VASCULAR ART

Advanced **R**evascularization **T**echnologies

Vol. 1 I Winter 2025 Shaping the Future of Vascular Innovation

VASCULAR ART NEWSLETTER - Vascular Health Community **www.vascularart.com**

A New Chapter in Vascular ART

Discover the new Identity, upcoming events, and what's next.

With great pleasure, we introduce the new chapter of Vascular Art, marked by a bold, modern identity that reflects our growing community and ambitious vision for the future.

About the new identity: The shield in our new logo reflects protection and prevention, our promise to advance safer vascular care. The wings symbolize care and hope, representing compassion and the drive toward innovation.
Together, they embody Vascular Art's spirit: strength with humanity, science with vision.

At Vascular Art, we aim to create a dynamic, inclusive, and forward-thinking environment for vascular specialists worldwide.
Our mission is to merge science with creativity through:
* Live transmissions
* Expert discussions
* Real-world case reflections

In 2025, we're expanding our reach with:
* Deeper clinical insights
* Global faculty collaborations
* Focus on AI, limb salvage, and new-age vascular access.

The journey continues and we invite you to be part of every step.

COMING SOON

Digital Newsletter, International Partnerships, New Publication Oppurtunities

Inside this issue

Presidential Interview

A Conversation with Prof. Mahmoud Salah on Leading with Vision

Insights on Vascular Art Academy

Vascular Art is more than a conference, it's a movement to redefine how we learn, connect, and innovate.

Prof. Mahmoud Salah

MD, FRCSI, Fein, BCAGF Cheif Of vascular Surgery, President of Vascular Art

Q: Dr. Mahmoud, what inspired the creation of Vascular Art, and how did the concept begin?

A: The idea for Vascular Art stemmed from a deep recognition of the evolving needs in vascular education. Over the years, I noticed a gap between clinical practice and the art of teaching, especially in how we approach innovation, mentorship, and hands-on training. The name "Vascular Art" reflects our belief that ART does not stands for Advanced Revascularisation Technologies, bus also for ART , as vascular surgery is not only a science but a craft that demands precision, creativity, and lifelong dedication.

We started as a small initiative to share advanced knowledge and techniques through collaborative workshops and grew into a broader platform because the community embraced it with enthusiasm.

Q: How do you view the importance of continuous medical education in the current vascular and endovascular field?

A: Continuous medical education (CME) is not just important, it's essential.
The vascular and endovascular landscape is advancing rapidly with new devices, imaging techniques, and minimally invasive interventions. Without CME, even the most experienced clinicians risk falling behind. More importantly, ongoing education fosters patient safety, encourages innovation, and builds a culture of excellence. As educators, we must create accessible and engaging learning opportunities that evolve with the field.

Q: What is your vision for the future of Vascular Art as an international platform?

A: My vision is for Vascular Art to become a globally recognized hub for vascular education and collaboration.

We aim to connect surgeons, interventionalists, and trainees from around the world through structured courses, live cases, digital content, and international partnerships. Ultimately, I want Vascular Art to be synonymous with high standards, hands-on learning, and mentorship, a platform that helps raise the next generation of vascular leaders.

Q: Can you tell us more about the Vascular Art Academy and how it aims to support the new generation of surgeons and vascular professionals?

A: The Vascular Art Academy or VA Academy is a core component of our mission. It was designed to provide structured, tiered training from foundational knowledge to advanced procedural skills.
Through simulation-based education, online modules, and real-time mentorship, we offer a comprehensive learning experience. The Academy is especially focused on supporting young surgeons in regions where access to specialized training is limited, ensuring they receive the guidance and exposure they need to excel.
We started with MRCS courses for all young surgeons applying for the exam, with very good positive feedback from all candidates. This encouraged us to move to the next step.

Q: What message would you like to share with the readers of this first edition of the Vascular Art Newsletter?

A: To all our readers: thank you for joining us at the beginning of this exciting journey. Vascular Art is not just an organization, it's a movement. A movement built on shared knowledge, dedication to excellence, and the belief that the future of vascular care lies in collaboration and continuous learning. I invite each one of you to be part of this vision, contribute your experiences, and help shape the future of vascular education with us.

Vice President

Dr. Ahmed Sakr Shares Insights on the Rise of the Educational Platform

Dr. Ahmed Sakr
FEIN, BCAGF, IDFSF Consultant Vascular Surgery, Vice President Vascular Art

The Vision Behind the Newsletter:

A Living Educational Platform. "Vascular Art is not just a conference any more, it is going to be a year-round movement of learning and sharing."

In his dual role as Vice President and educational lead of Vascular Art, Dr. Sakr introduced the concept of the Vascular Art Newsletter to extend the spirit of collaboration beyond the annual meeting. "This newsletter was born from the idea that our work, the cases, the debates, the innovations, doesn't stop when the lights go off after the closing ceremony. Education should breathe all year long."
The newsletter reflects the broader educational mission of Vascular Art, complementing initiatives such as the online platform, faculty collaborations, and now the Vascular Art Theater Program at the upcoming 2025 edition.

"We are trying to build a multi-layered educational ecosystem, one where a young surgeon can learn from a roundtable in Jeddah, a case in Barcelona, or an article in this very issue."

Education is the core of transformation, and Vascular Art is building a platform that lasts far beyond the event itself.

Knowing your role in CLI fighting in daily practice ,Adopting New Technologies Considered crucial : The Role of Atherectomy in Daily Practice
"In CLI, plaque morphology dictates success, not just our intention to treat."
I am is a firm believer in precision-based treatment for critical limb ischemia, particularly in heavily calcified, below-the-knee disease, where conventional angioplasty often falls short.

Atherectomy has become a daily tool in my practice. It's not a luxury, it's a necessity when you're dealing with severe calcium, small vessels, and the need to preserve every millimeter of flow."
In my clinical routines, orbital and Rotational atherectomy, sometimes combined with drug-eluting technologies or intravascular lithotripsy, have significantly improved procedural outcomes and wound healing trajectories.

"We select the tools based on lesion preparation strategy, we don't 'balloon first' blindly anymore. Adopting new technologies in CLI isn't about being trendy, it's about limb salvage with intent and precision."

Not to mention also the structured technology adoption:
"It's not just about using the latest tool, it's about learning the learning curve, training others, and documenting our outcomes to create real impact. That's how we evolve responsibly."

Final Note: "I hope this newsletter becomes a bridge between cities, between minds, and between generations. And I look forward to seeing everyone at Vascular Art 2025, where science meets purpose."

Vascular ART Newsletter

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Expert Insights on Carotid Disease Today

Modern Carotid Management: Balancing Evidence, Experience, and Innovation

Carotid Intervention

Prof. Dr. Martin Storck

Director of klinik for vascular endovascular surgery Karlsruhe, Germany

Q: How has your approach to carotid disease evolved in recent years, especially with new evidence on medical management versus intervention?

A: The management of extracranial stenosis needs to be divided in two aspects: asymptomatic and symptomatic stenosis. My approach has always been to follow the national and international guidelines. I was a member of the committees, also for the external mandatory quality assurance. The question: stent – open surgery –conservative treatment is an important issue especially in the case of asymptomatic stenosis. Medical treatment has improved, however best medical treatment is also performed after surgery or stenting. The indications need to be clear and based on morphological and neurological examinations.

Q: In your opinion, how should vascular surgeons balance open carotid endarterectomy (CEA) and carotid artery stenting (CAS) in current practice?

A: This decision should be made individually, using guideline recommendations and special judgement of the plaque type, localisation of the stenosis as well as special clinical comorbidities such as paresis of recurrent nerve, tracheostomy, or combined extra-intracranial stenosis. The percentage of stenting indications are about 15-20% in European registries. Stenting is also performed by neuroradiologists with high expertise.

> **Understanding the evolving risk profile and refining indication thresholds are at the core of modern carotid intervention.**

Q: What are the key considerations for patient selection and procedural planning in carotid interventions today?

A: There are almost no contraindications for reconstruction of symptomatic extracranial carotid disease, it can be performed in local anesthesia with sedation. Simultaneous cardiac surgery is not recommended. The procedural planning should include the recording of the patient history, a high quality duplex Scan and an MRA or CTA of the extra-and intracranial segments.

Q: What training or mindset do you believe young vascular surgeons need to master carotid techniques safely and effectively?

A: There are good models to train surgery or stenting available. Also it is important, to gain experience by assisting many cases with experienced surgeons.

The step-by-step patch closure or anastomosis in the case of eversion is trained, finally the whole procedure. The procedure should only be performed or supervised by vascular surgery specialists.

Q: Looking ahead, how do you see the role of carotid surgery evolving within the next decade — especially with advancing imaging, stent technology, and prevention strategies?

A: In the next decade prevention and better selection might be realized, however the incidence of carotid disease will probably increase at least in such countries with growing age of the general population. Surgery will always play a major role in treating extracranial carotid stenosis. Good cooperation with neurologists is mandatory to achieve good results and optimize patient care.

For the Next Generation on the Future of Vascular Surgery

Vascular Education

Surgical Synergy: Bridging Specialties for a Better Future

Dr. Ihab Saad

Professor of Onco surgery, Chief of surgical departments SGH
Jeddah, Saudia Arabia

Q: As Chief of Surgery, how do you view the importance of collaboration between general surgery and vascular surgery in complex cases like oncology or trauma?

A: In my opinion the collaboration between general and vascular surgery in complex cases is extremely crucial. It is well known in medicine that complex cases—such as oncology or trauma—demand a harmonious alliance between general and vascular surgeons. This collaboration is not merely a matter of shared effort but a synergistic union where each specialist's unique perspective and skills converge, allowing for comprehensive treatment plans. multidisciplinary cooperation enhances our capacity to navigate the intricate fabric of the human body, leading to better outcomes for our patients.

Q: What do you believe are the essential components in training the next generation of surgeons across subspecialties, and how can we ensure vascular surgery is integrated early in this training?

A: Education, much like the scientific method, thrives on curiosity, foundational understanding, and progressive complexity. To prepare competent surgeons across subspecialties, we must cultivate a curriculum that promotes early exposure to vascular principles—encouraging for different expertise. Hands-on curiosity and fostering respect training, mentorship, and interdisciplinary rotations are essential—helping future surgeons see themselves not as isolated practitioners but as part of a larger, interconnected system that works harmoniously for the patient's benefit.

Q: How can surgical departments foster stronger research culture, especially in subspecialties like vascular, oncology, and minimally invasive surgery

A: Research is the engine of progress—an eternal quest for deeper understanding. Surgical departments should create an environment that incentivizes curiosity, collaboration, and innovation. This could involve multidisciplinary research teams, dedicated time and resources, and a culture that celebrates curiosity-driven inquiry. Encouraging young surgeons to pose questions—"What if?" and "How?" fosters an atmosphere where breakthroughs can emerge, ultimately enhancing clinical care.

Q: Can you share an example of successful interdisciplinary teamwork within the Saudi German Group where vascular surgery played a key role?

A: Vascular surgery played a pivotal role within a team managing complex oncologic cases, where tumor resection and vascular repair required seamless coordination. We had multiple examples of such successful collaboration one it was: pt with Retroperitoneal sarcoma encasing part of abdominal aorta and left renal pelvis through dedicated meticulous teamwork between both vascular and oncosurgical team the patient had successfully operation with excellent outcome.

Q: How do you envision international collaborations with societies or academic programs enhancing surgical education and clinical outcomes in Saudi Arabia and the region?

A: Looking beyond borders, international partnerships are treasures of shared knowledge and innovation— to the exchange of ideas among scientists studying the cosmos. Societies and academic programs across the globe can collaborate to standardize best practices, share breakthroughs, and foster cultural exchanges that enrich surgical education. Through such alliances, we can elevate standards of care, harness diverse expertise, and propel the region towards a future where our patients benefit from the very best that modern medicine has to offer. In our department we have a lot of collaboration with national and international societies.

Vascular surgery demands **curiosity**, **courage**, and a lifelong appetite for **learning**.

