

International Society of Craniofacial Surgery

# ISCFS NEWSLETTER

Volume 2 | Number 3



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JULY 2025

# MESSAGE FROM THE EDITOR

Dear Colleagues,

As we move into the heart of summer, there is a palpable sense of excitement and momentum within the International Society of Craniofacial Surgery. Now more than ever, our global community is energized by a shared commitment to innovation, collaboration, and excellence in patient care. With great enthusiasm, I write to highlight what promises to be one of the most remarkable moments in our Society's history: the upcoming ISCFS Biennial Congress in Shanghai, taking place October 27-30, 2025.

We are thrilled to report that this year's Congress has 831 official abstract submissions. This incredible response reflects the dynamic growth of our field and the tireless dedication of our members across all continents. The volume and quality of submitted work stand as a testament to the transformative research, surgical advances, and interdisciplinary partnerships that continue to push the boundaries of craniofacial science and care.

Shanghai, a city that seamlessly blends modern innovation with rich cultural heritage, will

provide the perfect backdrop for our gathering. Attendees can look forward to a world-class scientific program, featuring cutting-edge keynote lectures, interactive panels, and robust discussions spanning the full spectrum of craniofacial surgery—from congenital anomalies and craniosynostosis to oncologic reconstruction, distraction osteogenesis, virtual surgical planning, and the integration of artificial intelligence into clinical workflows. The Pre-Congress Symposium similarly brings together the “ying and the yang” of cranio-maxillo-facial surgery, with parallel sessions on Orthognathic Reconstruction and Comprehensive Craniosynostosis Care in which East will meet West.

In addition to scientific enrichment, the meeting will offer unparalleled opportunities for professional development and global networking. Whether you are a senior leader, early-career surgeon, researcher, or allied health professional, the Biennial Congress will be a place to share ideas, foster mentorship, build collaborations, and cultivate lifelong connections. ISCFS organized social events and your own cultural excursions throughout the week will further enrich our

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time together and remind us of the vibrant human stories that underpin our profession.

This summer also marks a pivotal moment in preparation. The ISCFS Program Committee is working diligently to craft a compelling agenda that reflects the diversity and depth of our discipline. If you have not yet registered, I strongly encourage you to do so and secure your travel arrangements. Early registration rates and hotel blocks are filling quickly, and you will not want to miss what promises to be a landmark gathering for our field.

My heartiest congratulations to Fernando Molina, Eppo Wolvius, and Scott Bartlett

for their lively and informative discussion of the hemifacial microsomia mandible, from birth to skeletal maturity. Members and guests were treated to a high-level discussion on the approach, risks and benefits of various techniques at different times of life, and potential pitfalls of treatment. As often happens with ISCFS webinars, I am changing elements of my practice as a result of their erudite presentations.

On behalf of the ISCFS leadership and editorial team, thank you for your ongoing contributions to the advancement of craniofacial surgery. I look forward to seeing many of you in Shanghai this October for what is sure to be

an unforgettable meeting of minds, skills, and spirit.



**JESSE TAYLOR**

ISCFS Secretary-Treasurer  
UNITED STATES

A handwritten signature in black ink, appearing to read 'J. Taylor'.

# ISCFS NEWSLETTER

Volume 2 | Number 4

**MEMBERS!** Please write  
an article on

**MY WAY:**

**How I approach late  
presenting (>1 yo) sagittal  
craniosynostosis**

To submit an article of 750-1000 words with up to 5  
JPG images as needed, send it to [admin@iscfs.org](mailto:admin@iscfs.org)  
no later than Friday, September 19, 2025.



OCTOBER 2025

# MESSAGE FROM THE PRESIDENT

Dear esteemed members of the Society,

We would like to express our heartfelt gratitude for your invaluable support of the 2025 Congress in Shanghai. The response to our call for abstracts has been truly remarkable, with a total of 831 received. Of these, 685 were submitted for Oral Presentation and 145 for Posters. The review process has now been successfully completed, and we trust that the majority of you have already confirmed your acceptance notifications. Our next focus will be on the registration process, and we will keep you informed of the program details shortly. Building on the successes of previous efforts, this year's Congress will feature an exciting addition: a dedicated Indications for Surgery session. Organized by the Young Surgeons' Committee, this interactive panel promises to be a highlight of the event. It will provide a unique platform for our young attendees to engage with leading international experts and colleagues,

delving deep into the latest advancements and best practices in surgical indications. We encourage you to submit your compelling cases through the link on page 7 in this newsletter. This Congress will be an excellent opportunity for us to learn from one another, foster meaningful discussions, and ultimately elevate the standard of patient care. Your insights and suggestions are of great value to us. Should you have any ideas or feedback that could enhance the Congress experience, please do not hesitate to reach out to our secretariat. We are committed to making this year a resounding success and are confident that your participation will contribute significantly to its vibrancy and impact. We look forward to welcoming you to Shanghai and ensuring that your visit is both productive and memorable.

Best wishes,  
Xiongzhen Mu



**XIONGZHENG MU**  
ISCFS President  
CHINA

*"We look forward to welcoming you to Shanghai and ensuring that your visit is both productive and memorable"*

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# 21ST ISCFS CONGRESS

## SHANGHAI FACTS AND HISTORY



Provided by  
**XIANXIAN YANG**  
CHINA

*"Shanghai is a city where old and new, tradition and modernity, local and global, seamlessly converge."*



Xintiandi

Shanghai is a city where old and new, tradition and modernity, local and global, seamlessly converge. This unique fusion gives birth to what many call the "petite bourgeois" or "Xiaozi" lifestyle - a blend of sophistication, cultural depth, and romanticism that captivates visitors worldwide.

### TIANZIFANG: THE EPICENTER OF SHANGHAI'S BOHEMIAN SOUL

Tianzifang is a quintessential destination to experience Shanghai's "bourgeois bohemian" vibe. Once a residential quarter, it has evolved into a thriving cultural hub of narrow alleyways, art studios, boutiques, and cozy cafes. Here, you can wander through labyrinthine lanes, sip a freshly brewed latte, and stumble upon unique artworks or handicrafts - each telling a story of the city's creative pulse.

### XINTIANDI: WHERE HISTORY MEETS CONTEMPORARY CHIC

Xintiandi stands as an iconic symbol of Shanghai's cultural fusion. This district harmonizes traditional Shikumen architecture with modern shops, restaurants, and entertainment spaces. It is a place to take a leisurely stroll, savor a gourmet meal in a stylish eatery, or simply absorb the atmosphere of old Shanghai reimagined for the present.

### THE BUND: A JOURNEY THROUGH TIME

No visit to Shanghai is complete without a walk along the Bund. This historic waterfront offers breathtaking views of the

Huangpu River and Pudong's iconic skyline, home to landmarks like the Oriental Pearl Tower. Lined with colonial-era buildings, the Bund serves as a living museum, juxtaposing Shanghai's past grandeur with its present-day skyline.

### FRENCH CONCESSION: PARISIAN FLAIR IN SHANGHAI

The French Concession exudes a distinct "bourgeois" charm. With tree-lined avenues, European-style architecture, and countless cafes and bistros, it feels like a slice of Paris in the heart of the city. Here, you can enjoy a lazy brunch, browse a quaint bookstore, or relax just watching the world go by while embracing the art of slow living.

