preoperative hormone therapy, for <1 year (n = 1), 1–5 years (n = 4), 6–10 years (n = 2), or >10 years (n = 3). Thirty percent (n = 3) reported a history of tobacco use. Self-reported pre-operative most masculine facial features were the jaw/chin (n = 6), nose (n = 5), and forehead/brow (n = 5). Secondary and revisionary FFS procedures included brow reduction (n = 9), genioplasty (n = 7), mandibular contouring (n = 6), tracheal shave (n = 2), and rhinoplasty (n = 6). Mean facial feminization outcome scores improved from 51.2 preoperatively (SD = 8.9) to 71.9 at longest follow-up (SD = 14.7), P < 0.01. Mean postoperative satisfaction was 3.0. Cephalometric values indicating successful feminization included decreased glabellar angle by 6.7° (from 98.9° to 92.2°; P < 0.05) and increased nasofrontal angle by 6.0° (from 138.0° to 144.0°; P < 0.05), with other statistically nonsignificant changes as well. Complications included hypertrophic scarring (n = 1) and orbital hematoma requiring surgical drainage (n = 1).

CONCLUSION: Our cohort of 10 patients reported favorable quality of life, patient satisfaction, and cephalometric outcomes, with low complication rates, comparable to those reported by primary FFS studies. Patients seeking FFS should be aware of the potential need for revisions and secondary procedures. Because of unique challenges of secondary and revisionary FFS, including tissue changes after primary FFS and psychosocial factors relating to dissatisfaction with primary FFS, these should be considered separately from primary FFS and from each other. This study is limited by our small cohort and lack of knowledge regarding our patients’ primary FFS procedures.

NYU Nasoalveolar Molding Protocol: From Birth to Adulthood

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INTRODUCTION: One of the most actively debated therapies for patients with a cleft is nasoalveolar molding (NAM). Although supporters cite improvements in nasal symmetry, nasal aesthetics, columella length, cost benefit, and nasal revision rates, one of the most convincing criticisms of NAM is the absence of reports on its effects at facial maturity, the target timepoint of assessment for cleft care interventions. This study reports clinical outcomes of NAM to facial maturity including rates of revision surgery to the lip and nose, incidence of secondary alveolar bone graft (ABG), and orthognathic surgery (OGS), and effects on facial growth.

METHODS: A single-institution retrospective review of patients all with a cleft who underwent NAM protocol from 1990 to 2000. Patients were included in the study if they had a diagnosis of unilateral or bilateral cleft lip and alveolus, with or without cleft palate. Patients were excluded if they had a syndromic diagnosis or if medical and/or dental records were incomplete. Lateral cephalogram measurements of patients with unilateral cleft lip and palate was obtained at 17 years or older and before OGS, if patients received OGS. These measurements were then compared with published Eurocleft cephalometric data.

RESULTS: One hundred eighty-nine patients were identified, of which 100 met inclusion criteria. Eighteen patients had cleft lip and alveolus only. The average age at last follow-up visit was 20 years (15–26 years). Average age at time of unilateral cleft lip repair was 4 months (3–7 months), bilateral cleft lip repair 6 months (3–10 months), unilateral palate repair 13 months (4–27 months), and bilateral palate repair 13 months (6–17 months). Gingivoperiosteoplasty (GPP) was performed in 86% (86/100) of patients. ABG was performed in 52% (52/100). Of those who underwent GPP, ABG was avoided in 56% (48/86). A total of 23% (19/82) of patients with both cleft lip and palate required secondary surgery for velopharyngeal insufficiency (VPI), and 8% (4/48) of patients who underwent LeFort I advancement also required surgery for VPI. OGS was performed in 49% (49/100), and revisions to lip and/or nose prior to facial maturity were performed in 49% (49/100). At the time of lip and/or nose revision, 74% (36/49) were older than 14 years. Overall, 17% (17/100) required neither ABG, OGS, nor nose or lip revision. Thirty-four patients with unilateral cleft lip had lateral cephalograms available for analysis. There were no significant differences in SNA (P = 0.44), s-n-pg (P = 0.78), NSL/NL (P = 0.76), NSL/ML (P = 0.61), or n-sp/n-gn × 100 (P = 0.79) when compared with data from Eurocleft centers that used presurgical orthopedics.