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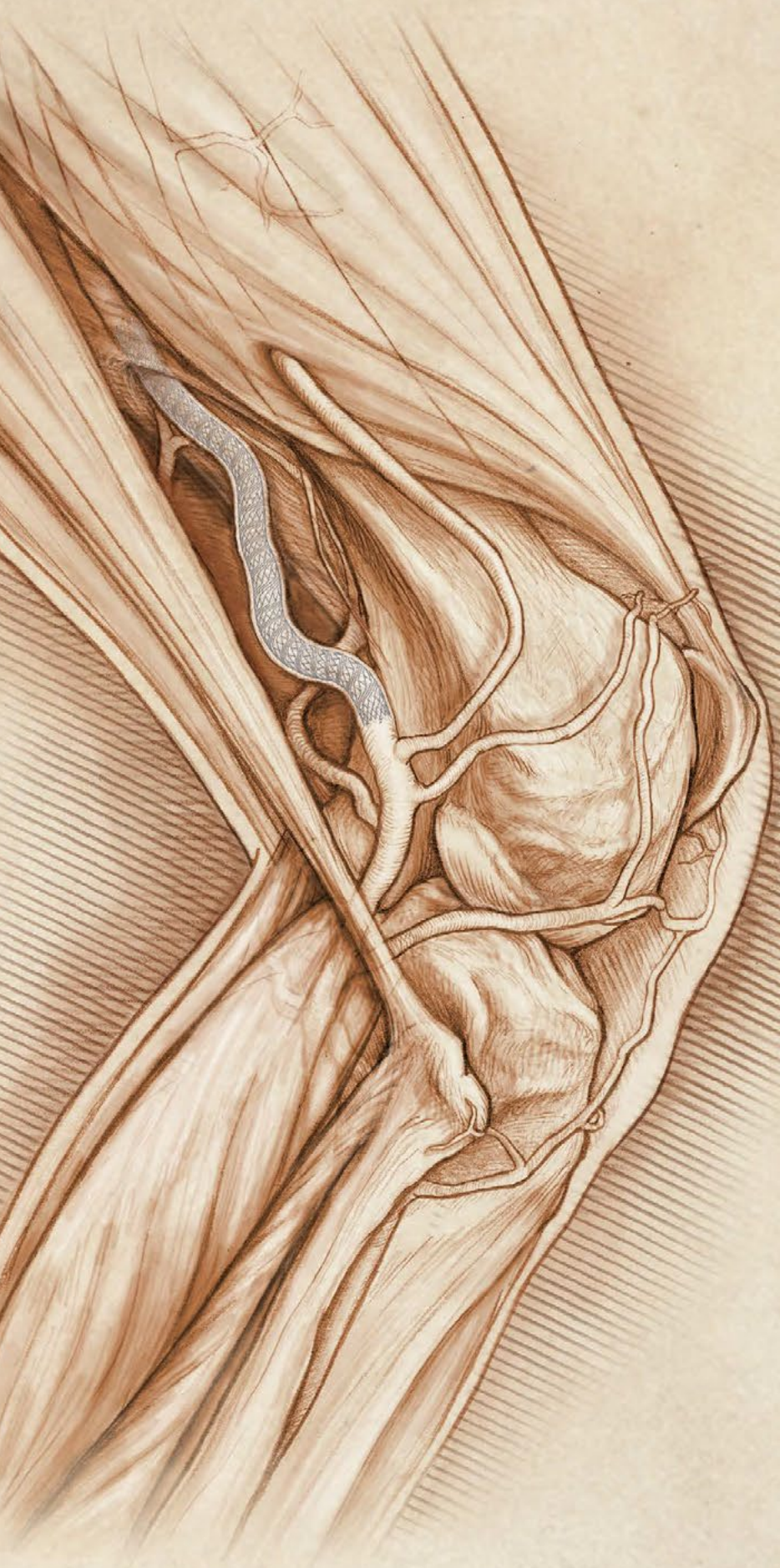

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Transforming PAD Care in Saudi Arabia

Peripheral Artery Disease

As peripheral artery disease (PAD) continues to pose a serious health challenge in Saudi Arabia, both in prevalence and complexity, innovative solutions and multidisciplinary approaches are reshaping how care is delivered. In this conversation, Dr. Ahmed Afandi shares insights on the evolving landscape of PAD management, the impact of new endovascular technologies, and the importance of patient-centered strategies for limb salvage, especially in high-risk populations.

Dr. Ahmed Afandi

Head of division of Vascular Surgery, King Fahad Armed Forces Hospital.

Q: Peripheral artery disease remains a major challenge in our region. How do you see the landscape of PAD management evolving here in Saudi Arabia?

A: We are witnessing a paradigm shift toward earlier detection, multidisciplinary care models, and more centralized services for complex cases in Saudi Arabia. Growing awareness of diabetic foot complications and PAD among primary care physicians is fostering more timely referrals to vascular surgeons.
Additionally, the expansion of endovascular services across secondary and tertiary hospitals is making advanced treatment options more accessible to patients beyond major urban centers.

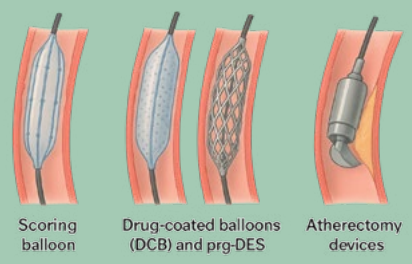
Q: In your own clinical practice in Jeddah, what do you believe are the key factors for successful limb salvage, particularly in diabetic and high-risk patients?

A: Early multidisciplinary collaboration between vascular surgery, endocrinology, infectious disease, and wound care teams is critical.

Individualized revascularization strategies tailored to wound location and vascular anatomy, guided by angiosome-based principles. Consistent post-procedure follow-up with aggressive risk factor modification, including glucose control, smoking cessation, and lipid management.

Q: You've been closely following and using new endovascular technologies. Which recent innovations have had the greatest impact on your ability to save limbs in complex cases?

A:



Scoring balloons have been a game-changer for managing heavily calcified lesions, allowing safer and more effective vessel preparation before definitive treatment.

Drug-coated balloons (DCB) and drug-eluting stents (DES) have significantly improved long-term patency in femoropopliteal interventions.

Atherectomy devices have also enhanced my ability to treat complex lesions, particularly in challenging vascular beds.

Prompt recognition and treatment of infections to prevent progression to systemic sepsis or osteomyelitis.

Q: How do you think the adoption of new tools (like drug-coated devices, intravascular imaging, or vessel prep systems) are changing the role of the vascular surgeon today?

A: The modern vascular surgeon is evolving into a hybrid specialist, combining surgical expertise with advanced endovascular skills.
These technologies are shifting our role from primarily bypass and open repair surgeons to minimally invasive limb preservation specialists.
We are increasingly required to integrate imaging interpretation, device selection, and complex wire and catheter techniques into daily practice—demanding continuous learning and adaptation.

Q: What message would you share with young Saudi vascular surgeons about embracing innovation while maintaining patient-centered care in PAD treatment?

A: Always remember: technology is a tool to serve the patient, not a goal in itself.
Stay grounded in the fundamentals of vascular disease, while being open to innovations supported by strong evidence.
Seek mentorship and never hesitate to ask for guidance when learning new techniques.

Ultimately, the best outcomes come from combining technical excellence with empathy, teamwork, and a lifelong commitment to learning.

> Every successful case is a collaboration between preparation, instinct, and the right tools.

Inside the Making of Vascular Art 2025

As the scientific program for Vascular Art 2025 comes to life, we sat down with Dr. Elshafie, a key member of the scientific committee, to explore the vision, strategy, and innovation behind this year's agenda. From shaping high-impact sessions to embracing global perspectives and fresh formats, Dr. Elshafie shares how the program aims to challenge norms, spark dialogue, and empower the next generation of vascular leaders.

Global Vascular Collaboration (PAD)

Dr. Amro Elshafie

Assistant professor vascular surgery Mansoura University Egypt, consultant Vascular Surgery SGH Jeddah KSA.

Q: Dr. Elshafei, thank you for joining us. Let's start with your role — how would you describe your contribution to the scientific committee this year?

A: It was truly an incredible opportunity to engage with leading experts from around the world and exchange ideas on the most pressing and innovative topics in vascular surgery. Being part of the scientific committee allowed me to help shape a high-impact program that reflects the evolving direction of our field.

Q: When designing a scientific program for a major conference like Vascular Art, what core principles guide your selection of topics and structure?

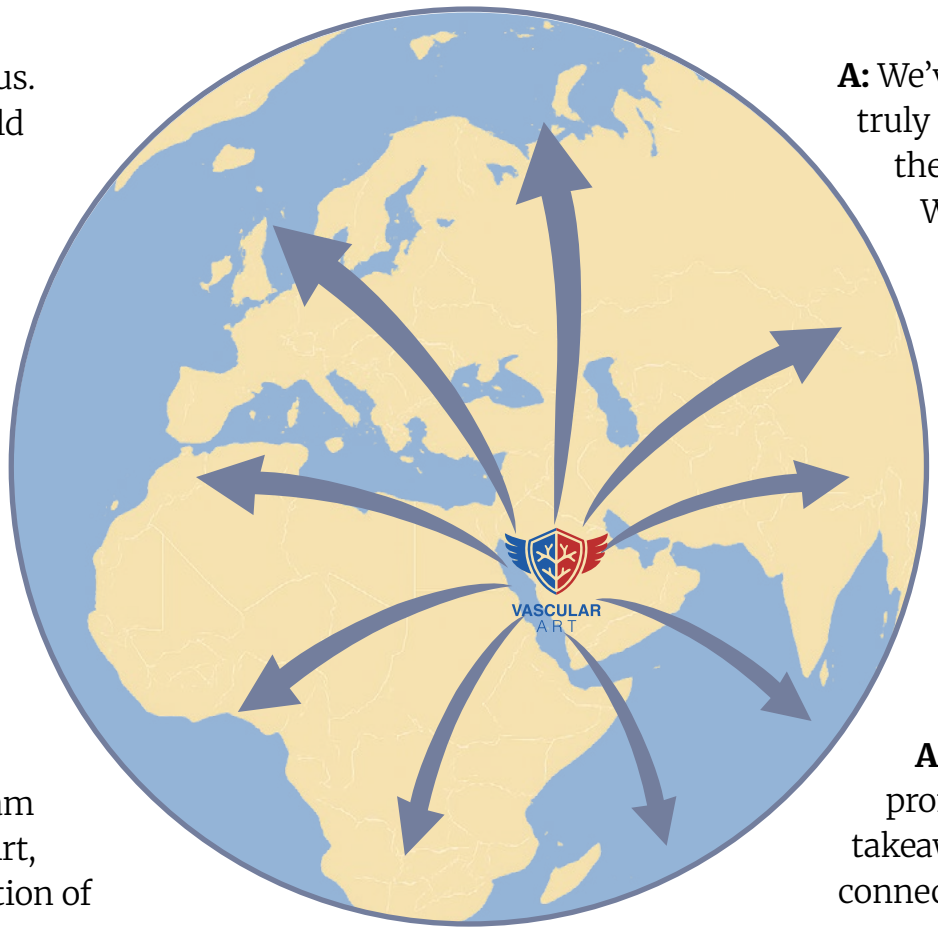
A: Our primary focus was on real-world decision-making in controversial or evolving areas of vascular practice — where expert insights can truly shift perspectives.

Q: What are some of the major themes or unique sessions in this year's program that you're particularly proud of?

A: I'm especially proud of the aortic and carotid sessions — they're packed with the latest evidence, diverse viewpoints, and clinical relevance.

Q: How has the committee worked to incorporate innovation, interdisciplinary topics, or international perspectives into this year's agenda?

A: We made a strong effort to spotlight today's most urgent topics and boost an open exchange of global expertise. Our agenda reflects a blend of innovation, interdisciplinary collaboration, and knowledge-sharing from across continents.



Q: You've been keen on curating a program that doesn't repeat what's seen elsewhere. How did you approach this challenge?

A: We introduced creative formats like roundtable discussions, "Meet the Experts" sessions, Vascular Art Theater and hands-on training workshops. These additions will add an engaging, immersive learning environment that will set this conference apart.

Q: Is there a particular vascular territory — aortic, peripheral, venous, carotid — where you see exciting developments or underexplored territory this year?

A: Absolutely. Limb salvage techniques have advanced dramatically, offering new hope for patients. At the same time, the rapid integration of AI in vascular surgery is reshaping how we diagnose, plan, and treat — and its future impact is just beginning.

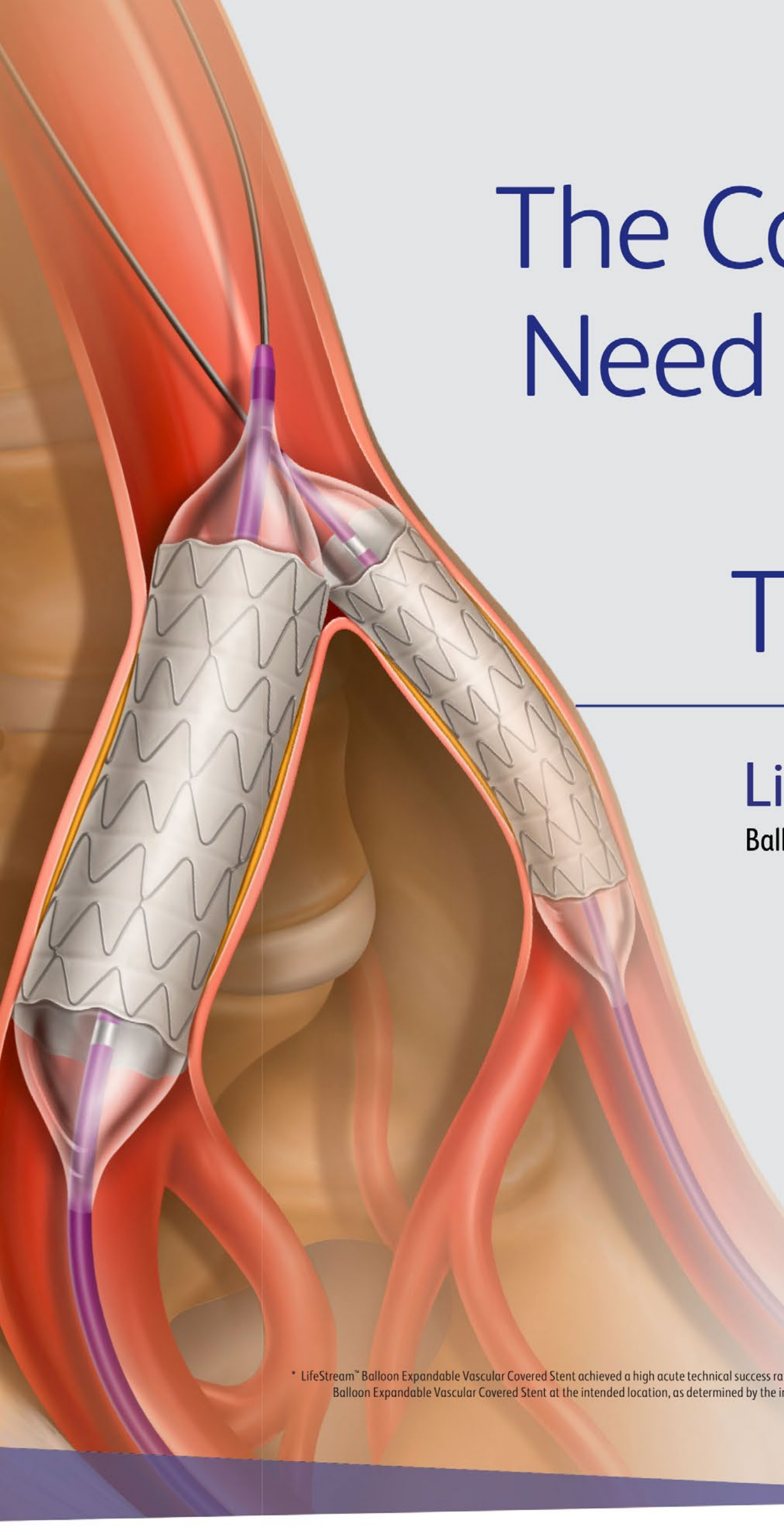
Q: How do you hope this year's scientific program will impact attendees — both experienced surgeons and young vascular specialists?