### EMBRACING THE LIFESTYLE

Shanghai's "petite bourgeois" lifestyle is about relishing life's small pleasures: sipping coffee in a hidden café, exploring an avant-garde art gallery, or wandering through historic neighborhoods. It's not merely about material indulgence, but a celebration of culture, art, and the subtle joys that define the city's soul.

Shanghai's unique alchemy of history, culture, and modernity crafts a lifestyle that's both refined and deeply rooted in its heritage. Whether you're a local or a traveler, this dynamic metropolis always has something new to unveil—an invitation to explore, savor, and fall in love with its ever-evolving charm.



Yokohama



Jakarta

### SISTER CITIES OF SHANGHAI

The exchange of experience and good practice in the areas of culture, economy, innovation, urban management, and above all, cooperation among the people are the main objectives of the establishment of sister cities.

The first such agreement was signed by Shanghai half a century ago with the city of Yokohama, Japan. In 2020, Shanghai signed its latest sister city agreement with Indonesia's capital, Jakarta. To date, Shanghai has 72 sister cities across the world.

Source: <https://english.shanghai.gov.cn/en-ThisisShanghai/index.html>



## WELCOMING THE ISCFS GLOBAL SUPPORTERS FOR 2025

We are proud to welcome our new global supporters for 2025 and extend our heartfelt thanks for their invaluable contribution to our society.

Their commitment helps us advance education, innovation, and excellence across the field. Together, we look forward to another impactful year.



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# YOUNG SURGEONS' UPDATE



**BEN MASSENBURG**  
UNITED STATES

## CALL FOR CASES — A NEW COLLABORATIVE SESSION ON SURGICAL INDICATIONS AT ISCFS 2025

As the ISCFS Young Surgeons' Committee continues to grow and deepen its engagement with residents and fellows around the world, we are excited to announce a brand-new educational session coming to the ISCFS Congress in Shanghai this fall - **Indications: Expert Guidance on Challenging Cases.**

This session is designed with young surgeons in mind - those of us who are navigating the complex gray zones of surgical decision-making. Whether you're a resident, fellow, or early-career craniofacial surgeon, you've likely encountered patients whose path forward wasn't entirely clear. Maybe the timing of surgery was uncertain, or the patient's anatomy and social context raised more questions than answers. Maybe you wondered, "What would my mentors or colleagues across the world do in this case?"

### THIS IS YOUR OPPORTUNITY TO ASK THAT QUESTION.

We are inviting young craniofacial surgeons to submit de-identified cases where the indication for surgery is uncertain or nuanced. The format is simple: share a short

summary of the case, highlight the aspects you find challenging, and propose one or two questions you'd like to discuss. Our Young Surgeons' Committee will review submissions and select 3-5 cases to be presented during the live session in Shanghai, to engage in a vibrant discussion with peers and experts.

If selected, you will present your case to be discussed by a panel of senior ISCFS faculty from across the globe, alongside fellow trainees and early career surgeons in the room. We'll explore questions of timing, technique, ethics, and outcomes and embrace the reality that there isn't always one "right" answer. The goal is not only to generate insights, but to foster the kind of thoughtful, interdisciplinary, and international conversation that sets the International Society of Craniofacial Surgery apart.

This session represents a key step in what we hope will become an enduring tradition: ISCFS as a forum not only for presenting polished results, but also for engaging in open, humble discussion about the real-life cases we face in our training and early careers.

### THE SUBMISSION PORTAL IS NOW LIVE.

You can access the case submission form here:

<https://go.ucsd.edu/3SN7lnz>



Submissions are due by **August 1, 2025** and we strongly encourage participation from all regions and across all subspecialties in craniofacial surgery.

I look forward to seeing many of you in Shanghai - not only for the science, but for the growth, connection, and global camaraderie that make this society so special.

On behalf of the ISCFS Young Surgeons' Committee, thank you for being part of this movement to support and uplift each other in our early years.

Let's bring our questions to the table and learn together.



# **SECURE YOUR BOOKING AT THE SHANGRI-LA JING AN**

the official headquarter hotel and venue for our  
upcoming ISCFS Congress in Shanghai

Rooms in our dedicated block are limited

**BOOK YOUR ROOM NOW**

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**Jing An Shangri-La, Shanghai**

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# ISCFS BULLETIN BOARD

## NEXT WEBINAR TOPIC – SEPTEMBER

Neurocognitive  
outcomes in Sagittal  
Craniosynostosis

September 9, 2025 | 8:00 am UTC

Join us on Monday, September  
9, 2025, at 8:00 am UTC  
for an in-depth discussion.



## TRAINING THE FUTURE OF CRANIOFACIAL SURGERY



## FELLOWSHIP DIRECTORY

We are pleased to report that the new Craniofacial Fellowship Directory on our website now includes 11 programs in Australia, Canada, Colombia, Mexico, the United Kingdom and the United States.

Access information about all the programs here: <https://www.iscfs.org/fellowship-program>

Members, to submit a fellowship program to be included in the directory:

1. Using your secure password, log into the new Members' Area
2. Click on Membership Benefits
3. Click on Submit Fellowship Program
4. Complete the on-line form

Thank you to all who have submitted programs to the directory.

## TECHNICAL UNIVERSITY OF MUNICH RESEARCH PROJECT:

THE INFLUENCE OF PREOPERATIVE LABORATORY VALUES ON POSTOPERATIVE COMPLICATIONS IN PLASTIC AND RECONSTRUCTIVE SURGERY

We invite you to participate in a research project aimed at **improving preoperative risk assessment in Plastic and Reconstructive Surgery (PRS)**. Our goal is to develop a data-driven model using preoperative laboratory values to better predict and manage postoperative complications.

Your insights will help assess the **current role of lab values in surgical decision-making** and identify areas for improvement in risk assessment. Participation is voluntary, and responses will at all times remain anonymous. You can withdraw from this study without any consequences.

We greatly appreciate your time and expertise in advancing patient safety in PRS.

**SURVEY LINK:**  
<https://forms.gle/z3UgWJWVMZK2BsJy5>



Together,  
we restore  
**form, function**  
and **hope** to  
patients around  
the world.

# WINDOW INTO HISTORY

## LOUIS ÉDOUARD OCTAVE CROUZON AND HEREDITARY CRANIOFACIAL DYSOSTOSIS

Louis Édouard Octave Crouzon (1874-1938) was a French neurologist who studied medicine at Paris University graduating in 1900, having had Paul Dieulafoy (1839-1911), Joseph Babinski (1837-1932) and Pierre Marie (1853-1940) as Professors. In 1906, he worked in Paris at Hôtel Dieu and beginning in 1919 at Salpêtrière Hospital, where he remained until his retirement. In 1912, he was promoted to *Médecin des Hôpitaux*. His main interests were congenital hereditary neurologic diseases and the spino-cerebellar ataxia in particular. He identified Hereditary Craniofacial Dysostosis (*La Dysostose Cranio-Faciale Héritaire*), defined as a genetic branchial arch anomaly that results in a series of abnormal facial features. This condition is nowadays termed Crouzon Syndrome. Apart from this, he wrote numerous papers on neuropathology, neurogenetics and anthropology. In 1929,

he published *Études sur les Maladies familiales Nerveuses et Dystrophiques* (Studies on Familial Nervous and Dystrophic Diseases), a book in which his most relevant works are collected.

