









Stephanie Paul Executive Director myFace





Presentation



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Disclosures

Pradip Shetye and **Travis Gibson** are the authors of the textbook *Cleft and Craniofacial Orthodontics,* published by Wiley in 2023. Some of the content and images presented in this lecture are derived from our book. We receive royalties from the sales of the book. Additionally, **Pradip Shetye** is the Founder and Scientific Advisor for CleftAlign, Inc. He holds patents associated with the company and receives royalties for them.

Our presentation is intended to educate and inform and is not designed to promote the sale of the book or any products related to CleftAlign, Inc. Our goal is to provide clear, accurate, and unbiased information to help patients and families understand more about cleft lip and palate and their management.

Cleft and Craniofacial Orthodontics

Edited by Pradip R. Shetye • Travis L. Gibs







Learning Objectives

- To provide an overview of the sequencing and timing of orthodontic, orthopedic, and surgical interventions from infancy to adulthood
- To review the role of presurgical infant orthopedics (PSIO)
- To discuss common dental anomalies and their management
- To review management of the alveolar cleft
- To review strategies to reduce burden of care in orthodontic treatment



























Presurgical Infant Orthopedics (PSIO)

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When and Why is PSIO Used?

- Reduce the width / severity of the cleft(s)
- Makes the surgical process less complex for the surgeon
- Shapes and aligns the lips, nose, and gums before cleft lip repair
- May lead to less scarring and decreased need for follow-up surgeries
- In combination with specific surgical techniques













1. Lip Taping



2. Oral Plates



Hotz Plate – Passive









3. NasoAlveolar Molding Appliance (NAM)







Transforming Lives: Orthodontic Management of Cleft Lip/Palate



Treatment Goals for PSIO - Lips



Unilateral Cleft Lip



• Bilateral Cleft Lip

- 1. Bring lips to a more normal anatomical position
- 2. Allow tension-free closure during surgical repair and healing

Treatment Goals for PSIO – Alveolus/Gums



• Unilateral Cleft Alveolus



• Bilateral Cleft Alveolus

- 1. Align and approximate the alveolar segments as close as possible
- 2. Maintain proper relationship to lower jaw
- 3. In a wide cleft, complete closure may not be appropriate





Treatment Goals for PSIO – Nose



Unilateral Cleft Nose



• Bilateral Cleft Nose

- 1. Reshape distorted nasal cartilage
- 2. Upright the collapsed columella
- 3. Improve nasal symmetry
- 4. Columella elongation









Phase 1 Orthodontic Treatment

• Performed in the 'mixed dentition'









Develop Your Goals

- Work with your orthodontist to develop clear goals for Phase 1:
 - What is important to you?
 - Is there anything that can cause damage if we don't intervene?
 - Is there anything that can't be fixed later?









Develop Your Goals

- Work with your orthodontist to develop clear goals for Phase 1:
 - What is important to you?
 - Is there anything that can cause damage if we don't intervene?
 - Is there anything that can't be fixed later?
 - Are there 'problems' that might fix themselves?
 - What can be treated more easily or efficiently later?
 - Will my results be stable in the long term?

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When Should Phase 1 Start?

- Often related to bone grafting
- Will vary by surgeon and cleft center



Figure adapted from: Shetye PR and Gibson TL. (2023) Cleft and Craniofacial Orthodontics. John Wiley & Sons, Inc.





When Should Phase 1 Start?

- Often related to bone grafting
- Will vary by surgeon and cleft center



Photos provided and patient treated by Dr Scott Martyna







Planning Bone Grafting

- What teeth are present?
- Do they have bone support to erupt in a healthy position?







What are Expanders for?







Expanders

- Before or after grafting
- Used to expand the upper jaw and/or change the 'arch form'



Figure adapted from: Shetye PR and Gibson TL. (2023) Cleft and Craniofacial Orthodontics. John Wiley & Sons, Inc.

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Impacted and Ectopic Teeth

- More common with cleft lip and palate (20%)
- May need to be 'uncovered' by your dental surgeon
- Moved into position with braces



What About Bite Correction?