A: We've designed the program to deliver a truly satisfying balance — offering both the "know-how" and "know-why." Whether you're a seasoned expert or an early-career specialist, you'll leave with actionable knowledge and a deeper understanding of the reasoning behind today's best practices.

Q: Any final message or teaser you'd like to share with readers before they experience the program firsthand in Jeddah?

A: Get ready — this year's program promises powerful insights, practical takeaways, and meaningful moments of connection. See you in Jeddah!

"It's not just about sharing knowledge, it's about shifting perspectives, challenging norms, and inspiring better patient care," says Dr. Elshafei, as Vascular Art 2025 prepares to open its doors to the world of vascular.



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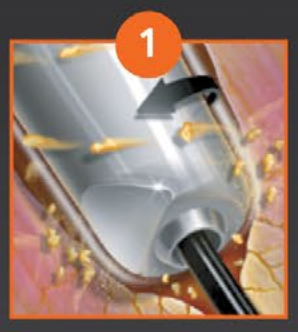

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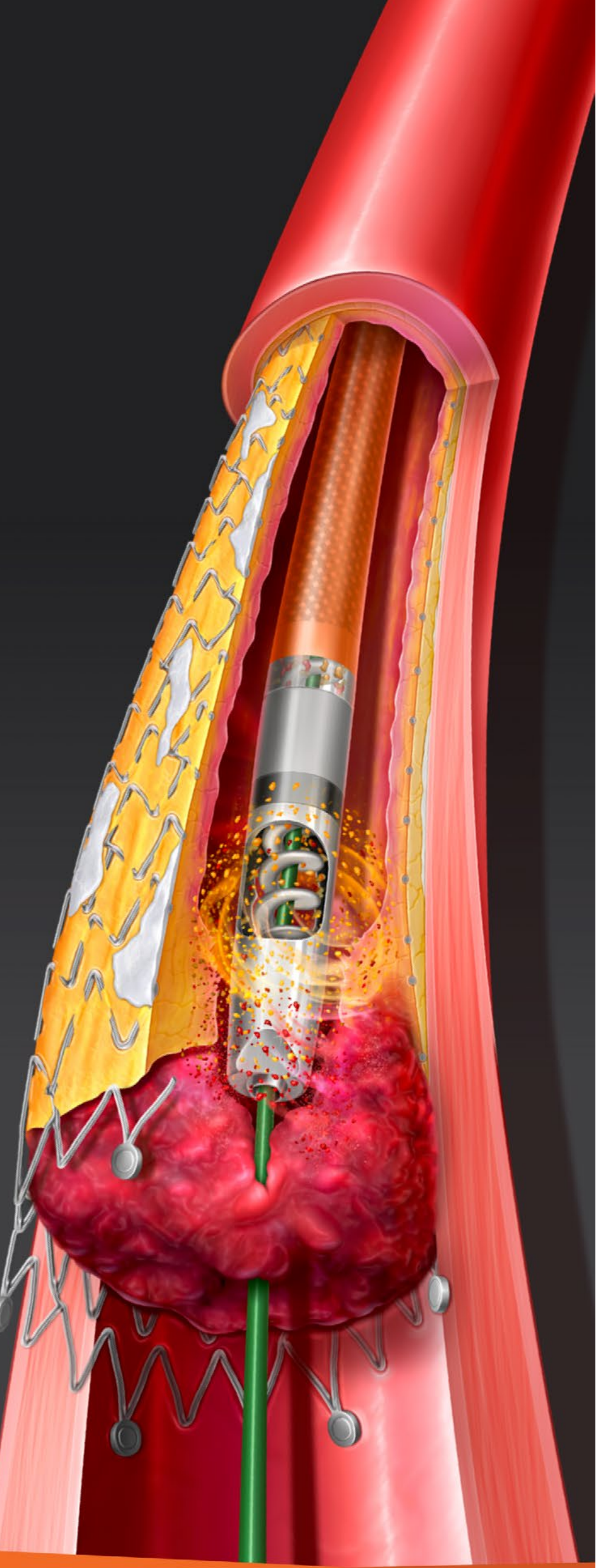

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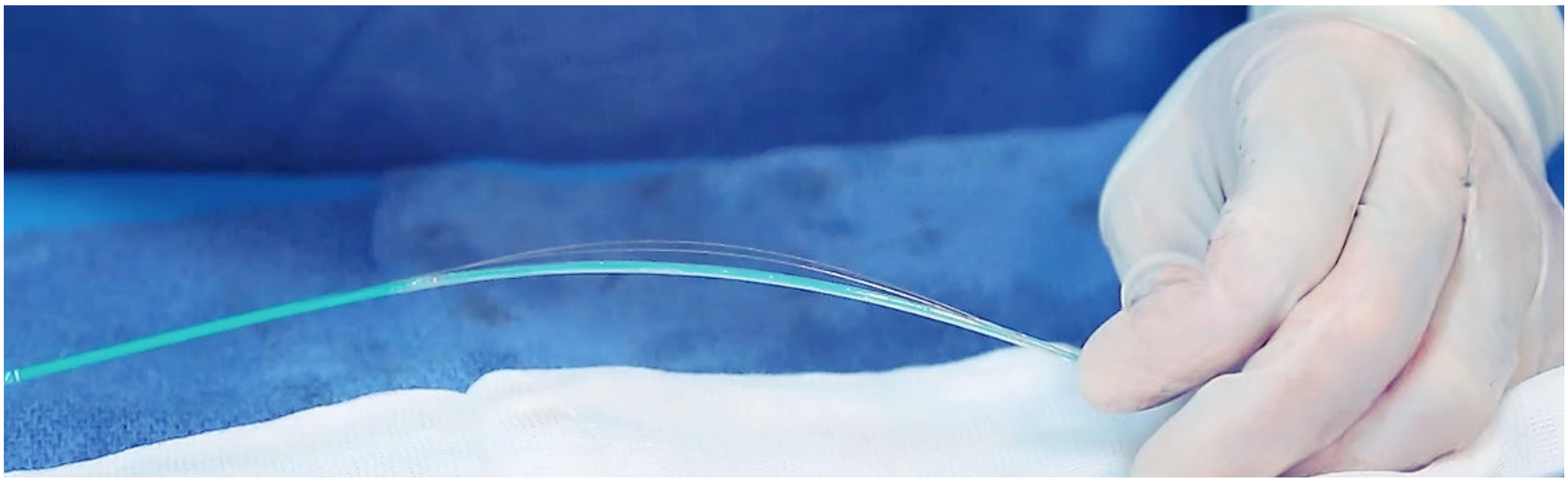
Precision Before the Cure: Scoring Balloons in SFA Lesions, A Clinical Perspective

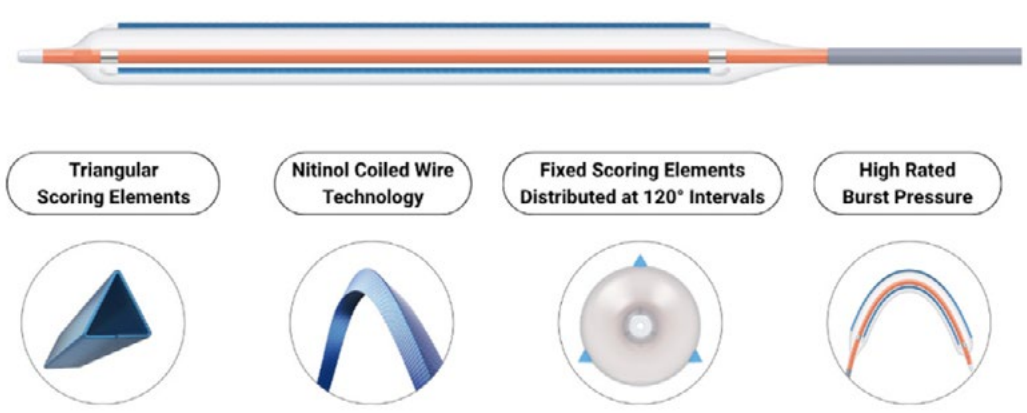
Research Study



Dr. Marc Sirvent - Chief of angiology and vascular surgery department hospital general de grabollers catalobia, Spain.

Q: Your recent publication highlights the role of scoring balloons in SFA lesion preparation, what motivated this study, and what were the key findings?

A: First and foremost, I must mention that our study has not yet been published, but we are actively working towards that goal, and I hope it will become a reality later this year. We have always believed that vessel preparation is a critical factor in optimizing the outcomes of endovascular treatment in the femoropopliteal (FP) segment, especially when drug-coated balloons (DCBs) are your first-line therapy, and when pursuing a leave nothing behind strategy, regardless of the lesion characteristics. In general, DCBs have proven to be both effective and safe, regardless of lesion complexity. However, the published evidence does indicate that the more complex the lesion, the greater the need for bailout stenting. In other words, it seems unlikely that a leave nothing behind strategy would be feasible in cases of long lesions or occlusions, for example.
Nonetheless, it is important to note that in the majority of studies, vessel preparation was performed using POBA, this means semi-compliant balloons, a technology which, in my opinion, is now outdated. This brings me to the key question that forms the foundation of our study: Do you believe that the rate of bailout stenting in complex lesions can be reduced if we use a different vessel preparation tool than POBA?
On the other hand, I have always believed in the concept behind scoring balloons (SBs), which is to work at low pressures, being the scoring element that produces the main effect —namely, controlled lesion dilation, thereby minimizing flow-limiting dissections.



DKuttingTM & DKuttingTM LL (Long length) - Marc Sirvent

Additionally, another potential beneficial effect of SBs might be the enhanced drug penetration of DCBs into the medial arterial layer, facilitated by the grooves created by the scoring, thus increasing the efficacy of DCBs. This mechanism of action—working at low pressuresand controlled plaque disruption—has gained popularity with the advent of intravascular lithotripsy, though SBs were the pioneers in this regard.
That said, the published evidence on SBs in the femoropopliteal sector is limited, primarily consisting of retrospective registries in which the majority of patients are claudicants or have relatively benign lesions, such as short stenoses.
These patients do not represent the typical population I encounter in my daily practice, where most of the patients present with critical limb ischemia and complex lesions. Therefore, the need to find more effective tools than POBA for vessel preparation, coupled with the limited evidence available on SBs, were the primary reasons behind the design of our randomized clinical trial (RCT), in which 100% of the patients had critical limb ischemia.

In this RCT, we sought to evaluate whether arterial preparation with an SB, compared to POBA, would improve the outcomes of DCBs in the treatment of FP lesions in patients with critical limb ischemia, reducing the need for stenting and increasing primary patency, without increasing costs. The results of the study, in which the mean lesion length was over

21 cm with a median follow-up of 517 ± 272 days, were clear: when the artery was prepared with an SB, fewer bailout stents were required (4.7% vs. 32.5%, p=0.0026), primary patency was higher (90.7% vs. 70%, p=0.035), and the procedure was €108 cheaper per patient (p=0.0026).

Q: In your opinion, how does vessel preparation with scoring balloons impact long-term outcomes, especially in terms of restenosis and need for reintervention?

A: Our study demonstrates that vessel preparation with SBs positively impacts long-term outcomes, as the difference in primary patency continues to widen over time and the CD-TLR rate was 20% in the POBA group compared to 7% in the SB group. Furthermore, reinterventions were conducted 2.5 months earlier in cases prepared with POBA and ulcers healed 28 days faster on average in the SB group. This finding is particularly significant from a clinical perspective, as achieving lesion healing prior to the onset of restenosis may reduce the need for reintervention.