Crouzon had a large variety of interests. During World War One (WWI) he was attached to the ambulance corps and responsible for a military neurological service. He was awarded the *Croix de Guerre* and was a *Commandeur de la Légion d'honneur*. He was the President of the Neurologic Society of Paris and in 1935 was elected as a member of the Academy of Medicine, section of Medicine. He died in 1938, aged 64. In his obituary, he was described as "warm, kind, good, mellow, generous, diligent and patient. He knew what he wanted to do and why he wanted to do it; he knew what to do and how to do it; he was a man armed for the battles of life."



**RICCARDO F. MAZZOLA**

History Editor  
ITALY

*"The hereditary craniofacial dysostosis was first identified and described by Crouzon in 1912."*



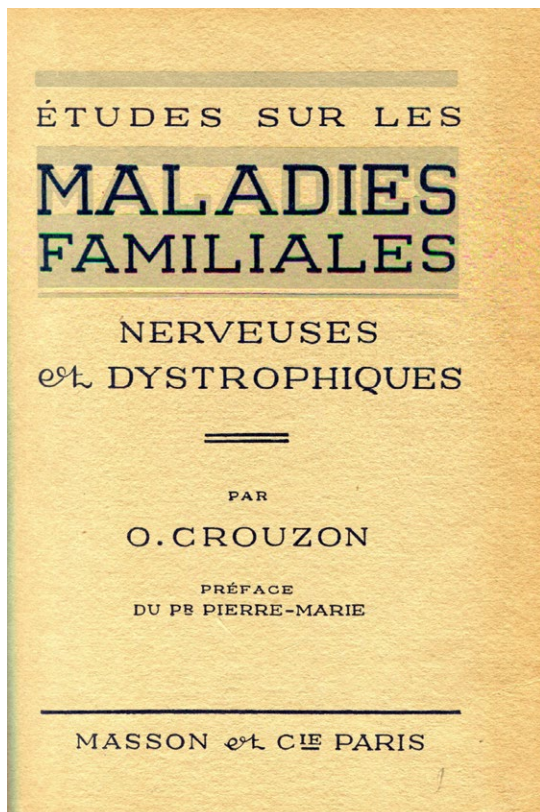


Figure 1 - Title page of Crouzon's textbook, published in 1929



Figure 2 - Photograph of the mother, aged 29, affected by Hereditary cranio-facial dysostosis, published in Crouzon's original paper (1912).

### ÉTUDES SUR LES MALADIES FAMILIALES NERVEUSES ET DYSTROPHIQUES

(Studies on Familial Nervous and Dystrophic Diseases)<sup>1</sup> (Figure 1) is a well-illustrated and documented textbook preceded by a preface written by Pierre Marie, Professor of Neurology at Paris Medical Faculty. Prof. Marie acknowledges Crouzon's work emphasizing that it is specifically focused on familial diseases, less on the hereditary. The work is divided into two parts.

Part one deals with familial diseases of the nervous system, whereas part two with familial dystrophic diseases. In this second group, Crouzon includes the bony dystrophies, localized



Figure 3 - Her son affected by the same disease aged 3 and aged 18, front and profile view

and systemic. The group of the localized bony dystrophies comprises the hereditary craniofacial dysostosis, whereas the group of the systemic bony dystrophies the cleidocranial dysostosis.

The hereditary craniofacial dysostosis was first identified and described by Crouzon in 1912.<sup>2</sup> The long and detailed paper, originally presented to the Medical Society of Paris, is reported in *Études sur les Maladies Familiales Nerveuses et Dystrophiques*, along with the photograph of the mother aged 29. (Figure 2) and her son at 3 and 18. (Figure 3) "affected by the same curious malformation, involving the skull and the bony structure of the face." This is the first example of craniofacial dysostosis. Crouzon defines the typical features of the malformation: severe central forehead bossing, prognathism, parrot beak nose, Basedow-type exophthalmia, ogival vault of the palate. He stresses that a distinction should be made with the acrocephalosyndactyly (congenital malformation of the skull and hands), first described by Eugène Apert in 1906.<sup>3</sup> In the conclusion, Crouzon summarizes the triad of the most salient phenotypic aspects of the condition, characterized by: "1) cranial deformity with keel shaped skull (scaphocephaly) in particular and angular shaped skull (trigonocephaly); 2) facial anomalies typically affecting the nose and the lower jaw; 3) proptosis with divergent strabismus."

Three years later he described a second family group in which seven persons in successive generations were affected by the same disease.<sup>4</sup> In the above mentioned textbook, numerous other observations of hereditary craniofacial dysostosis seen by Crouzon through his life are reported. In 1929, in cooperation with the French physician and anthropologist Félix Regnault (1863-1938), he published a detailed review article, where the salient aspects of the malformation are shown.<sup>5</sup> According to him, craniosynostosis is the most relevant feature of the hereditary craniofacial dysostosis, typically affecting the coronal suture (premature

fusion), although other sutures may also be involved. The defining characteristics of the craniofacial dysostosis syndrome are: orbital dysmorphology with proptosis due to shallow orbits, hypertelorism, and vision impairment and midface hypoplasia due to underdevelopment of the maxilla and zygomatic arches.

In conclusion, we have reported the description and shown the photograph of the first patient affected by hereditary craniofacial dysostosis by Octave Crouzon in 1912. As a tribute to him, the condition was later renamed Crouzon Syndrome.

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# CASE REPORT

## SECONDARY RECONSTRUCTION OF COMPLEX FRONTAL FLATTENING USING PERSONALIZED PEEK IMPLANTS DESIGNED WITH 3D PRINTING TECHNOLOGY



**QIAN CHEN**  
CHINA



**BIN YANG**  
CHINA

### INTRODUCTION

Frontal flattening, often attributed to developmental or genetic factors, typically does not impair physiological function. However, it can significantly affect facial contour and overall aesthetics. For individuals striving for a flawless appearance, a full and well-defined forehead symbolizes youth

and vitality and is considered a crucial standard of beauty. In recent years, advancements in medical aesthetic technologies have made frontal augmentation a popular choice for those seeking refined facial features. While mild cases of frontal flattening are commonly treated with autologous fat grafting, effective corrective methods for moderate to severe cases remain limited<sup>1</sup>.

In January 2024, the Digital Plastic Surgery Center of the Department of Plastic Surgery, Peking Union Medical College Hospital, treated a patient who presented with unsatisfactory forehead contours, including flatness, unevenness, and deformity following a prior artificial bone implant procedure. Using digital technology, a personalized polyether-ether-ketone (PEEK) implant was designed and fabricated via 3D printing. For the first time, a secondary PEEK overlay surgery was performed to reconstruct the frontal region. The procedure achieved favorable aesthetic outcomes. This case is reported as follows.







