International Society of Craniofacial Surgery

ISCFS NEWSLETTER

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The idea of wandering into an operating theatre having not met the child, or the parents, beforehand fills me with dread, unless it is in an emergency situation. While we are a relatively small number of the overall international society membership list, I would urge all teams to really encourage their neurosurgical colleagues to commit to having craniofacial surgery as a significant part of their job - and even if not in hours, certainly in reading, understanding, and clinical assessment of these patients. Fundamentally, knowing how conditions affect all parts of the body, this must be considered when making long term plans for these patients, the care of whom should be looked at potentially in terms of decades rather than weeks or months.

It would be my great hope that over the coming years, we will start to see a one third room attendance of neurosurgeons at ISCFS Congresses for us to really start to consider how we as neurosurgeons can give them the best care possible.

ISCFS NEWSLETTER

Volume 3 | Number 1

MEMBERS! Please write an article on

MY WAY:

How I treat late-presenting sagittal craniosynostosis

To submit an article of 750-1000 words with up to 5 JPG images as needed, send it to admin@iscfs.org no later than Friday, January 9, 2026.

JANUARY 2026

ORTHODONTIC CORNER

ORTHODONTIC INNOVATION IN POST-BURN CONTRACTURE RECONSTRUCTION: INTEGRATING TRADITIONAL TECHNIQUES WITH 3D TECHNOLOGY




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INTRODUCTION

The management of post-burn patients with contracture scar tissue presents unique challenges in craniofacial reconstruction. Scar tissue complicates surgery and interferes with conventional orthodontic treatment. While advances in burn care have improved survival, they have also led to more patients presenting with secondary deformities such as contracture-induced skeletal and dental malformations. Innovative orthodontic strategies are essential to optimize both function and aesthetics in reconstruction.

Case Presentation

A 39-year-old man was seen during a humanitarian craniofacial surgical mission in Hainan, China. He had sustained an electrical burn to his face at age 13 after climbing a high-tension pole. Multiple reconstructive surgeries were performed in adolescence, but progressive deformities developed over time.

Examination revealed severe left-sided scarring from orbit to neck, with:

- Left eyelid ectropion
- Loss of the lower lip and oral commissure
- Alveolar bone deformation
- Dental displacement
- Loss of the left pinna

The initial plan involved extraction of displaced teeth and resection of the deformed mandibular alveolar bone before cheek reconstruction with a free flap. However, this approach risked leaving the patient with limited options for future dental rehabilitation due to postoperative scarring.

RATIONALE FOR ORTHODONTIC MANAGEMENT

Instead of resection, we considered the long-term impact of scar contracture. Over 25 years, contractile forces had displaced teeth and distorted alveolar bone. By applying orthodontic forces in the opposite direction, we aimed to restore arch form, reposition bone, and re-establish occlusion. This would improve mastication and create a stable foundation for flap-based soft tissue reconstruction.

Orthodontic Intervention

As the patient lived far away, treatment was planned to

Figure 1 - Clinical Presentation

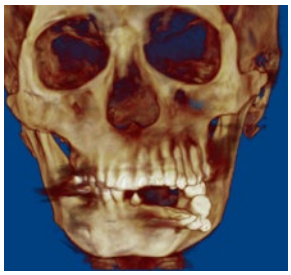


Figure 2 - 3D Reconstructed CBCT (Pre-Operative)

Figure 3 - Non-conventional orthodontics to retract and upright displaced teeth with biomechanics in opposing forces of contracture.

Figure 4 - Direct printed alginers in-house production

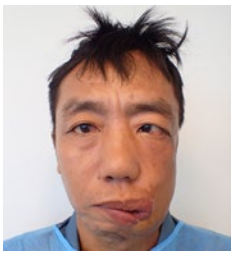


Figure 5 - Post operative with anterolateral thigh free flap reconstruction of the left cheek scar with tensor fascia lata to shape the new oral commissure

Figure 6 - Post-orthodontic outcome with stable alveolar housing, full occlusion, and no root exposure; commissure scarring limited photography, and jaw resection would have greatly hindered future dental rehabilitation.