Q: What criteria do you use to select scoring balloons over other vessel prep tools (like atherectomy or standard PTA) in your daily practice?

A: My vessel prep tools include scoring balloons, non-compliant balloons, IVL and atherectomy/thrombectomy devices. I no longer use standard PTA, this means semicompliant balloons, due to their limitations and that non-compliant balloons are now available with comparable profiles, sizes, and cost, yet offer superior performance. If I have to perform an aggressive subintimal recanalization, so I know that I will have to place a stent to fix the mechanical issues created during the recanalization, non-compliant balloons are my choice to prepare the artery.
For occluded stents or bypass, I routinely employ atherothrombectomy devices as part of the vessel preparation strategy. In select cases, I may also use SBs following debulking to further optimize lesion preparation prior to definitive therapy. I apply a similar approach when encountering long, native artery occlusions that are crossed unexpectedly easily, suggesting the presence of fragmentable material and high risk for embolization. In the setting of heavily calcified lesions—specifically those classified as grade 4 according to the Fanelli classification—IVL is my preferred

> Successful intervention starts before the balloon goes up understanding the vessel is everything.

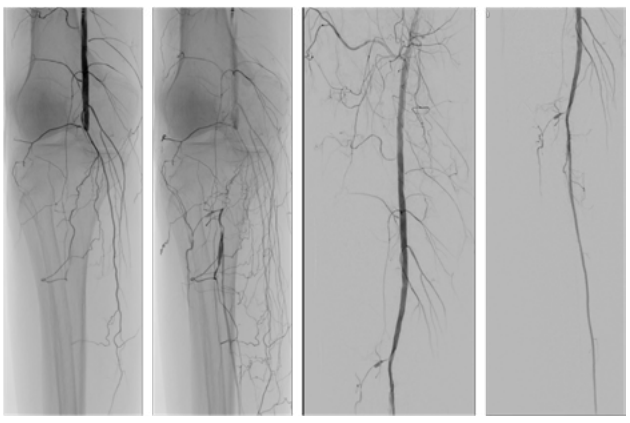
approach when I believe a leave nothing behind strategy is feasible, such as in intraluminal crossing or when a non-aggressive subintimal recanalization has been performed. Otherwise, I use non-compliant balloons as vessel prep tool. In all the other scenarios, SBs remain my first-line vessel prep tool. In fact, they constitute the cornerstone of my daily practice, given their versatility, safety profile, and consistent efficacy across a wide range of lesion morphologies.

Q: How do you envision the future of vessel preparation strategies evolving, particularly in light of increasing use of DCBs and combination therapies in SFA treatment?

A: The importance of proper vessel preparation in endovascular interventions is now widely acknowledged. It is a cornerstone for achieving both optimal acute outcomes and sustained long-term success, regardless of the definitive treatment chosen. Encouragingly, a broad selection of amazing devices is now available, allowing for tailored vessel preparation regardless of lesion complexity. Each operator should define their own approach to vessel preparation, based on the type of the recanalization performed and the specific characteristics of the lesion. Of course, practice must be adapted to each center's reality, but progress is only possible when we recognize what is truly necessary to improve outcomes. From my perspective, SBs represent a highly valuable tool in this setting.
They consistently enable favorable outcomes, even in complex lesions, while offering a cost-effective alternative to POBA, a technique that, in my view, no longer meets current standards of care.

Q: Do you see differences in outcomes between calcified versus fibrotic lesions when scoring balloons are used, and how should operators adapt their technique accordingly?

A: Yes, I do. Prior to conducting our study, we already had substantial clinical experience with SBs, and it became evident that the currently available SBs—mounted on semi compliant balloons—are not particularly effective when treating heavily calcified lesions. For this reason, lesions classified as grade 4 according to the Fanelli classification were excluded from our randomized controlled trial. That said, it's important to highlight that in our study, 60.5% of patients in the SB group presented with grade 3 calcification according to Fanelli's classification —compared to 42.5% in the POBA group— showing fantastic results as previously mentioned. These findings support the notion that current-generation SBs perform very well in calcified lesions, provided they are not heavily calcified. Looking ahead, this paradigm may evolve with the introduction of non-compliant SBs, which could potentially enhance efficacy in this heavily calcified disease. As for fibrotic lesions, SBs are particularly effective and, in my opinion, represent one of the main indications for their use.



Pre and Post angiographic images showing the effiecny of Scoring Balloon in treatment of femoro popliteal disease - Marc Sirvent.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Lesion complexity:
Complex for Crossing: Long, calcified CTO's, BTK – BTA (small
arteries).
Complex for treatment: Calcifications (difficulties to pass a
balloon or any device, orbital atherectomy could help),
recoiling after subintimal crossing
Vascular ARTISITE - Top secrets for PAD treatment. My choice
No crossing no party: Tips and tricks to succeed and how wire position defines the treatment algorithm


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The Future is Now: AI in Vascular Medicine

As vascular surgery enters a digital era, AI and robotics are transforming from concepts into everyday tools. This session explores real-world advances like the SENTANTE robotic endovascular system, the growing role of AI in clinical workflows, and what these changes mean for the next generation of vascular surgeons, where technology and precision medicine converge.

Sentante Experience

Dr. Dainis Krievins

Professor, Director: Institute of Science of Pauls Stradins Clinical University Hospital Riga, Lativia.

Q: You've been closely involved with the Sentante robotic system. How would you describe your experience so far in terms of precision, safety, and workflow?

A: Our Experience with the SENTANTE Robotic Endovascular System
We would like to share our experience with SENTANTE—the first fully robotic endovascular system. To date, we have successfully treated 10 patients using this platform, performing procedures in various vascular regions, including:

- Aortic arch (carotid artery stenting)
- Aorto-iliac region (renal artery stenting, iliac artery PTA and stenting)
- Hypogastric artery occlusion with an occlusion device
- Femoral and below-the-knee occlusions

All diagnostic (n=10) and therapeutic (n=11) procedures were completed without any complications or conversions to manual techniques. We achieved 100% technical, procedural, and clinical success. While procedure times were slightly longer compared to traditional manual interventions, this can be attributed to the learning curve and the system's technical nuances. Overall, this technology represents a promising advancement in vascular intervention—offering improved precision, enhanced safety, and the potential for more consistent and reproducible outcomes.

Q: In your opinion, what unique advantages can robotic systems offer to vascular surgeons that manual procedures cannot?

A: The field of endovascular treatment has made remarkable strides since its inception. Diagnostics, devices, and countless tools have evolved dramatically over the decades. Yet one critical aspect has remained unchanged: the way vascular treatments are physically delivered to the patient. Even after 40 years, medical personnel still stand tableside during procedures, manually manipulating catheters while being directly exposed to ionizing radiation. The SENTANTE robotic system introduces a paradigm shift in this approach. By enabling operators to work remotely, it eliminates radiation exposure for medical staff entirely. This not only enhances safety but also broadens access to care—allowing complex endovascular procedures to be performed in locations lacking highly trained personnel on site.
SENTANTE is a unique system with several key advantages:
Robotic accuracy and extreme precision through motion scaling Enhanced stability, including a "device freeze" function particularly useful during catheter or device exchanges Digital recording of every procedural step, providing a complete, objective record—effectively a procedural "fingerprint"—which opens the door to future automation and standardization With its ability to improve safety, precision, and accessibility, SENTANTE represents a significant step forward in the evolution of endovascular care.

Q: Artificial intelligence is rapidly evolving. Where do you see AI making the biggest impact in vascular surgery over the next 5–10 years?

A: In my opinion, over the next 5 to 10 years, the most significant developments in AI for vascular surgery will occur in advanced, high-tech medical centers around the world.
Currently, only a limited number of highly developed institutions have the resources to drive such innovations. However, even smaller medical facilities will begin to benefit from the early applications of AI, particularly in diagnostic processes within the endovascular field. Looking ahead, I anticipate that robotic systems integrated with AI will enable remote procedures for standard treatments in specialized centers.

There is even a possibility that AI and robotics will evolve more rapidly than the human mind can fully adapt to, which is why this transformation will likely be a gradual, step-by-step process. That said, I believe that in 50 years, the conversation will go far beyond robotic procedures and the use of AI in operating rooms and catheterization labs. We may find ourselves discussing the appearance, behavior, and design of fully robotic "personnel" assisting in vascular surgery.

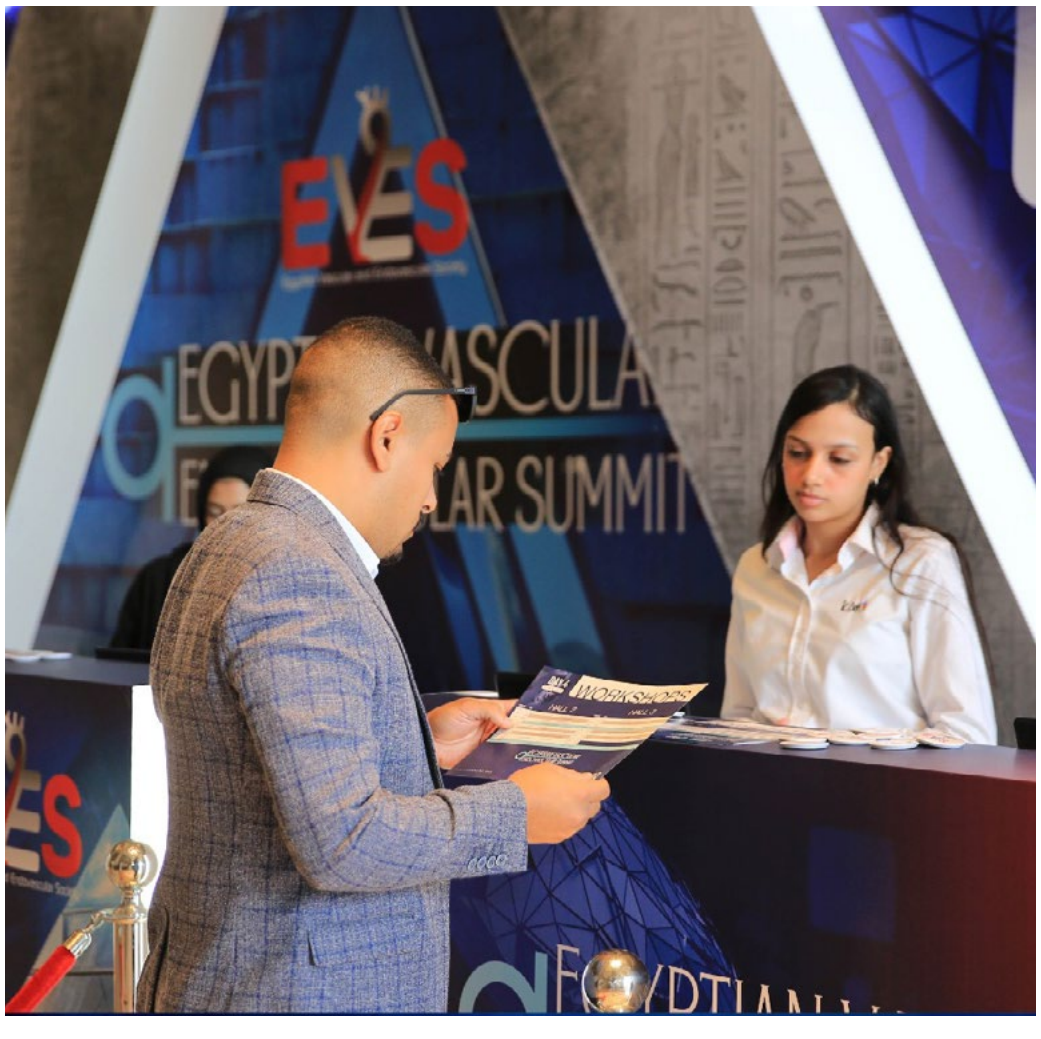
Q: How should young vascular surgeons prepare for this shift toward digital and robotic-assisted interventions?

A: I firmly believe that the younger generation will adapt to robotic systems and AI much more quickly and effectively than their older colleagues.

However, to truly be good doctors and even surpass their mentors—they must first master the fundamentals and learn to treat vascular patients effectively using current tools and techniques. A solid foundation in conventional methods will allow them to integrate new technologies seamlessly, ultimately becoming the pioneers and leaders of the future in vascular surgery.

Q: Do you believe AI and robotics will redefine the core skill set of vascular surgeons, or will they serve more as tools to enhance existing capabilities?

A: This will largely depend on the future development of robotic systems and AI, as well as how effectively these technologies are integrated into our daily clinical practice. Their role could range from simply enhancing existing capabilities to fundamentally redefining the core skill set required of vascular surgeons.



Precision, Passion, and the Pulse of Peripheral Work

Limb Salvage

In the battle against diabetic foot complications and preventable amputations, Dr. Hani has emerged as a passionate leader and relentless advocate for limb preservation.
With a clear mission rooted in dignity, multidisciplinary care, and system-wide change, he has helped shape national models and inspire a new generation of healthcare professionals. In this conversation, he shares the driving force behind his work, the evolution of diabetic foot care in Saudi Arabia, and his vision for building integrated, life-saving programs across the region.