Figure 1 - A 22-year-old female patient undergoing PEEK implant reconstruction for frontal flattening. Top row: Pre-operative Middle row: Post-expander implantation Bottom row: 1 month post-operatively.

### CASE REPORT

A 22-year-old female patient underwent artificial bone implantation for frontal flattening and inadequate brow ridge contour at an external hospital one year ago. After surgery, she developed asymmetry in eyebrow elevation, with the right eyebrow positioned higher than the left. Furthermore, the forehead remained flat, exhibiting noticeable depressions and irregularities (**Figure 1 - Top row**). The patient sought corrective treatment to enhance the contours of both the forehead and brow ridges.

### STAGE I SURGERY

Due to the uneven surface and insufficient soft tissue volume after the initial artificial bone implantation, a staged approach was planned. In Stage I, a tissue expander was

inserted, and the artificial bone implant was removed. The expansion process significantly increased the available skin area, providing well-vascularized flaps (**Figure 1- Middle Row**). Two months after surgery, the patient underwent Stage II.

### STAGE II SURGERY

Pre-operative planning included a head CT scan (64-slice spiral CT, PHILIPS, Netherlands) with the following parameters: slice thickness 1 mm, slice interval 0.625 mm, and pixel matrix 512x512. The patient's CT data was saved in DICOM format on a CD and imported into the Proplan CMF 3.0 digital design software (Materialise, Leuven, Belgium) for processing. A 3D cranial model was reconstructed from the CT data. Using a 3D model of a typical Chinese female

forehead and brow ridge as a reference, the patient's forehead morphology was assessed. The design was customized to meet the patient's aesthetic preferences. The prosthetic implant was designed to follow the natural curvature of the original forehead and transition smoothly with the brow bone. The implant surface featured a series of 1.5 mm diameter perforations, spaced 7.5 mm apart, to improve integration with surrounding tissue. Titanium screw fixation points were also incorporated into the implant design (**Figure 2a 2c**).

3D printing technology was employed to create physical models of both the cranial and implant structures (**Figure 3b**). These models were used to simulate the final prosthetic design. After the patient confirmed the design, the

personalized PEEK implant was custom-manufactured. Finally, the customized PEEK implant was tested against the 3D-printed cranial model (Z Printer 350, 3D Systems, USA) in the forehead area to ensure an accurate fit and alignment before implantation (**Figure 3b**). This confirmed the final prosthetic as the optimal solution for repair.

The Stage II procedure involved removing the tissue expander and implanting the customized PEEK implant for comprehensive forehead and brow ridge contouring. Using digital technology and the 3D-printed custom PEEK implant, the device was perfectly aligned with the patient's forehead and brow anatomy. No intra-operative adjustments were required (**Figure 3a 3c**). Post-operatively, there were no complications, including seroma, infection, or implant exposure. The patient reported no skin numbness, foreign body sensation, or facial expression disturbances. The forehead achieved a smooth, rounded, and natural appearance.

### STAGE III SURGERY

Six months post-operatively, the patient requested further enhancement of the brow ridge. Stage III surgery was planned involving a second PEEK implant for additional brow ridge contouring and forehead enhancement.

The design process for Stage III mirrored the steps of Stage I.

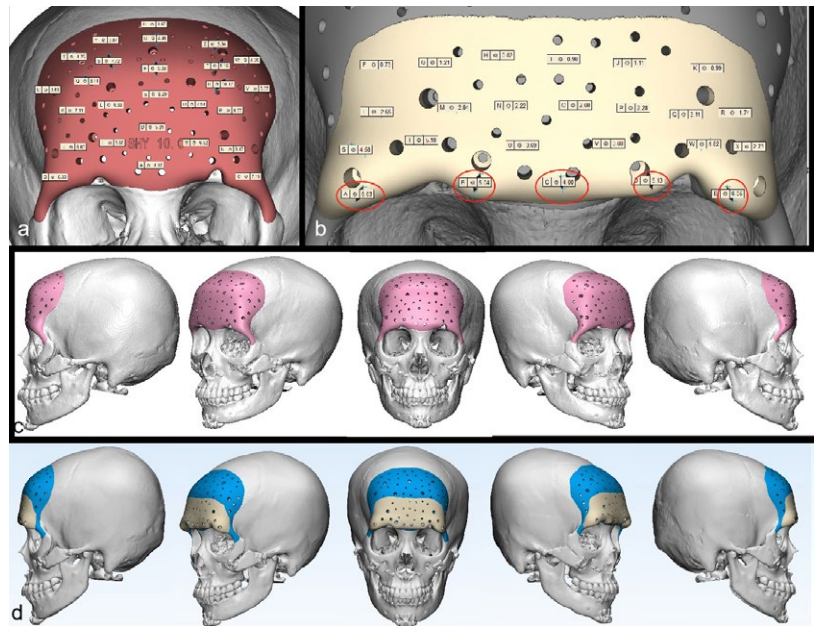


Figure 2 - Pre-operative 3D design: a,c: First PEEK implant design b,d: Second PEEK implant design.

Using the original PEEK implant from Stage I, a head CT scan was conducted to reconstruct a new 3D cranial model. A simulated prosthetic repair plan was developed to overlay the original PEEK implant, with titanium screw fixation points (**Figure 2b 2d**). During surgery, the new implant fit well with no significant gaps, resulting in noticeable enhancement of the lateral orbital region, brow, and forehead. Titanium screws were used for secure internal fixation of the implant. The patient expressed high satisfaction with the final result (**Figure 1 Bottom Row**).

### DISCUSSION

PEEK offers excellent biocompatibility, ease of shaping, and mechanical properties similar to those of human bone<sup>2</sup>. Research has demonstrated that PEEK

exhibits good biological stability and biocompatibility after implantation, with no toxicity<sup>3</sup>. Its natural radiolucency ensures that it does not cause artifacts or interference during imaging procedures, such as ultrasound and CT scans<sup>4</sup>. Currently, PEEK is widely used in the repair of cranial defects. In recent years, PEEK has also found extensive applications in the repair of maxillary tumor resection defects<sup>5</sup>, mandibular angle over-resection<sup>6</sup>, cranial implants<sup>7</sup> and artificial teeth substitution<sup>8</sup>, all of which have demonstrated excellent safety and clinical outcomes.