DISCUSSION: Cleft lip and palate reconstruction were not delayed because of NAM. Surgery for VPI and OGS rates
were comparable to those reported in the literature. Facial growth analysis at facial maturity revealed no significant difference when compared with Eurocleft centers other than ANB ($P = 0.005$). These data suggest that NAM does not inhibit midface growth. Furthermore, ABG was avoided in 56% of patients who underwent GPP; lip and nose revision was avoided in 51%; and ABG, OGS, and any soft tissue revision surgery was avoided in 17%.

**Break the Mold: A Ten-Year Evolution of Ear Molding Techniques**

**Presenter: Karina Charipova, BS**

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**BACKGROUND:** Congenital ear anomalies occur in one-third of the population, and less than one-third of these self-correct without treatment.1 In the senior author’s practice, nonoperative ear molding has surpassed surgery as the preferred method of treatment, sparing operative morbidity and allowing for significantly earlier intervention. There are standardized approaches to molding the ear, but as the senior author’s practice has evolved, a more refined, customized approach was developed and applied to specific types of deformities. The purpose of this study is to discuss the modifications we apply to various types of deformities.

**METHODS:** A retrospective review from January 2010 through December 2019 was performed of infants who underwent ear molding by a single surgeon. The procedure report for each case was reviewed to categorize auricular anatomy using a standardized subclassification of external ear anomalies. The surgeon’s approach to each subtype of auricular anomaly was used to develop step-wise customization protocols for existing EarWell and Infant Ear systems.

**RESULTS:** Two hundred forty-six patients underwent ear molding. The anomalies were subclassified into Stahl’s ear, lidding/lop, cupping, helical rim, prominent, conchal crus, and mixed. Of a total of 385 ears, 58.2% of ears exhibited a single anomaly and 37.4% exhibited a combination of at least 2 anomalies. Customization protocols describe use of modifications such as dermal glue, cotton tip applicators (CTA), scaphal wire, dental impression material, and customized stents. Modifications were anomaly specific: CTA/setting material (Stahl’s ear), custom dental compound mold (lidding/lop and cupping), scaphal wire (helical rim), CTA/protrusion excision (prominent), and custom dental compound mold/stent (conchal crus).

**CONCLUSIONS:** Presentation of auricular anomaly is heterogeneous with a substantial volume of patients exhibiting mixed malformations. Although ear molding is traditionally performed with prefabricated systems, this 10-year experience demonstrates that the process should be dynamic and customized, using techniques beyond those listed in system manuals. The described techniques allow treatment to be modified to complement and improve outcomes for each unique ear.

**REFERENCE:**
1. Chan S, Lim G, Por Y, et al. Efficacy of ear molding in infants using EarWell infant correction system and factors affecting outcome. *Plast Reconstr Surg*. 2019;144:648–658.

**Feeding Outcomes Following Mandibular Distraction Osteogenesis in Pierre Robin Sequence**

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**INTRODUCTION:** Neonatal feeding difficulties are commonly associated with Pierre Robin Sequence (PRS). Mandibular distraction osteogenesis (MDO) is effective at relieving airway obstruction, but fewer data are available regarding feeding and growth outcomes after MDO. The purpose of this study is to evaluate short and long-term feeding outcomes after MDO.

**METHODS:** PRS patients undergoing bilateral MDO before 9 months of age between May 2002 and June 2019 were included. Demographic variables, perioperative data, and long-term feeding outcomes and weight percentiles through 2 years of age were collected. Primary outcome of interest was weight percentile at 2-year follow-up. Secondary outcomes include need for gastrostomy tube (GT).