What keeps me going is the opportunity to impact not just limbs — but lives.

Dr. Hani Badahdah

MD, DPM, DABMSP, CWSP Consultant Podiatric Foot & Ankle Surgeon, President of Saudi DFC.

Q: Dr. Hani, you've dedicated your career to fighting amputation and promoting limb salvage. What drives your mission?

A: What drives my mission is the belief that:
"Preserving a limb is preserving dignity, independence, and quality of life.

Q: How crucial is the role of the multidisciplinary team

A: vascular surgeons, podiatrists, endocrinologists, wound care specialists—in achieving successful limb preservation? I always say: limb salvage is not a one-specialty job.
The multidisciplinary team is essential across all levels of care for diabetic foot. Each specialty brings a unique strength, and the patient benefits only when these strengths are aligned.

Q: Can you share your experience with limb salvage programs in Saudi Arabia?
What have been the key challenges and successes so far?

A: My team and I have worked on a national Diabetic Foot Model of Care that supports diabetic patients at multiple levels. We've published several national guidelines, including preparation manuals for diabetic foot centers of excellence and units and a comprehensive model of care for prevention and management.

Today, five Centers of Excellence operate across the Kingdom, setting a new standard for diabetic foot management. Among the most meaningful outcomes we've seen is the shift in how institutions approach diabetic foot care not as an isolated complication, but as a systemic priority.

The establishment of Centers of Excellence across the country has set a precedent for multidisciplinary, standardized, and measurable care for diabetic foot.

The real work is in keeping the momentum steady. That's where most programs slow down, but with a clear direction and teamwork, we're moving forward.

Q: What are the most important steps we need to take to build stronger, more effective limb-saving programs across the region?

A: We must focus on two things: early intervention and system integration. Programs need to start before the wound does, with screening, education, and ensuring timely access to services.

Q: What message would you give to young healthcare professionals, especially aspiring podiatric surgeons and wound care specialists, about the importance of teamwork and integrated care?

A: Accept the hard work. Be cooperative with your colleagues. And stay humble with your patients. That's the foundation of meaningful care.

Q: How do you see the future of podiatric surgery evolving in the context of diabetic foot care and amputation prevention in the Gulf and beyond?

A: Podiatric surgery is increasingly becoming a strategic tool in the continuum of care, not just an intervention at the end. Its future lies in proactive use: offloading, reconstruction, and correcting the biomechanical issues that often go unnoticed.
In the Gulf, we're seeing more recognition of the Podiatrist's and Podiatric surgeon's role, and this will open doors to stronger, earlier, and more curated interventions.

Q: Finally, what advice do you have for the new generation aiming to lead with purpose and make a real impact in patient care?

A: Anchor yourself in purpose. The systems you work in may shift, and the tools may change, but your intent must stay clear. And trust that impact takes time, faith, and patience.

FEBRUARY 2025

مؤتمر القدم السكرية الثالث

DIABETIC FOOT CONFERENCE

Revolution of Diabetic Foot Care in Saudi Arabia

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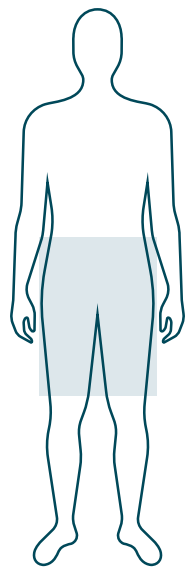


venous

10F
Ø device

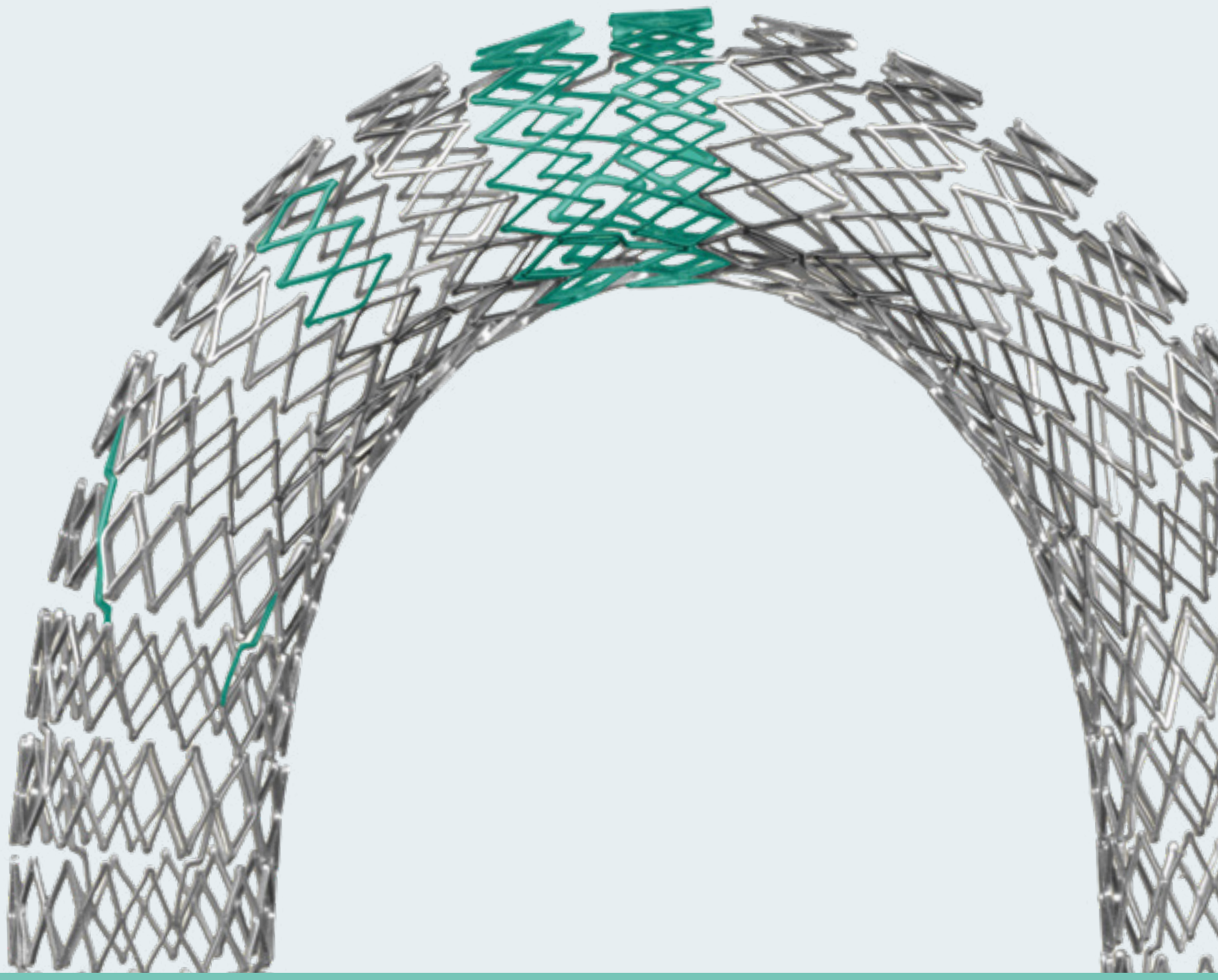
.035i
guide wire

hybrid design

NiTi
nitinol stent

radioopaque markers

anti-jump technique



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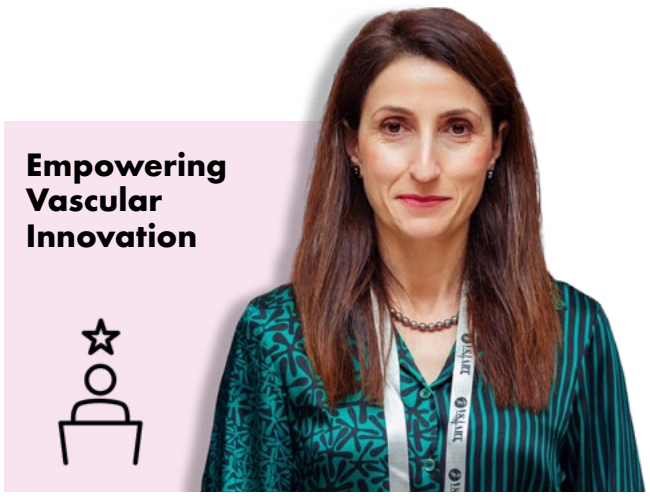
Changing the Flow: Innovation, Evidence, and Empowerment in Vascular Intervention

In this insightful discussion, we sit down with Dr. Lobato, renowned for her pioneering work in retrograde access techniques, to explore the evolution of complex revascularization strategies in CLTI, the growing role of below-the-ankle interventions, and the importance of mentorship and visibility for women in endovascular specialties. From technical pearls to future innovations, Dr. Lobato shares her journey, her collaborations, and her vision for the next chapter in peripheral vascular care.

Refining Retrograde Access

Dr. Marta Lobato

Vascular and Endovascular Surgeon
Hospital Cruces. Barakaldo Bilbao, Basque Country, Spain.



Q: Dr. Lobato, you're recognized as a leader in the field of retrograde access techniques. What drew you to this area of innovation?

A: I've always been drawn to solving complex challenges—especially when standard techniques fall short. Retrograde access offers a second chance for revascularization in highly complex cases, particularly in patients with Chronic limb-threatening ischemia (CLTI). From the beginning, I've had the privilege of walking this path alongside Dr. August Ysa, who is a truly a pioneer in this field. His vision and early leadership were instrumental, and together we've continued to innovate and help shape what retrograde techniques can offer. That collaboration is what truly inspires and sustaines my focus in this area.

Q: How do you see retrograde access evolving in the treatment of complex peripheral arterial disease?

A: Retrograde access is evolving from a last-resort technique into a strategic tool used proactively in complex interventions. As devices become more sophisticated and operators more skilled, it's becoming a standard part of the algorithm for achieving complete revascularization, especially in CLTI. Mastering more distal and complex retrograde below-the-ankle (BTA) punctures may be necessary when standard endovascular crossing manoeuvres have failed.

Q: Can you highlight some of your recent publications or studies that are contributing new insights to this approach?

A: Our group has published a paper entitled "Tips and Tricks for Simple and Complex Below-the-Ankle Punctures" that I consider a must-read for everyone interested in performing BTA arterial punctures, as well as for those who have already started and want to explore more complex areas such as zones 2 and 3. The paper providesa detailed description of everything needed to perform a successful BTA arterial puncture from the simplest to the most complex. Our team has described and published several very useful bailout techniques for BTA punctures.
For example, for punctures in zone 2 where there is no bone support to fix the artery during the puncture, to overcome mobility and the presence of calcification we described either the 'buddy needle' technique (using one or two extra needles to fix the artery), or the 'telescopic needle' technique. This entails putting a needle within a needle (18 G) to gain support.

The BAT (Below-the-Ankle Antegrade Teleferic) technique, recently published by our team, combines antegrade and retrograde approaches to overcome complex occlusions in pedal arteries, when the guidewire crosses but no device can follow it. It involves performing an antegrade puncture in the artery where the tip of the guidewire is located, carefully navigating the wire into the needle to achieve rendezvous and externalization, and then using a torque device attached at the proximal hub of the balloon to drag the balloon across the lesion along with the wire, as a sort of extreme Badform technique.

Q: In your experience, what are the critical technical considerations or pearls for successful retrograde interventions?

A: There are four pillars: First, anatomical knowledge—understanding vessel orientation and landmarks. Second, precise puncture, « in line » with the vessel. Third, real-time coordination between the antegrade and retrograde teams and finally, patience and persistence—many retrograde cases are technically challenging but extremely rewarding when successful.
Be sistematic, be sensitive, be patient and don't give up!

Q: As a female expert in a traditionally male-dominated specialty, what challenges have you faced—and how have they shaped your Journey?

A: There have been moments in my career where I had to put in extra effort to demonstrate my skills. The pressure in these situations can be intense, but it has also served as a catalyst for my personal and professional growth. This experience has taught me the importance of being well-prepared and resilient in the face of challenges.

I have been fortunate to have a mentor who has supported my development throughout this journey. His guidance has not only helped me navigate difficult situations but has also inspired me to commit to mentoring others who may face similar challenges. Working alongside August Ysa has been particularly motivating and inspiring; he has been a key figure in my career, providing invaluable

support and insight that have shaped my professional path. Additionally, I recognize that in certain fields, particularly those that are predominantly male-dominated, it is crucial to possess the ability to adapt and thrive. Navigating a world that often favors masculine perspectives requires not only skill and determination but also the flexibility to adjust one's approach and communication style. This adaptability has been essential in helping me assert my presence and contribute meaningfully in such environments.

Q: How important is mentorship and visibility for women pursuing careers in vascular and endovascular intervention?

A: Mentorship and visibility are absolutely essential. Representation matters—not just symbolically, but practically. When young women see others leading in this space, it redefines what they believe is possible. Mentorship builds the confidence and technical foundation needed to thrive. I strongly believe that we must be intentional about creating those opportunities.

Q: Looking forward, what innovations in near future could change our daily practice in your opinion ?