Digital technology allows for the customization of irregularly shaped implants, meeting the personalized needs of patients with flat foreheads. With 3D printing, the precision of implants can reach 0.01 mm,

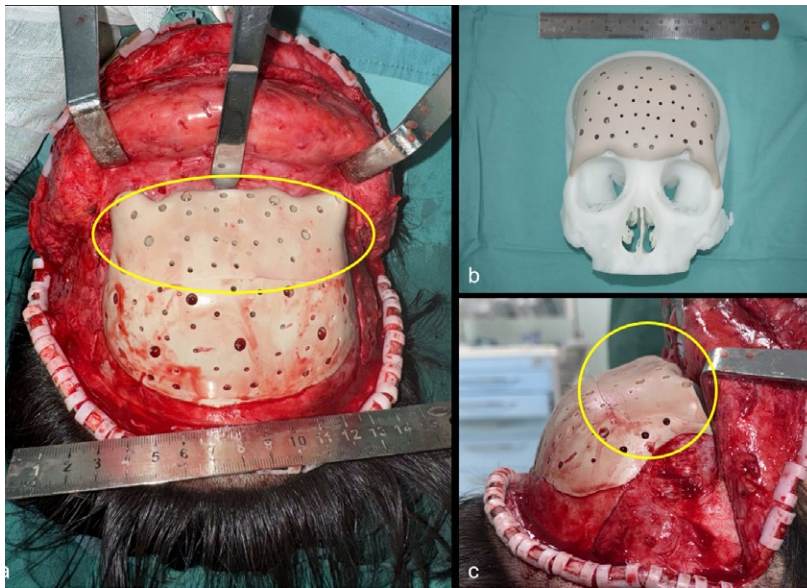


Figure 3 - 3D-printed patient-specific implant and intraoperative matching:  
 a. Frontal view of intraoperative matching for both PEEK implants  
 b. Intraoperative matching of the PEEK implant with the model  
 c. Lateral view of intraoperative matching for both PEEK implants

enabling precise adjustment of the required bone height. The interface thickness is  $<0.20$  mm, ensuring a smooth transition between the implant and the bone surface. This successfully resulted in a harmonious and natural "facial bone aesthetic."

In conclusion, the personalized PEEK implant, customized using digital design and 3D printing technology, effectively repairs frontal flattening. The use of a tissue expander increased the available skin area, and the ability to overlay the PEEK implant for secondary overlay provided an optimal result. This approach achieves a biomimetic, natural-looking brow ridge and offers a tailored and innovative treatment for patients.

*Disclosure - The authors have no conflicts of interest regarding the content of this article.*

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# REFLECTIONS

## ON THE SHOULDERS OF GIANTS

*"The Giants take many, and often missed, forms – mentors, families, colleagues and trainees."*



**STEVE WALL**  
Reflections Editor  
UNITED KINGDOM

I'm very honoured to have been asked to write the inaugural article in this new column for ISCFS Newsletter which has been entitled Reflections and is the brainchild of our editors, Jesse Taylor and Catherine Foss, at the suggestion of our Vice President, Irene Mathijssen. The concept is to encourage the Society's Life Members to share their experiences, motivations, what influenced them in their craniofacial surgery careers, and for them to comment on their clinical, research, educational and Society roles – hopefully to encourage others in their current and future roles within the Society and in the broader field of our speciality.

In the UK NHS, retirement age is deemed appropriate by age 65, hence my step into the category of Life Member.

I have chosen to entitle this article with the familiar On the Shoulders of Giants quotation, but aim to point out that the Giants take many, and often missed, forms.

Before proceeding to the Giants, in my mind this can only be done after referencing the strong foundations on which they – and we – stand.

The origins of the Society set

by Paul Tessier, the Founding Members, and the first generation of surgeons of the '60s and '70s are universally recognised.

A foundation for all of us that is not often commented on, or adequately recognized, is our families – wives, husbands, partners and children – without whose support none of us would ever succeed. We should be eternally grateful for their sacrifices on our behalf.

In terms of Giants, I believe these (amongst others) take the form of:

1. **Our direct clinical teachers, trainers and mentors who set us out on the path of our career. This starts with the basics and the essentials and progresses with our Fellowship training and ongoing mentoring.**
2. **The indirect mentors within the field, and in this case our Society, senior members who guide and nurture us further over time.**
3. **Our colleagues and friends within our multidisciplinary teams – surgical, non-surgical and administrative – who come to share our dreams and aspirations and make it possible for our careers to progress and to evolve.**

4. **The clinical and research collaborators who form the networks for innovation and collaborative research essential for the profession and our patients.**
5. **Our own juniors and trainees whose work, effort and support makes it possible for us to succeed and for them to take up the baton that ensures the future of our society and profession.**

My own craniofacial journey started in 1990 as a junior registrar in plastic surgery when Don MacKay (of Hershey, Pennsylvania fame) returned from his fellowship in the USA and set up the Craniofacial Service in Johannesburg, South Africa, with the full support of Warwick Morris who together with the late Wolf Losken (Pittsburgh) set up the South African Craniofacial Unit in Pietermaritzburg, SA in 1975. The resultant exposure I received inspired me as it did Martin Kelly (at that time a young consultant friend and colleague) to actively engage in the service and advanced training, particularly when plans for Don MacKay to return to Hershey became apparent - with the aim of taking the Johannesburg Unit forward into the future.

My early exposure, specifically related to late presenting single suture synostosis with unexplained disabilities/problems, was instrumental in later work in Oxford on pressure and neurocognitive effects of these conditions.

I was also instrumental in developing a Total Calvarial Remodelling technique in late

presenting Sagittal Synostosis which I introduced to Oxford in 1995 and further refined. It is a technique used on approaching 500 cases to date. It remains the mainstay of Sagittal Synostosis surgery in Oxford.

In 1993, I was fortunate to secure a period of Fellowship training in Birmingham (one of the nationally recognized and funded services of the NHS in the UK) where Henry Golding (PRS), Tony Hockley (Neurosurgeon) and Mike Wake (OMFS) not only helped to hone my evolving skills, but introduced me to the absolute benefits of a truly multidisciplinary craniofacial service. They encouraged me to write the first collaborative outcome paper from the UK Units. It was

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*"Don't fear competition; train someone to be at least your equal, if not better."*

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also there that I met Steve Dover, who later served on our Council. We established a firm friendship and career long collaboration.

During this time, I got to know Mike Poole, the co-founder of the Oxford Craniofacial Unit (circa 1979) and one of the key negotiators in the establishment of the UK National Supra-Regional Craniofacial Services which remains today as a NHS service accessible and free to all in the UK, a model unparalleled anywhere else.

On his relocation back to his native Australia at the end of 1994, Mike was instrumental in my recruitment to Oxford to direct the service, and I have been here now for over 30 years. His active and ongoing support (albeit in the background) were also instrumental in my early full membership of both the ESCFS (1996) and the ISCFS (1999).

Over the last 30+ years, through expansion, recruitment and retirement, I have had (and continue to have) fantastic colleagues too numerous to mention, but from the early days and through to his retirement I do need to single out Peter Richards, my long-term neurosurgical colleague and friend. Together we spearheaded the concept that single suture synostosis was misunderstood as a benign condition with only appearance implications and no neurocognitive implications. The Oxford publications in this field, particularly on Raised ICP, are well recognized - and the work continues.

On other research fronts, in addition to clinical/surgical technique/innovation and long-term outcomes, we have been privileged in Oxford to have Andrew Wilkie, one of the great researchers and innovators in craniofacial genetics, and I believe this is the kind of symbiotic scientific relationship to which all surgeons in the field should aspire. The ability we have now to link surgical, developmental and functional outcomes to the underlying genetics is a game changer.

I have been equally privileged in having been able to identify, help

train, become firm friends and great colleagues with, the next generation of craniofacial surgeons in Oxford, notably David Johnson (Plastic Surgery). Having met him as a junior doctor in 1995 on my arrival in Oxford, I encouraged him through his training and then as a consultant colleague from 2008 until handing over the reins of the unit in 2014.

