Positive outcomes of naso alveolar moulding in bilateral cleft lip and palate patient

Sir,

Cleft lip and palate (CLP) presents with an array of problems like feeding difficulty, speech defects, facial deformities, along with psychosocial stigma.[1] The treatment of CLP has moved from being completely surgical to presurgical interventions to improve the cosmetic and functional results. Pre-surgical orthopedics or NAM has aided significantly in this direction. NAM is the nonsurgical, passive method of bringing the gum and lip together by redirecting the forces of natural growth. It also allows for the correction of the flattened nose prior to surgery and facilitates nose repair at the time of lip repair.[2] The theory of presurgical NAM is based on Matsuo’s research that the nasal cartilage is still developing and subjected to repositioning within the first 6 weeks of life. He found that the nostril on the side of the cleft could be shaped more symmetrical to the non-cleft side by reshaping the alar cartilages in the unilateral CLP patient.[3] Matsuo described that, for the first 28 days after the child is born; the child’s blood contains traces of the maternal hormone estrogens. This makes the bones and cartilage of the child flexible, thereby ensuring that the skeleton does not suffer any damage during delivery.[4]

We discuss a case of bilateral cleft lip, alveolus and palate with a marked cleft nose deformity in a newly born infant showing favorable response to NAM.

A newly born infant with complete bilateral cleft lip, alveolus and palate [Figure 1] presented with wide alar base with severe deficiency of the alveolar soft and hard tissue along with flattened nose therefore NAM was planned as a preliminary treatment in this case. A NAM appliance was then fabricated and a nasal stent composed of 0.032 inch diameter stainless steel wire with a hard acrylic resin moulding bulb on the top was added to aid in elongation of columella and improved nasal tip projection. The moulding plate was modified on weekly basis by adjustments to the wire to increase the angle, to increase the amount of force delivered to the nasal segment [Figure 2]. The duration of NAM in this case was approximately 6 weeks following which primary lip repair was done. At the completion of NAM, the convexity in the alar base, elevation in the nasal tip cartilage and proximity of the lip segments at rest with significant closure of the alveolar cleft gap can be appreciated at the age of 4 years [Figure 3].
Grayson and Cutting developed the concept of nasoalveolar moulding, which combined a nasal moulding stent with a passive, pre-surgical moulding appliance in treating cleft lip and palate infants. The modified appliance used in the present case is nearly same as described by Grayson and Cutting except that we used an orthodontic wire covered with an acrylic bulb to give pressure for active moulding. This appliance does not need any further addition of acrylic every week, only wire angle is increased a bit to increase the pressure exerted. Therefore it is cost-effective and does not need any further addition of acrylic every week.

Based on reasoning for pliability of the nasal cartilages, the NAM should be started in early stages. We also believe that the early administration of NAM is required for satisfactory results as the mouldability of the cartilage is lost after 3-4 weeks.

The complications such as tissue ulceration, nostril over expansion-mega-nostril, misdirected molding of the alveolar segment, failure to retain appliance during molding, irritation and over stretching of skin where tapes are adhered may occur.

One important aspect related to NAM is the child’s parent’s compliance, as this requires regular follow-up for adjustment of the appliance.

In India, the awareness of NAM needs to be increased so that most of the CLP patients are rendered with NAM within definite time duration. As there are not many studies performed on this technique we attempt to create such awareness.

Kamlesh Singh, Deepak Kumar¹, Kriti Singh², Jasmeet Singh¹
Departments of Orthodontics, Chandra Dental College and Research Centre, Barabanki, ‘Oral and Maxillofacial Surgery, BBD College of Dental Sciences, Lucknow, ‘Biochemistry, KMC, Manipal, Mangalore, Karnataka, India.
E-mail: jasomfs@gmail.com

References
1. Habel A, Sell D. Management of cleft lip and palate. Arch Dis Child 1996;74:360-4.
2. Yang S, Stelnicki EJ, Lee MN. Use of naso alveolar molding appliance to direct growth in newborn patient with complete unilateral cleft lip and palate. Pediatr Dent 2003;25:3.
3. Matsuo K, Hirose T, Tomono T, Iwasawa M, Katohda S, Takahashi N, et al. Nonsurgical correction of congenital auricular deformities in the early neonate: A preliminary report. Plast Reconstr Surg 1984;73:38-51.
4. Matsuo K, Hirose T. Preoperative non-surgical over-correction of cleft lip nasal deformity. Br J Plast Surg 1991;44:5-11.
5. Dubey RK, Gupta DK, Chandraker NK. Presurgical nasoalveolar molding: A technical note with case report. Indian J Dent Res Rev 2011;2:66-8.

Access this article online
Quick Response Code: [QR Code Image]
Website: www.njms.in
DOI: 10.4103/0975-5950.117813