A: In the near future, when talking about CLTI revascularization, there will be a more widespread adoption of BTA arterial punctures, accompanied by the standardization of the technique. Standardizing the BTA puncture procedure is crucial for improving success rates and patient outcomes, reducing complications and improving patinet safety

We are entering a transformative era in medical practice, characterized by the integration of dedicated devices, enhanced navigation through advanced imaging, and AI-based decision support systems. These innovations are already reshaping the landscape of endovascular procedures. In the future, we will probably tailor interventions to the specific needs of each patient, thereby optimizing care and achieving better results.

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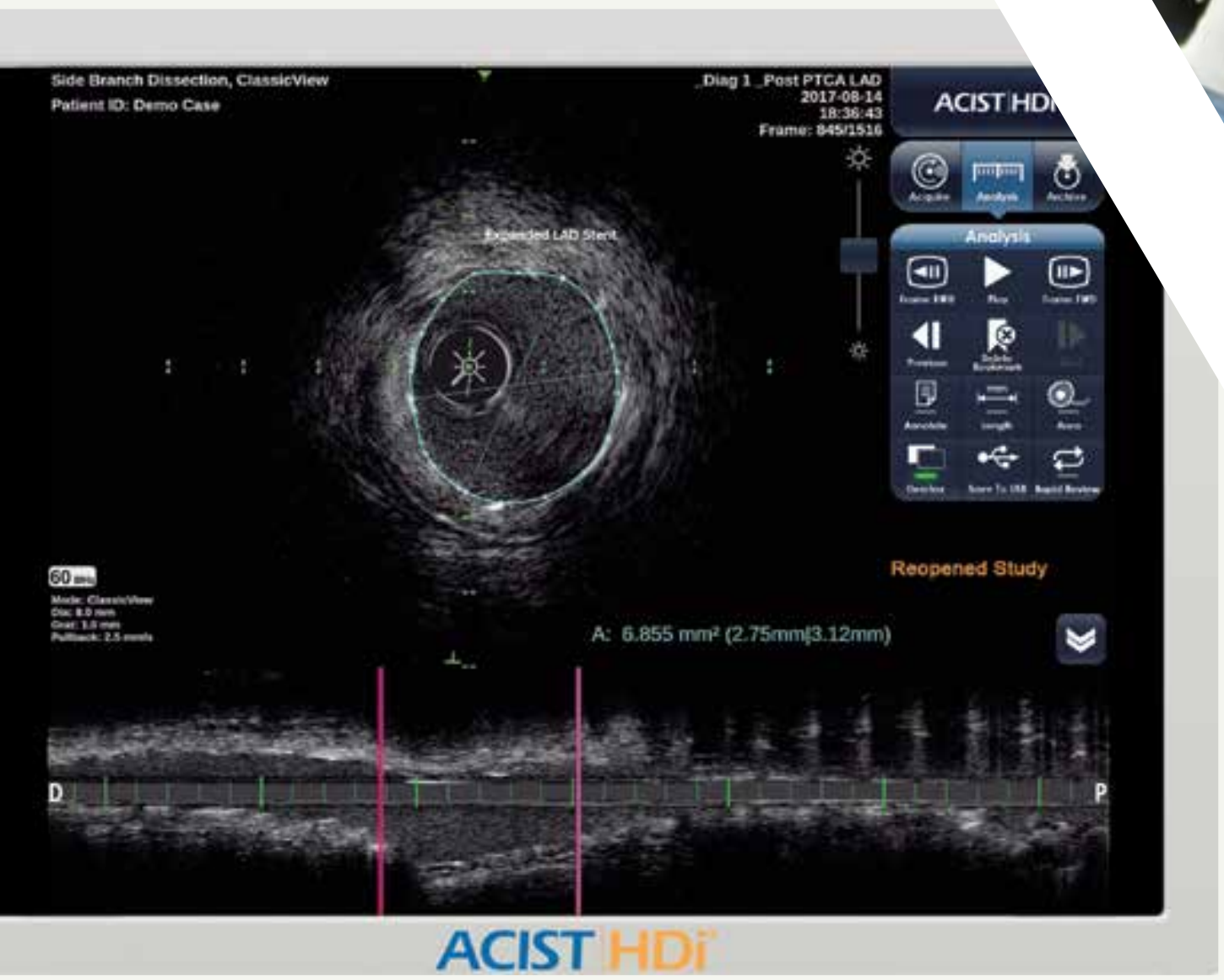

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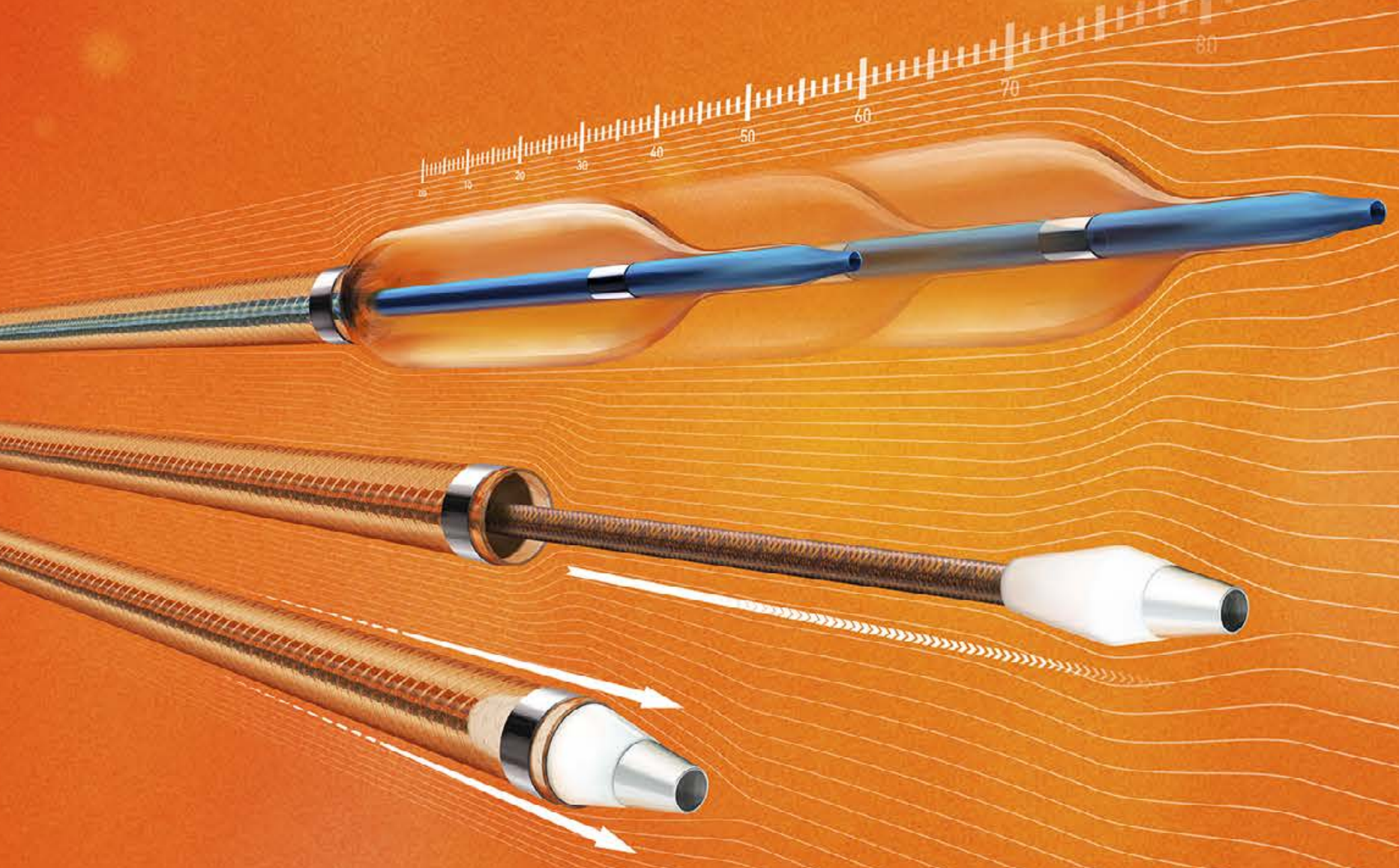

Precision Below the Knee on Innovation in CLI

Orbital Atherectomy

Dr. Mariano Palena, the first certified user of orbital atherectomy in Italy, has led its use in treating complex, calcified lesions in PAD, especially in diabetic patients with CLTI. In this discussion, he shares key insights from his experience, the advantages of OAS in BTK/BTA vessels, and how vessel preparation is shaping the future of endovascular therapy.

Dr. Mariano Palena

Consultant Interventional Radilogy, Abano terme, Padova Italy, consultant endovascular speacilist quironsalud Marbella, Spain.

Q: Dr. Palena, could you give us an overview of your experience with orbital atherectomy and its evolution in your daily practice?

A: I started using OAS (orbital atherectomy system) many years ago, being the first certified physician to use OAS in PAD (peripheral arterial disease) in Italy. When I started I was looking for a solution to fight against diffuse calcifications in the femoropopliteal, below the knee and below (BTK) the Ankle (BTA) arteries in diabetic patients affected by Critical Limb Ischemia (CLI). This population is affected by multilevel, multivessel arterial disease, mostly with occlusive and calcified arterial lesions located in the BTK and BTA segments, that makes this cohort of patients very complex for crossing the lesions (even from retrograde distal access) and the treatment of those lesions appears frequently very difficult and with poor results due to low vessel expansion, poor lumen gain and aggressive recoiling ending in temporary results and high rates of Clinically-Driven Target Lesion Revascularization (CD-TLR).

Q: In your opinion, what makes orbital atherectomy particularly suitable for vessel preparation in heavily calcified lesions?

A: OAS is particularly suitable for vessel preparation in heavily calcified arteries due to two particular features: the cross ing capabilities and the mechanisms of action.

1. Crossing capabilities. The OAS is a 0.014 system characterized by a very low profile (micro-crow is 4Fr. compatible device). This guarantees an excellent crossing profile, being the most useful atherectomy system in BTK-BTA anatomies. It is very flexible device what also allows reaching and crossing the distal and tortuous anatomies BTA.

2. Mechanisms of action: It combines two action mechanisms, the first is the debulking effect related to the rotation and orbiting of the crow, varying the diameter of action related to the speed (the system functions at 3 different speeds creating different lumen vessel diameter – Orbital concept) allowing to treat even different arterial segments with one crow at different speed.

Important to highlight that the crow system is dedicated to treat calcium and it is not effective in non-calcified lesion but it is not dangerous in non-calcified segments (no perforations related to OAS have been reported in literature).
The second mechanism of action is the SANDING effect, that means to crack the deep calcium and change the vessel wall compliance by the orbital forces that impact to the arterial wall during the orbital movement. The combination of those mechanisms of action warrantee an excellent performance.

Q: Could you highlight some of the most compelling clinical data or recent evidence supporting its use?

A: I could talk about my personal publication on OAS in BTK-BTA (1) Cardiovasc Revasc Med. 2022 Sep:42:121-126. doi: 10.1016/j.carrev.2022.03.015.Epub 2022 Mar 24.)It is the result of the first 12 patients (mean age 69.4±14.7; range 57 to 85 years) affected by diabetes underwent to orbital atherectomy in the below the knee and below the ankle arterial segments.

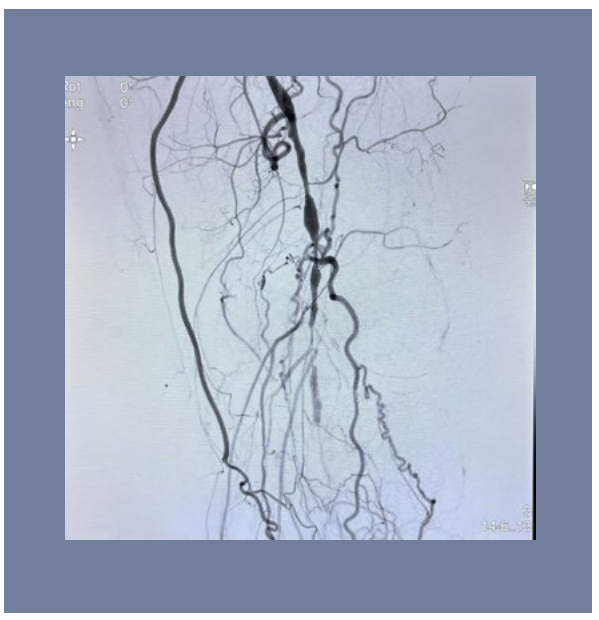

Figure 1: Tough Zone II poploteal occlusion heavily calcified lesion.

Figure 2: Orbital Atherectomy 1.5 Classic Crown used for the occluded segment.

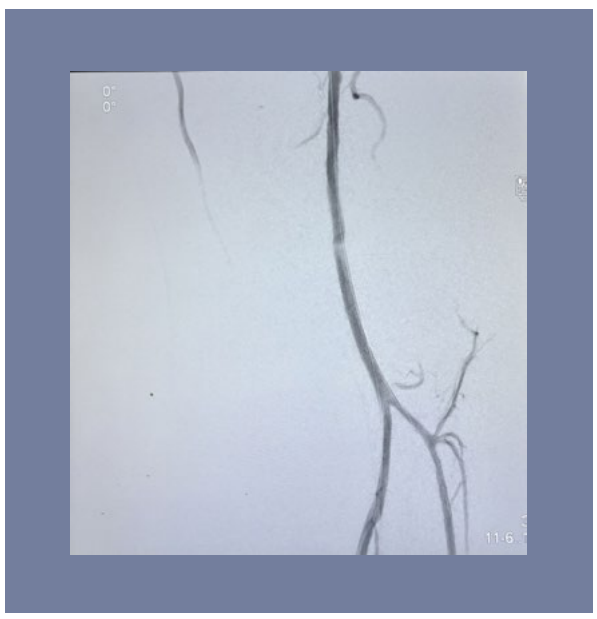

Figure 3: Direct Angiography showing patent Segment Post Atherectomy with effective lumen gain.