In terms of the ISCFS, as indicated above, I have been privileged to have been a full Active Member since 1999, and served on the Council as Vice President (2005-2007), President (2007-2009) and then at the request of Scott Bartlett (President 2011-2013) as honorary Parliamentarian until 2015. A role later formalized in the by-Laws and currently held by Eric Arnaud.

My societal roles were initiated in 2003 when I was approached by Ken Salyer, David David and Linton Whitaker following the first formal ISCFS Strategic Planning Meeting in Dallas laying the foundation for an attempt to co-ordinate a long-term society plan rather than the hitherto relatively ad hoc biennial meeting cycle strategy. The aim was to try and move towards a concept of true multidisciplinary care (rather than Craniofacial "Surgery"),

expand the ISCFS membership in terms of disciplines and numbers, and revise the By-Laws to be truly inclusive and recognising the value of all disciplines within Craniofacial Multidisciplinary Teams. This led to more formally fostering education and trying to make craniofacial care more accessible to all patients globally.

Under my presidency, I repeated the Strategic Planning Meeting (again in Dallas), revisiting and refining the strategic goals and, with the support and engagement of the incoming Presidents and the Councils ongoing, we now have a Council with multidisciplinary members (with membership likewise extended to all disciplines) where there is a portfolio-based structure of roles and responsibilities taking forward the future of the Society in terms of Education Fellowships, Archive/History, Society profile/promotion and membership promotion.

It is fantastic that the Society remains under strong leadership with an expanding and engaged membership and it has been an honour to be, and remain, a member.

I was asked specifically to make a comment of advice for the more

junior members and trainees for the future, so I submit to our young surgeons:

- **Develop a long-term strategy as early as possible and work towards achieving it.**
- **Don't settle for second best; aim high and strive for excellence.**
- **Identify like-minded individuals in all aspects of your practice and develop healthy and productive symbiotic collaborations.**
- **Don't fear competition from colleagues, and when your time comes, try to train someone to be at least your equal if not better (probably the best advice I was ever given myself).**
- **I once more say thank you to the Editors for this invitation and hope it is not deemed by the readers as excessively self-indulgent.**



# NEUROSURGERY CORNER



**JAY JAYAMOHAN**

Neurosurgery Editor  
UNITED KINGDOM

I've just been away for four days in the beautiful Croatian city of Dubrovnik. It is relevant to our craniofacial practice because it is a seemingly perfect fusion of form and function. The old part of the city is surrounded by very strong protective fortifications and a wall which you can walk around. This gives wonderful views and looks amazing in photographs, but we must not forget that it was designed as protection and ultimately really is there for its role in defence of the city rather than to look amazing for holiday makers.

In a similar way, the combination often seen in craniofacial surgery of plastics and maxillofacial expertise sometimes sits askance with the neurosurgical view when reviewing plans for treatment of patients, which is based much more on function than on appearance. The upcoming international meeting in

Shanghai involves a substantial subsection discussing soft tissue appearance of the face and from a neurosurgical perspective this often seems perplexing with regards to the amount of discussion it engenders.

Of course, it is very important and I do understand the huge role of appearance related morbidity for many of our patients. However, just recently I was involved in

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*"We should ensure that we do not 'pull the ladder up' after ourselves, but help teams around the world gain skills and have access to advice and support in patient care."*

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helping a charitable hospital in Angola perform an operation on a young child with an intracerebral abscess. His mother had carried him for three days after an accidental head injury. There was no neurosurgeon available and the only person around was a maxillofacial colleague from Scotland who was there on a very short stint. I used the power

of WhatsApp video to help my colleague perform a mini craniotomy and drainage of the abscess using his great, but not neurosurgical, skills and also an ultrasound. The boy did well and should be able to go home soon.

It reminded me of the importance of remembering that we, in what may be counted as more 'advanced' craniofacial teams, look to improve our service by increasingly small amounts for the levels of time and money required for each patient. At the same time, we need to ensure that we help our colleagues around the world who do really very significant work looking after patients, with much more limited access to resources. It is my belief that we, as an international society, should ensure that we do not 'pull the ladder up' after ourselves and help as many teams around the world to gain skills, but also have constant access to advice and support both in the assessment of patients and in their treatment.

I look forward to this becoming an increasing part of how we as an 'International Society' ensure that we are truly 'International'.

# ORTHODONTIC CORNER

## THE BIOLOGICAL AND ANATOMICAL RATIONALE FOR NASOALVEOLAR MOLDING IN CLEFT CARE



**PEDRO E. SANTIAGO**  
UNITED STATES



**ALEXANDER C. ALLORI**  
UNITED STATES



**JEFFREY R. MARCUS**  
UNITED STATES

Cleft lip and palate remain among the most complex congenital craniofacial conditions to manage, due to the multiplicity of involved structures and the potential for lasting functional and psychosocial impacts. The primary goals of cleft care are to restore normal function and facial esthetics, reduce the number of surgical interventions, and support psychosocial development throughout the patient's life. One of the most significant advances in presurgical management of cleft deformities is the advent of NasoAlveolar Molding (NAM). Developed by Dr. Barry Grayson and Dr. Pedro Santiago, GS-NAM integrates the correction of alveolar, nasal, and lip structures into a single, biomechanically sound protocol.<sup>1-3</sup> It has become the most validated early cleft intervention worldwide, with over 200 peer-reviewed studies supporting its use.<sup>4</sup>

### CHALLENGES IN EARLY CLEFT CARE

The severity of lip and nasal deformities is largely determined by whether continuity exists along the maxillary alveolar arch and/or maxillary lip. In the absence of continuity, segmental migration occurs, which further deforms the lip, nose, and alveolus. This

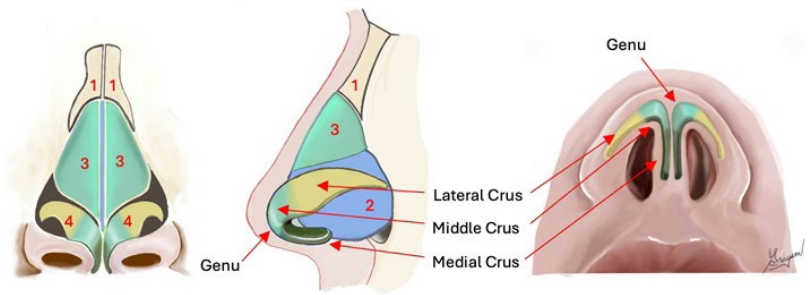
complicates surgical repair, increases the number of necessary interventions, and affects facial growth. While surgery can address the cleft lip and palate closure, it often falls short in reliably restoring nasolabial esthetics, especially the nasal tip and columella. Surgeons are thus faced with the challenge of achieving both function and form, often during multiple stages of surgical repair and revision. Presurgical orthopedics, such as GS-NAM, are uniquely designed to improve anatomical relationships by realigning alveolar segments, enhancing nasal cartilage symmetry, increasing nasal tip projection, and elongating the columella prior to primary surgery. The successful implementation of GS-NAM reduces the severity of the cleft skeletal and soft tissue deformity thereby facilitating more effective surgical repair.

