alongside Walderez, his inseparable companion and a grande dame of Porto Alegre society, he formed a couple admired not only for the natural elegance they both radiated, but also for the distinction, courtesy, and kindness with which they always treated everyone around them.

In his children, daughter-in-law, son-in-law, and grandchildren—his greatest passion—the values that always guided his life to live on: refinement, discretion, generosity, and dignity.

It was a privilege to know Uebel. Learning from him was an honor. And keeping his friendship will remain, for all of us, one of our most treasured memories.

Brazilian plastic surgery and the international hair-restoration community bid farewell to one of their brightest and most respected figures.

A pioneer in hair restoration surgery in Brazil, Prof. Dr. Carlos Oscar Uebel has dedicated his professional career to the development, refinement, and dissemination of techniques that have transformed the approach to treating male-pattern baldness.

Since the 1970s, he distinguished himself as one of the key figures responsible for introducing and consolidating modern hair-reconstruction techniques in Brazil, becoming an international reference in a specialty that was then still emerging.

His scientific contribution was vast, solid, and innovative. Author of numerous works published in Brazil and abroad, he became especially renowned for his studies involving mini- and micro-grafts, as well as pioneering research with platelet-rich plasma (PRP), helping to establish new horizons for contemporary hair surgery.

International recognition of his extraordinary contribution to the

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field came in 2000, with the awarding of the prestigious Platinum Follicle Award from the International Society of Hair Restoration Surgery (ISHRS), one of the highest honors in the field of hair restoration worldwide.

Yet those who had the privilege of living alongside Uebel will remember not only his technical and academic excellence, but also his striking presence, his personal refinement, and his rare elegance in the practice of medicine.

Endowed with extraordinary teaching ability and impeccable oratory, he turned lectures and conferences into memorable moments, always eagerly awaited with admiration at the most important national and international congresses.

A polyglot, he mastered English, Spanish, and German with impressive naturalness and precision — a trait that further expanded his presence in international scientific circles, where he represented Brazilian medicine with distinction, culture, and sophistication.

Generous in sharing knowledge, he treated colleagues, students, and disciples with attentiveness, kindness, and a genuinely collaborative spirit. He trained not only surgeons, but also admirers and friends, leaving a profound mark on different generations of professionals who looked to him as a model of competence, ethics, and humanity.

With his passing, the field of medicine loses a master. Hair restoration surgery loses one of its greatest innovators. And all those who had the honor of knowing him lose a singular figure, whose intelligence, elegance, and human greatness will remain alive in the memory of the specialty.

His legacy transcends his scientific achievements. He remains present in the evolution of hair surgery, in the training of countless professionals, and in the inspiration left by a life wholly dedicated to medical excellence and care for others.

Today, as I bid farewell to Uebel, I am not merely saying goodbye to a Master of Medicine or one of the world's leading names in hair restoration surgery. I bid farewell to a dear friend, to a man elegant in the very essence of the word, and to a human presence unforgettable

Some people move through life accumulating titles. Others, far rarer, pass through time leaving a deep mark on those who had the privilege of knowing them.

Uebel belonged to the latter category. His talent enriched medicine. His intelligence enlightened generations. But it was his humanity-discreet, refined, and generous-that truly made him unforgettable.

He will be deeply missed. We will miss him deeply. But greater still is the gratitude for having lived alongside someone who transformed knowledge into legacy, prestige into respect, and success into human elegance.

Uebel has left this life. But he remains forever in our memory, in the history of medicine, and in the hearts of all of us who had the honor of calling him a friend.

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