Orbital atherectomy was performed in 3 cases in Anterior tibial (AT) and dorsalis pedis (Ped) arteries + Posterior tibial (PT) and Lateral Plantar (Lat Plan), 5 cases in PT and Lat Plan arteries, 1 case of PT and Medial Plantar, 1 case of Peroneal and Plan Lat, and 2 cases of AT and Ped.
After Atherectomy, a drug-coated balloon (DCB) angioplasty was used.

Technical success was achieved in 11 (91.6 %) cases. In 1 case the OAS device fails to cross the calcified lesion during the first attempt, at the distal PT. The PIERCE technique (2) was used to help the crossing and finally the orbital atherectomy system engages, crosses and debulks the calcified lesions without any complication.
No deaths were registered during the follow-up. Limb salvage rate was 100% and no major amputations were registered. Freedom from CD-TLR was 100% at 30 days and 91.7 % at 6 months. 1 patient underwent a TLR at 3 months. No major cardiovascular events, major limb events or major procedure related complications were registered.
The conclusions were that orbital atherectomy appears a safe and effective treatment option in diabetic CLTI patients, confirming previous data (3).

Q: How do you select patients or lesion types where orbital atherectomy would provide the greatest benefit?

A: OAS is a device dedicated for calcified lesions and it is highly effective in calcium, being less or not efficient in non-calcified lesions. Secondly, I personally believe that OAS is the most effective system in BTK-BTA related to the capabilities to reach these anatomies and to cross, compared to other devices, without risk of complications, as reported (2, 3). Another important concept to consider is the outflow at the foot vessels, since OAS creates a micro-particles, smaller than a red blood cells, which should be washed out of the circulation at the distal outflow. Poor outflow could increase the risk of distal embolization and could be more technically demanding (slow movement of the crown, full respect of the working time and the glide assist use, etc.).

Q: Are there technical tips or considerations you'd recommend to operators just beginning to use this tool?

A: The technical tips are always to respect the indications for use and the technical concept. In a CTO try to obtain a channel doing a first passage at the lowest speed of the full length of the lesion to guarantee a washout, always advancing very slowly with the crown and respecting the working time and the glide assist wash during the pauses.

We also use a "Homemade distal protection system" in cases of poor run-off. It is based on creating of a retrograde access distal to the lesions and deployment of a 4 Fr. Sheath that blocks the flow and allows us to continuously aspirate through the distal sheath.

Q: What role do you see vessel preparation playing in improving long-term outcomes in endovascular therapy?

A: Well, compared to the past decade where we were thinking about crossing and treatment, nowadays the endovascular treatment is clearly divided in three steps: Crossing, vessel preparation and finally treatment, assuming that vessel preparation is a crucial step and its results

are determinant about the final treatment of every lesion. The fact that we invest more time and more specific devices for vessel preparation are the confirmation of the vessel preparation importance.
I personally believe that vessel preparation is key point for improving the long-term results of endovascular therapy in CLI.

Q: Finally, how do you foresee the future of plaque modification tools like orbital atherectomy shaping vascular interventions?

A: I hope the technological development of plaque modification tools will continue as well as, the research on drug-coated and drug eluting technologies because the combination of both seems to be the way to improve the long-term outcomes.

Figure: Overview of the Stealth 360° Orbital Atherectomy System, highlighting its GlideAssist™ technology, crown options, and simplified control interface for complex PAD lesions.

1. Luis Mariano Palena 1, Paulo Fernandes Saad 2, Elisa Piccolo 3, Teresa Gabellini 3, Giulia Baldazzi 3, Lorenzo Ciofani 3, Luca Dalla Paola 4 Cardiovasc Revasc Med. 2022 Sep:42:121–126. doi: 10.1016/j.carrev.2022.03.015.Epub 2022 Mar 24.

2. Shigeo Ichihashi, Tomoyasu Sato, Shinichi Iwakoshi, et al.
Technique of Percutaneous Direct Needle Puncture of Calcified Plaque in the Superficial Femoral Artery or Tibial Artery to Facilitate Balloon Catheter Passage and Balloon Dilation of Calcified Lesions. 2014; 25(5): 784–788.

3. Das T, Mustapha J, Indes J, et al.
Technique Optimization of Orbital Atherectomy in Calcified Peripheral Lesions of the Lower Extremity. Catheterization and Cardiovascular Interventions 2014;83:115–122.

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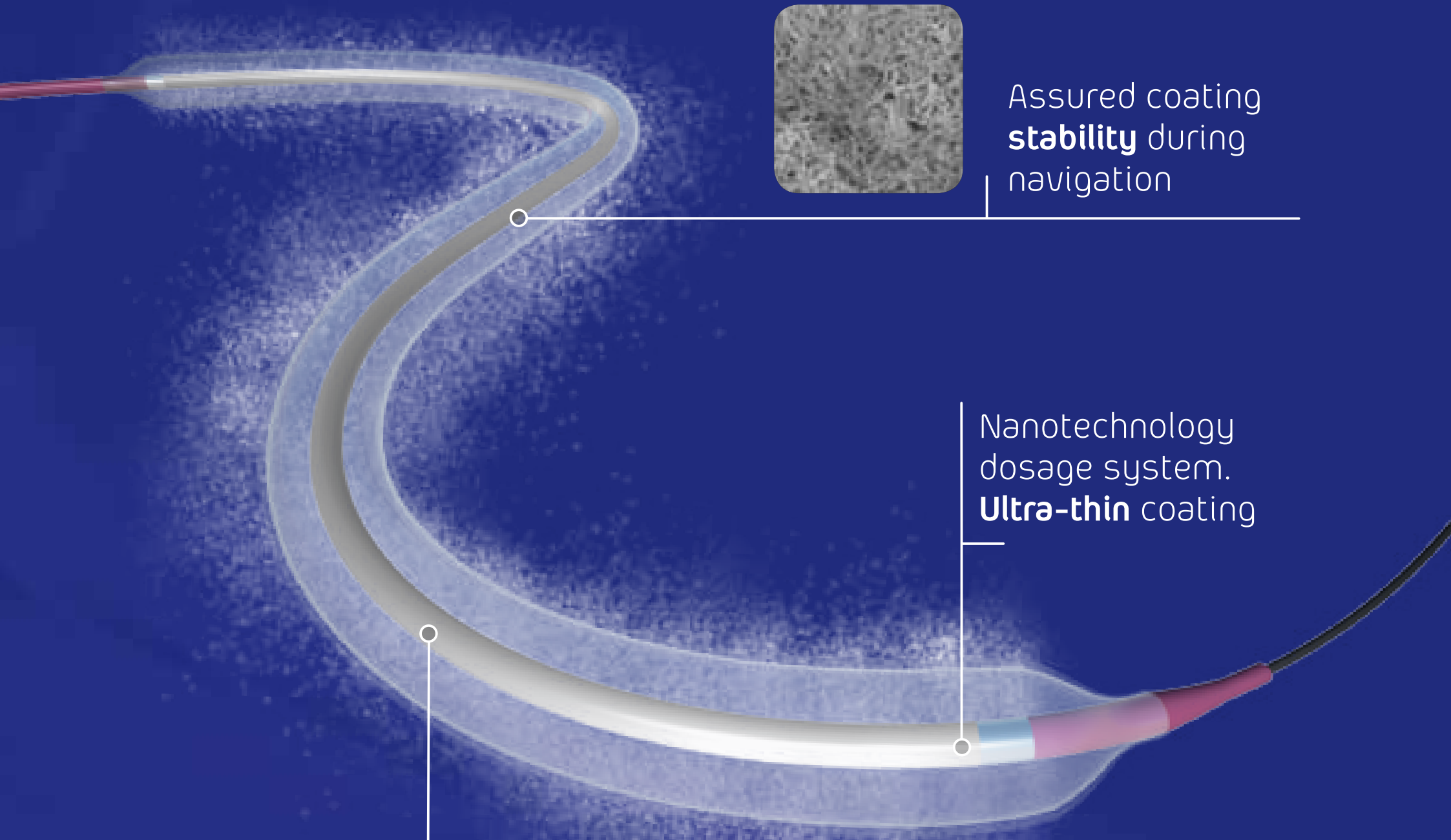

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From Precision to Vision: EVAR, AI, and Education

EVARtoAI

In this exclusive conversation, "From Precision to Vision: EVAR, AI, and Education", Dr. Fernando Gallardo, renowned for his expertise in aortic aneurysm repair, shares his insights on the evolution of EVAR planning, the transformative role of artificial intelligence, and the future of vascular education. From his early days as "the computer guy" in A Coruña to pioneering educational initiatives and exploring cutting-edge AI tools, Dr. Gallardo reflects on how technology, clinical expertise, and a commitment to education can shape the next era of intelligent vascular care.

Dr. Fernando Gallardo

Head of Department Angiology and Vascular Surgery Quironsalud Marbella.

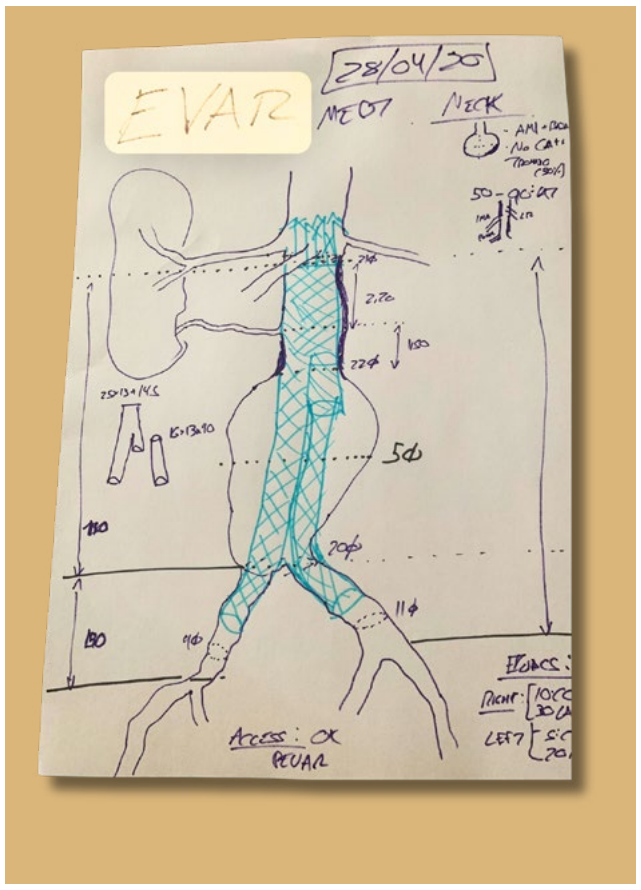
Q: Dr. Gallardo, you've developed a strong reputation in the field of aortic aneurysm repair. How has your approach to planning and execution of EVAR evolved over the past few years?

A: I am personally involved in planning and sizing EVAR since my early years of internship at A Coruña University Hospital, one of the biggest in the North of Spain, about 2007...where I was called "the computer guy" spending almost all of time with the first OsiriX version manuals than at the OR. Old times when some colleagues were initially planning the cases with an angiogram with a pigtail with markers and a compass to estimate diameter...

Since 2010 we run successfully the first online courses of planning and sizing EVAR with the ESVS and Spanish Society of Vascular Surgery, which who I have been collaborating over the last 15 years, sharing experiences and teaching planning & sizing with different workstations as OsiriX, 3mensio, TeraRecon , GE...in more than 40 courses to more than 600 participants probably....
In the last years I have been more focused on complex EVAR, PMEG, and collaborations with the industry in planning these procedures. And recently with the arrival of AI planning I realized that a radical change is coming, and in a near future we will optimise results, become more efficient, and will reduce the risk of failing in planning procedures...
I would say that over last years I have dramatically reduced the time I usually spend for planning a case to the half, and is not only the experience gained, is also about new technologies and software available...I still love to use OsiriX, but other tools help me to go faster in some steps.

Q: What role do you see artificial intelligence playing in the preoperative planning and procedural success of complex aortic cases?

A: By now, 2025, some AI software as PrediSurge or Nurea, are doing quite well for standard EVAR planning and even for predicting type 1 EL, as the ERI, Endoleak Risk Index, and using digital twin technologies to predict stent graft apposition to the wall. And we have evidence that is coming and will be available during 2026 probably...
So, in my opinion AI for planning will be useful and will accelerate learning curve and improve results for many colleagues for standard EVAR cases...



Sketch by Fernando Gallardo, precise plaining for EVAR case starts here.