### KEY ANATOMICAL DISTORTIONS IN CLEFT LIP NASAL DEFORMITY (CLND)

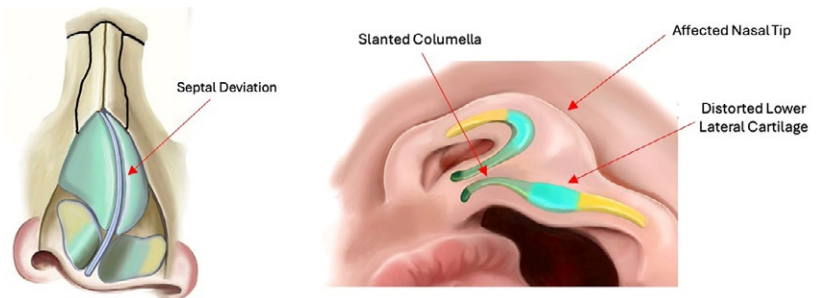
The nasal skeleton consists of both bone and cartilage (**Figure 1**). While the paired nasal bones support the upper third of the nose, the cartilaginous septum is continuous with the perpendicular plate and vomer, thereby

supporting the mid-vault directly. The tip derives its shape and form from the paired lower lateral cartilages (LLC's). These mirror-image structures are bound to one another and supported in space by the inter-domal and intercrural ligaments respectively. The latter secure the tip structures to the caudal septum which is a primary determinant of tip position and projection. The LLCs have four key anatomical regions: the medial crus (inclusive of footplates), the genu (bend), the middle crus, and the lateral crus. In normal circumstances, each lateral crus is oriented obliquely and spans from the columella and nasal tip to the piriform where it supports the alar lobule, which itself otherwise lacks cartilage support.

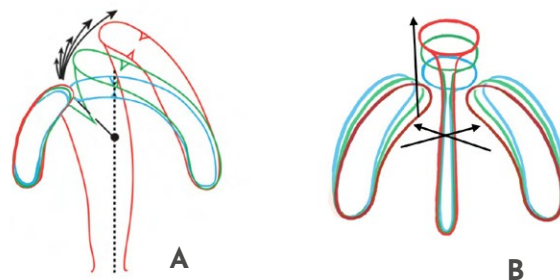
In unilateral clefts, the vomer is a component of the non-cleft greater segment and shares no structural continuity with the cleft-side lesser segment. This skeletal imbalance results in unavoidable deviation of the septum which, in turn via its support role to all other structures, produces characteristic displacements of these structures and asymmetry in three dimensions (**Figure 2**). It is the degree of lateral displacement of the skeletal maxillary and alveolar segments that thereby creates increasingly severe asymmetry. Rotation and outward displacement of the greater segment pulls the alar base and LLC away from the septum (**Figure 3A**). These changes widen the inter-domal angle, flatten the tip, and further displace the dorsal aspect of the septum, and create acute angulation of the columella.



**Figure 1 – Nasal Anatomy** (frontal, lateral, and submental views): nasal bones (1), midline septum (2), paired upper lateral cartilages (3), and paired lower lateral cartilages (4). Each lower lateral cartilage has a characteristic shape composed of medial crus, genu, middle crus, and lateral crus..



**Figure 2– Anatomical basis of unilateral cleft lip nasal deformity (CLND).** Septal deviation in cleft patients is multi-planar. The anterior-caudal septum is laterally displaced at its fixation to the anterior nasal spine. Anteriorly and inferiorly, it is concave toward the cleft; posteriorly and superiorly, it is convex. This deviation, along with turbinate hypertrophy, restricts intranasal airflow. Inferior displacement of the lower lateral cartilage (LLC) disrupts its junction with the upper lateral cartilage. Lateral forces separate the LLC from the septum, widen the inter-domal angle, and flatten the genu. The medial crus may shift downward, twist, or develop recurvatum. Lateral crus tilting can create a visible vestibular web.



**Figure 3 – Pathophysiology of the skeletal deformity in cleft lip/palate.** (A) Unilateral: Vomerine growth, unopposed by the detached lesser segment, pushes the greater segment outward, creating an anteroposterior alveolar discrepancy. The premaxilla may rotate upward, canting the central incisor. On the cleft side, deficient maxillary growth contributes to midfacial hypoplasia. (B) Bilateral: The vomer is divided from both palatal shelves. Vomerine growth therefore causes unrestrained anterior projection and upward rotation of the premaxilla. The lateral alveolar processes may collapse inward, "locking out" the premaxilla.

In bilateral clefts, the vomer is contiguous with the premaxilla, but not to the lateral palatal shelves. Vomerine growth drives the premaxilla anteriorly while the lateral segments collapse medially (**Figure 3B**). Though the columella remains midline, the LLCs are displaced symmetrically, leading to a boxy, flattened nasal tip and significantly widened alar base.

#### HOW GS-NAM ADDRESSES ANATOMICAL AND FUNCTIONAL NEEDS

GS-NAM works by taking advantage of the plasticity of neonatal cartilage, which is influenced by maternal estrogen during infancy. Through a coordinated approach involving selective acrylic reductions, denture adhesive, and elastic tape traction, the GS-NAM molding plate facilitates gradual approximation of the alveolar segments by inducing controlled rotation of the greater alveolar segment toward the midline (**Figure 4A**). Once the alveolar cleft gap is narrowed to approximately 4-5 mm, nasal molding begins.

A bilobed nasal stent is then added to the molding plate, carefully positioned within the nasal aperture and selectively activated to remodel the nasal cartilages (**Figure 4B**). The upper lobe targets the middle crus at the dome to restore curvature and projection, while the lower lobe supports the columella and maintains the proportions of the soft triangle, preventing over-intrusion. This design enables precise vector control; anteromedial, superior, and symmetrical activation,

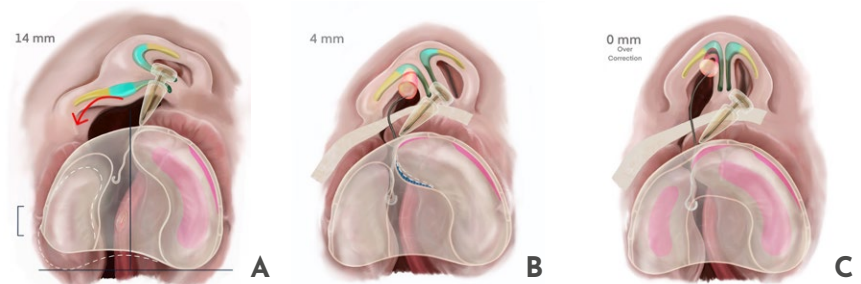
that restores symmetry to the alar cartilages, enhances nasal tip projection, and achieves non-surgical elongation of the columella (**Figure 4C**).

In unilateral clefts, this correction reduces tip asymmetry and uprights the columella. In bilateral cases, GS-NAM retro-positions the premaxilla while simultaneously elongating the columella through pro-labial taping and symmetrical nasal stenting (**Figure 5**). These adjustments improve nasal floor closure, allow better symmetry at the time of lip repair, and reduce the need for future surgical revisions and rhinoplasty.