Headgear and Growth Modification



Headgear and Growth Modification







Headgear and Growth Modification









Headgear and Growth Modification • Aims to correct underbite by increasing upper jaw growth















Orthodontic Treatment in Adolescence

Early Adolescence (10–15 years)
 Late Adolescence (15–20 years)

Early Adolescence (10–15 years)

- Transition from Primary teeth to Permanent teeth
- Pubertal growth spurt Accelerated upper and lower jaw growth
 - Favorable jaw growth Perform comprehensive orthodontic treatment
 - <u>Unfavorable jaw growth</u> Avoid comprehensive treatment during growth







Favorable Jaw Growth Pattern with Missing Tooth







Favorable Jaw Growth Pattern with Missing Tooth





Favorable Jaw Growth Pattern with Missing Tooth









Favorable Jaw Growth Pattern with Missing Tooth













Favorable Jaw Growth Pattern with Peg-shaped Teeth



Favorable Jaw Growth Pattern with Peg-shaped Teeth







Favorable Jaw Growth Pattern with Peg-shaped Teeth



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Mild Unfavorable Jaw Growth





Transforming Lives: Orthodontic Management of Cleft Lip/Palate



Mild Unfavorable Jaw Growth





Mild Unfavorable Jaw Growth





Transforming Lives: Orthodontic Management of Cleft Lip/Palate



Mild Unfavorable Jaw Growth



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Unfavorable Jaw Growth – Upper Braces Only







Unfavorable Jaw Growth – Impacted Canines



Unfavorable Jaw Growth – Impacted Canines











Late Adolescence (15–20 years)

- End of facial skeletal growth
- Interdisciplinary team care
- Orthodontist/Surgeon/SLP











Mild Skeletal Jaw Discrepancy







Mild Skeletal Jaw Discrepancy















Upper Jaw Advancement Surgery (LeFort I)



Before Jaw Surgery

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After Upper Jaw Surgery and Nose Revision







Upper Jaw Advancement Surgery (LeFort I)



Before Jaw Surgery



After Upper Jaw Surgery and Nose Revision







Presurgical Orthodontic Compensation









Upper Jaw Surgery









Upper Jaw Surgery with Bone Grafting











Upper and Lower Jaw Surgery









Upper and Lower Jaw Surgery



Upper and Lower Jaw Surgery















Your best orthodontic journey

- Set your treatment goals
- Advocate for yourself / your child
- Choose the 'right' orthodontist
- Take care of your orthodontic appliance (clean, not broken!)
- Wear your retainers!







Nicholas Zollo's Orthodontic History

- My initial surgeries took place in China, where I was born
- The earliest surgery I remember was the bone graft surgery I underwent in the winter of 2009.
 I was only 5 years old, but I remember the recovery – in which I had difficulty walking, eating, and sometimes speaking.
- After the bone graft surgery, I began to wear braces on my baby teeth. I also had to wear headgear at night to keep my teeth aligned and straight.



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Nicholas Zollo's Orthodontic History (cont'd)

- Once my adult teeth came in fully, I wore braces once again (from 2017–2019) to realign my adult teeth, and to pull down a tooth that was impacted in my upper palate.
- My most recent orthodontic experience (July 2022) was jaw realignment surgery. For this, I wore braces for a third time (roughly 6 months before the surgery)! I also had pre-operative meetings with my surgeon, speech pathologist, a dietitian, and a psychologist to help my mother and I through this process. The jaw surgery was the hardest part of this entire journey for me.



Before Jaw Surgery



After Jaw Surgery





Nicholas Zollo's Orthodontic History (cont'd)

• I was also offered the opportunity to undergo rhinoplasty at age 18, but I elected not to do this. After a number of conversations with my parents, and with my healthcare providers, I decided not to proceed with this surgery.



Highs and Lows

- Lows
 - Recovery after surgeries was difficult
 - $_{\circ}\,$ Eating out of tubes and syringes was unpleasant
 - $_{\circ}\,$ I couldn't eat some of my favorite foods for months after jaw surgery
 - $_{\circ}\,$ I also missed being able to play sports while I was recovering
- Highs
 - $_{\circ}\,$ However, the recoveries and accompanying social isolation did help me to grow as a person
 - $_{\circ}\,$ I became more self-aware, and have been able to draw upon my pain to help others overcome their own
 - I learned that cornbread and milk is a killer combination!





Reflections and Advice

- Not everyone is staring so keep your head held high!
- The questions and comments about your facial difference will stop.
- Not undergoing the rhinoplasty was a tough decision for me. I never liked my nose, and thought it was the thing that made me stand out the most. However, over time I realized that my nose makes me unique – and a rhinoplasty would take that physical uniqueness away. I've come to realize that my physical uniqueness is actually one of my greatest traits.

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Questions & Answers





Closing Remarks



Stephanie Paul Executive Director myFace

























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