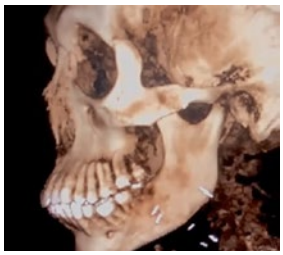


Figure 7 - 3D Reconstructed CBCT (Post-Operative)

minimize in-person visits, limited to once every six months, supplemented with online reviews every 2–4 weeks.

Non-conventional orthodontics was carried out over 2 years and 3 months, including:

- Anchorage: Custom stainless-steel arch bars (0.40") with multiloop 0.020" piggyback wires
- Mechanics: Traditional brackets, elastics, and chains to apply controlled corrective forces
- Monitoring: Remote supervision with periodic on-site assessments

Following correction, intraoral 3D scanning was performed. During reconstruction of the left cheek and oral commissure with an anterolateral thigh free flap (using tensor fascia lata), 3D-printed aligners were employed to close interdental spaces and refine occlusion.

OUTCOME

- Treatment achieved:
- Uprighting and repositioning of displaced teeth
- Restoration of arch form and occlusion
- A stable base for flap reconstruction
- Improved mastication
- Fewer surgical steps with reduced morbidity

DISCUSSION

This case demonstrates orthodontics as a central element in craniofacial reconstruction. By combining conventional biomechanics with 3D scanning and aligner technology, treatment was simplified while improving outcomes.

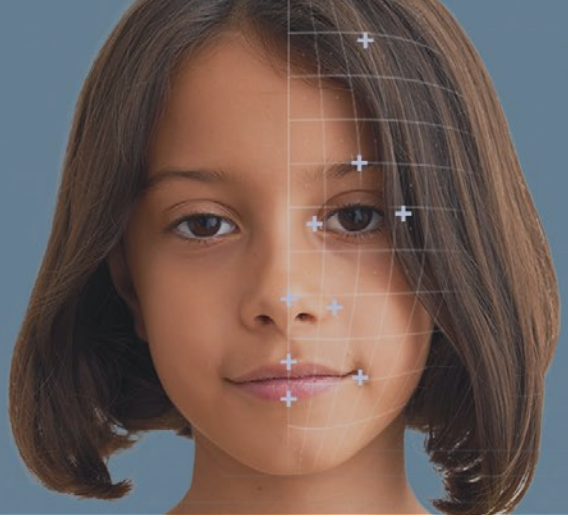
Key Benefits of the Combined Approach:

1. Simplified reconstruction – fewer surgical steps were needed.
2. Reduced morbidity – bone and tooth resection was avoided.
3. Functional restoration – occlusion and mastication were regained before flap surgery.
4. Integration of old and new – established orthodontic mechanics guided skeletal correction, while 3D technology enhanced precision and efficiency.

CONCLUSION

Orthodontics can play a critical role in multidisciplinary craniofacial reconstruction, particularly in complex post-burn contracture cases. This case highlights how integrating traditional orthodontic methods with digital technology can reduce morbidity, simplify reconstruction, and improve long-term outcomes.

BECOME AN ISCFS MEMBER



We welcome membership applications in Active, Associate, Corresponding, Orthodontic, Research, and Resident/Registrar/Fellow categories and have created a simple on-line process. Current member specialties include plastic, craniofacial, oral and maxillofacial surgeons, neurosurgeons, orthodontists, otorhinolaryngologists, dentists, and those involved in related research.

There is a $75 application fee and annual fees are $150 for Active/Associate members and $50 for Resident/Registrar/Fellow members. Our website includes information about qualifications for membership and frequently asked questions at this link: https://iscfs.org/membership/

MEMBERSHIP BENEFITS

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- International Recognition
- Reasonable yearly membership fees
- Reduced registration fee at the biennial international ISCFS Congress
- Professional networking

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