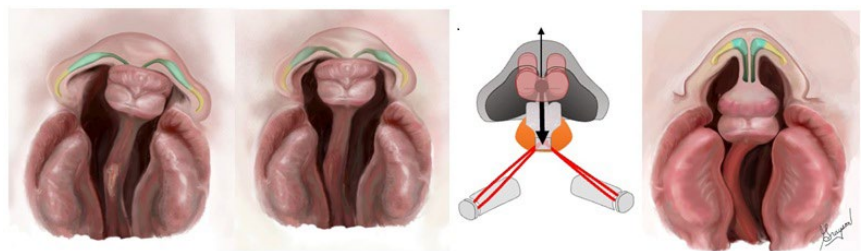
#### GS-NAM'S ROLE IN FACILITATING SURGERY AND LONG-TERM OUTCOMES

GS-NAM significantly eases primary surgical repair by improving tissue alignment and reducing anatomical distortion. In centers that perform gingivoperiosteoplasty (GPP), the improved contact between alveolar segments allows for smaller flaps and more complete primary palate closure. This can eliminate the need for secondary alveolar bone grafting and reduce fistula formation.<sup>5</sup>

Even in centers not using GPP, GS-NAM optimizes the conditions for delayed bone grafting



**Figure 4 – GS-NAM** – Using selective acrylic trimming, adhesive, and elastic traction, the GS-NAM plate gradually rotates the greater segment toward the midline (4A). Once the gap is reduced, a bilobed stent is added to reshape the nasal cartilages (4B). The upper lobe lifts the dome; the lower lobe supports the columella and soft triangle. Together, they guide controlled nasal projection and columella elongation (4C).



**Figure 5 - In bilateral cases, GS-NAM centers and retro-positions the premaxilla while elongating the columella through prolabial taping and symmetrical nasal stents. This optimizes nasal floor closure, enhances surgical symmetry, and lowers the likelihood of future revisions.**



by improving arch form and alignment. Once alveolar and labial alignment are achieved, the need for subperiosteal surgical undermining during cheiloplasty and rhinoplasty is reduced. This has been associated with less scar formation, fewer surgical revisions, and improved esthetic outcomes.

### PSYCHOSOCIAL AND DEVELOPMENTAL BENEFITS

Beyond physical correction, GS-NAM significantly supports the psychosocial well-being of both the child and family. Early improvements in nasal tip, columella, and lip anatomy help normalize facial appearance, reduce social stigma, and strengthen caregiver-infant bonding. Caregivers of GS-NAM-treated infants consistently report more positive psychosocial experiences than those receiving conventional care<sup>6</sup> Moreover, children with improved early esthetics are less likely to encounter emotional or social difficulties later in life.

### WHY ALTERNATIVE APPROACHES ARE SUBOPTIMAL

Lip taping alone lacks the directional control needed for proper alveolar segment alignment. It exerts pressure on soft tissue rather than bone, often leading to medial collapse of the lesser segment and inferior displacement of the premaxilla. Without an intraoral molding plate, taping cannot generate the orthopedic changes required for effective presurgical correction.

Similarly, fallback tools such as nasal elevators, conformers, or mono-lobed stents lack the ability to produce the controlled cartilage and columella modifications necessary for optimal surgical outcomes. These devices lack precise activation and often exert force in improper directions, leading to nasal distortion, asymmetry, and greater surgical complexity. Their dependence on poorly designed intranasal components makes them suboptimal substitutes for GS-NAM.

Although marketed for their convenience, these alternatives fail to address the underlying anatomical issues, lack the mechanical stability required for precise vector control, and do not offer the evidence-based outcomes demonstrated by GS-NAM. Rather than simplifying care, they risk incomplete correction, more surgeries, and poorer esthetic results.

### CONCLUSION

GS-NAM is not merely a device; it is a biologically precise, anatomically targeted system that requires clinical expertise and interdisciplinary collaboration. By restoring normal anatomical relationships and enhancing esthetic outcomes, GS-NAM has been documented to reduce the burden of care over a patient's lifetime. Its thoughtful, evidence-based application ensures not just better surgery, but better lives.

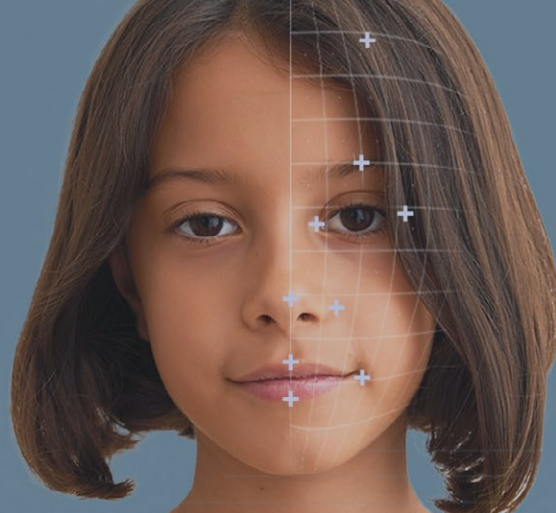
For surgeons and dental professionals committed to excellence, GS-NAM represents the highest standard in early cleft care. It addresses the critical anatomical and biological basis of cleft deformity and offers a clear path toward long-term oral health and psycho-social well-being for affected children worldwide.

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*Disclosure: Dr. Santiago contributed with Dr. Grayson to develop the NasoAlveolar Molding technique to its current standards. The Grayson-Santiago NAM device and technique is the presurgical orthopedic technique most used by cleft centers around the globe.*

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# ISCFS WELCOMES NEW MEMBERS

Following the early July vote by Active and Life members, I am delighted to welcome the following thirty-seven colleagues as our newest members.

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**Hyuk Jun Kwon**, UNITED STATES - Pediatric Craniofacial Surgery

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*ISCFS Secretary-Treasurer &  
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UNITED STATES*

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On-line applications are available at:

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## AMERICAN CLEFT PALATE- CRANIOFACIAL ASSOCIATION 2026 ANNUAL MEETING

Location:

Hilton Boston Park Plaza  
Boston, MA, USA

Date: March 24-28, 2026

## SAVE THE DATE 21ST ISCFS CONGRESS

Location: Shangri-La Jing An,  
Shanghai, China

Date: October 27-30, 2025

Website: [www.iscfs.org](http://www.iscfs.org)

## EUROPEAN ASSOCIATION FOR CRANIO MAXILLO FACIAL SURGERY 28TH CONGRESS

Location: Athens, Greece

Date: September 5-18, 2026

Website: [www.eacmfs.org/  
congress/future-congresses/](http://www.eacmfs.org/congress/future-congresses/)

## ISCFS 2025

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To submit a meeting to the calendar in our next issue,  
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Meeting Title, Location, Dates, Website.

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# ISCFS 2025

## 27-30 OCTOBER

Shanghai, China | [www.iscfs.org](http://www.iscfs.org)

**Bridging Frontiers: Innovation and  
Integration in Craniofacial Surgery**

**Dr. Xiongzheng Mu and Dr. Xudong Wang  
invite you to Shanghai, China for the 21st Congress  
of the ISCFS on **October 27-30, 2025.****



**Prof. Qingfeng Li**

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**Dr. Xiongzheng Mu**

2023-2025 ISCFS President

# SEE YOU IN SHANGHAI!