For complex EVAR, it will take more time probably, in these procedures we are used to combine different devices, from different manufacturers, with different properties, regarding conformability, radial force...in also complex anatomies, with many factors included, so it will take more time to train AI to offer us adequate solutions...but it is just a question of time...but maybe just 4–5 years!!

Q: You've always emphasized continuous medical education. How do you see education transforming in this era of rapid technological change?

A: If you don't master the basics you are lost in planning and sizing. You can use AI, of course, or still send the case to the industry and they will do all for you so you only have to implant what they tell you...but this is not the way, and this is not the message I have been sharing over the last 15 years with the ESVS support.
You need to speak the planner's language, DICOM, centerlines, volume rendering, understanding MPR, if not you can use AI or advanced tools without understanding many steps and just focused on results, then one day you are not necessary anymore in the process.

As I said to my kids, you can use ChatGPT, of course, but use it wisely, as a tool that help you, but not substitute for your creativity and motivation to learn.

Q: Tell us more about your new initiative, Vascular Dream. What inspired it, and what do you hope to achieve with this platform?

A: It is a project focused on diabetic foot and limb salvage, possible thanks to the generosity of 2 reference colleagues in the field as LM Palena and M Sirvent who will lead the meeting. There is still a epidemy of amputations in Diabetics in 2025, and we need to talk about this, but mainly give tools to the vascular community to stop it... World reference colleagues as PA Schneider, August Ysa, will also join us to share the message, in one of the most international and luxury cities of the world, Marbella.

Q: How important is it to bridge technology with clinical expertise—and what are the challenges in bringing AI or digital tools into routine vascular practice?

A: Clinical expertise is mandatory to judge new technologies, as we know some of the new tools that will appear will not be sustainable, only those who really helps clinicians will do... The main challenge is that AI new software are still in validation in some world reference centers, once they are accessible to the whole community it will be unstoppable, I mean , with more cases and experience AI learns more and more, so imagine a software of AI after planning 1 or 2 million cases...
the probability of failure will be close to 0.

Q: What advice would you offer to vascular surgeons and fellows interested in combining traditional skills with modern planning tools like 3D modeling, fusion, and AI-based analytics?

A: As I said before, if you don't understand the rules of the game, you cannot play properly!! Start with the basics, with your own planning protocols and measurements, understand why a centerline is not correct or which access will be the best of your case, if you have to sacrifice a polar renal to achieve a good neck, or not...because these are key points, and don't expect the AI do it for you...at least in the next 5 years...

Q: Finally, what message would you like to share with the global vascular community as we move into this exciting new era of intelligent vascular care?

A: That what is coming is impressive, and that AI will make all these changes faster than we can imagine, we will be able to do individualized aortic therapies that were not possible 5 years ago, we will have software with millions of planned and sized cases experience accumulated in 3-4 years.

So we, as vascular expert clinicians, we have to be there and don't let all these interesting part of our daily practice to engineers or the industry, we need to work with them and make our clinical expertise a gold value and an essential part of the future of planning and sizing, if not we are at risk to be replaced...

Vascular Science to Clinical Translation Research & Leadership

IVL In Practice

As one of the early adopters of Shockwave Intravascular Lithotripsy (IVL) in patients with chronic limb-threatening ischemia (CLTI), Dr. Hany Zayed brings a wealth of frontline experience in treating complex and heavily calcified peripheral lesions. In this insightful exchange, he reflects on how IVL has reshaped his clinical approach, compares it to other vessel preparation tools, shares a powerful limb salvage case, and explores the future of IVL technology and adoption, particularly in resource-limited settings.

Dr. Hany Zayed

Professor of Applied Vascular Surgery and Consultant Vascular Surgeon at Guy's and St. Thomas' Hospital. London, England, United Kingdom

Q: You've been among the early adopters of Shockwave IVL technology in CLI patients — how has it changed your approach to treating heavily calcified peripheral arteries?

A: I had the privilege to gain early access to Shockwave IVL technology and since then it has become an integral part of our practice in suitable CLTI patients.
It certainly constitutes an important addition to our armamentarium in managing heavily calcified lesion.

Q: In your experience, how does IVL compare to traditional vessel preparation tools like atherectomy or scoring balloons in terms of safety and efficacy?

A: Changing the vessel compliance and plaque conformability are two novel concepts which can help addressing extremely challenging and calcified lesions. However, I view IVL as a complementary to, rather than a competitor to various vessel preparation tools. Various studies, such as SHOCC and Disrupt PAD trials, have already demonstrated excellent safety and efficacy profile for Shockwave IVL. As we expand our experiences and knowledge of various vessel preparation techniques, we will hopefully become better in selecting the right patients/lesions most suitable for each vessel preparation tool.
I am optimistic that this will lead to better clinical and technical outcomes.

Q: Can you walk us through a memorable or challenging case where IVL played a pivotal role in limb salvage?

A: I believe that the release of L6 (larger sizes) IVL balloons was an important milestone, which paved the way to treat large size vessels. One of the memorable cases I had was a frail old lady who presented with CLTI in the form of a toe gangrene and rest pain. Her main problem was a very tight juxta-renal coral-reef heavily calcified aortic plaque which extends to both common iliac arteries and also involves the origins of her visceral vessels. Open aortic surgery or general anaesthetic were not feasible due to the significant comorbidities of the patient. Fortunately, we were able to use the 12 mm Shockwave IVL balloons to regain a decent aortic lumen without the need for stenting which could compromise her renal or visceral perfusions with potentially catastrophic consequences. We also treated the bilateral iliac disease with IVL and stenting. As the procedure was performed under local anaesthesia, she had a quick recovery and her rest pain resolved immediately. She was seen in the outpatient clinic a few weeks later. She was still pain-free and her toe had auto-amputated. She remains under our surveillance programme and is symptom-free. I believe the availability of Shockwave IVL L6 balloons helped us offer this high-risk lady a minimally invasive and effective treatment, which she could tolerate more than open aortic or extra-anatomical reconstruction.

Q: What do you see as the next frontier for intravascular lithotripsy — expanded indications, new device iterations, or combination therapies?

A: I think it will be interesting to explore the use of IVL in other arterial territories, such as the carotid arteries.
But more importantly, it is vital to demonstrate that Shockwave IVL, and other vessel preparation modalities, have a positive impact on patient-relevant, rather than technical, outcomes. In order to prove this, we need large independent RCTs which recruit CLTI patients with long and heavily calcified multi-level lesions, who represent the patients we deal with in our daily practice. I believe the vascular community should stand behind all the efforts to deliver such an RCT, which will then enable us to understand and prove the real value and cost-effectiveness of vessel preparation in CLTI patients with advanced atherosclerotic disease.

Q: What message would you share with clinicians in developing regions about adopting advanced vessel prep technologies like Shockwave?

A: I think it would be wise to adopt the technologies supported by the evidence proving their safety and efficacy, and Shockwave IVL is one of them. I would also recommend that the clinicians should join efforts and collect the data about the outcomes of these vessel preparation technologies in the patient population they treat, for example by establishing registries for the different devices they decide to use. This will allow them to determine whether these technologies are cost-effective in their cohort of patients or not. It could also help inform the vascular community on which patient/lesion would be best served by which vessel preparation tool.

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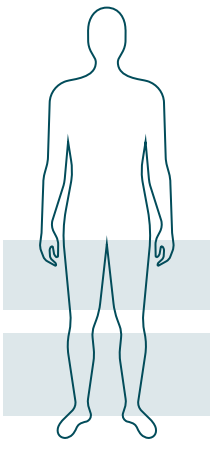

- 4F ø device
- .018i guide wire
- NiTi nitinol stent
- arterial
- open-cell design
- radiopaque markers
- atraumatic soft-tip
- anti-jump technique

Insights on Advancements in Vascular

Vascular surgery continues to evolve at a rapid pace, driven by technological innovation, refined techniques, and a growing emphasis on personalized, patient-centered care. Few voices capture this transformation as clearly as Prof. Clark Zeebregts, whose research and clinical expertise span the full spectrum of endovascular and open surgery. In this conversation, he shares his perspectives on some of the field's most pressing topics, from predictors of AAA remodeling and decision-making in acute limb ischemia, to managing complex graft infections, the future of carotid interventions, and innovations in surgical education. His insights not only highlight where the specialty stands today, but also where it is headed, offering valuable guidance for both practicing clinicians and the next generation of vascular surgeons.

Adavancing Vascular Care

Dr. Clark Zeebregts

Professor of Vascular Surgery
President Elect ESCVS, ESVS Councillor for WFVS Division of Vascular Surgery (Department of Surgery) University Medical Center Groningen.

Q: Your recent research delves into predictors of AAA remodeling after EVAR. What are the key anatomical factors that influence patient outcomes, and how can this knowledge guide clinical decision-making?

A: Our work has shown that sac remodeling after EVAR is driven above all by anatomy. The proximal neck is critical: wide, short, angulated, or thrombus-laden necks reduce the chance of sac shrinkage, while large iliac landing zones compromise distal seal. These features, along with endoleaks, explain much of the variability in outcomes. We now know that volume measurements capture remodeling more sensitively than diameter alone, and this supports a move toward AI-assisted volumetric follow-up. Importantly, device choice matters less by material and more by its match to patient anatomy. For me, the key clinical lesson is that careful preoperative assessment allows us to tailor device selection, surveillance intensity, and adjunctive strategies, ultimately improving durability and safety.

Q: In comparing endovascular and surgical revascularization for acute limb ischemia, what criteria should clinicians consider when selecting the most appropriate intervention?

A: In acute limb ischemia, the decision hinges on limb threat, thrombus burden, and patient risk. For immediately threatened limbs where rapid reperfusion and fasciotomy may be required, open surgery remains the most reliable option. In viable or marginally threatened limbs, an endovascular-first approach, thrombolysis or pharmacomechanical thrombectomy, can be effective and is often followed by treatment of the underlying lesion.

Evidence shows that surgery and thrombolysis achieve broadly similar limb salvage, but with different complication profiles, so selection must be individualized. Our experience, for example in acute-on-chronic iliac occlusions, demonstrates how thrombolysis can facilitate complex reconstructions such as CERAB. What remains unresolved are the grey zones in between, and this is exactly what ongoing Delphi consensus projects are addressing: defining which patients truly benefit from endovascular-first therapy and when surgery should take priority.

The central message is that these strategies are not competitors but complementary tools, and the real art lies in selecting the right approach for the right patient.

Q: Vascular graft infections remain a significant challenge. Could you share your approach to managing these infections and any recent advancements in this area?

A: Graft and endograft infections are devastating, and successful management depends on both accurate diagnosis and individualized therapy. In our practice, FDG PET/CT has become indispensable, as it not only detects infection more reliably than CT but also shows its true extent, often changing the surgical plan.
Once confirmed, total explantation with in situ reconstruction using deep femoral veins remains the gold standard, offering the best durability and lowest reinfection risk. When vein is unavailable, bovine pericardium has proven to be the most reliable alternative, followed by cryopreserved allografts.
A new kid on the block is Artegraft reintroduced recently. For fragile patients unable to undergo major surgery, selective drainage and long-term antimicrobial suppression can sometimes achieve acceptable survival, though biofilm biology makes recurrence a constant threat. Increasingly, management is shifting from rigid algorithms to personalized medicine, taking into account pathogen virulence, host factors, and anatomical complexity. I believe that these cases should be centralized in experienced centers, where multidisciplinary teams can offer the most tailored solutions.

Q: With the evolution of carotid surgery techniques, how do you foresee the role of carotid stenting versus endarterectomy changing in the coming years?

A: The long-standing debate between CEA and CAS is giving way to a more balanced view. CEA remains the benchmark for most symptomatic patients, but CAS has matured significantly and, in expert hands, yields

comparable outcomes in anatomically challenging situations, restenosis, or high surgical risk. Techniques such as TCAR may further bridge the gap, although their use in Europe is still limited. What is changing most is not the tools themselves, but how we decide who needs intervention. Degree of stenosis alone is no longer enough, i.e. plaque vulnerability, intraplaque hemorrhage, calcification, and inflammation are stronger predictors of risk. New imaging and molecular diagnostics are helping us refine selection so that only patients who truly benefit are treated. Cognitive outcomes are also under investigation, but so far the benefit of revascularization appears limited to specific subgroups with hemodynamic compromise. In short, CEA and CAS should be viewed as complementary strategies, with the future lying in personalized, biology-driven selection rather than a binary contest.

Q: As a leader in vascular surgery education, what innovations do you believe are essential for training the next generation of vascular surgeons?

A: The future of vascular surgery education must go beyond the apprenticeship model. Simulation and virtual reality now play a central role in preparing trainees for complex procedures before they ever reach the operating room. Competency-based curricula, rather than time-based training, are becoming the standard, supported by validated assessment tools. International collaboration through registries, fellowships, and digital platforms ensures that trainees are exposed to a wide variety of cases. At the same time, education must reflect the reality that vascular surgeons are not just proceduralists but coordinators of complex care, requiring training in imaging, perioperative medicine, and multidisciplinary teamwork. Looking ahead, integration of artificial intelligence and big data into training will allow young surgeons to learn from digital twins, automated feedback, and predictive analytics. Most importantly, education must embrace the principles of value-based healthcare: involving patients in shared decision-making, weighing outcomes that matter to them, and training surgeons not only to operate well but also to guide patients through choices in a transparent, patient-centered way.

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