Assistant professor　Okazaki　Tomoyo
Division of Orthodontics　School of Dentistry　Ohu University

Title: Exploring Safe Intraoral Scanning for Infants: Toward Presurgical Orthodontic Treatment in Cleft Lip and Palate

Background and Purpose: Cleft lip and palate (CLP) is a congenital condition involving a split in the upper lip, alveolus, and/or palate. It affects essential functions such as feeding, speech, and facial development, requiring surgical intervention soon after birth.

At the Department of Orthodontics, Ohu University, we provide presurgical orthopedic treatment for infants with CLP using a palatal plate. Fabrication of this plate requires accurate impressions of the infant's upper arch. However, traditional impression techniques using soft materials pose risks of aspiration and breathing difficulties in infants. This study aimed to evaluate whether intraoral scanning a contactless method can be a safe and effective alternative.

Research Outline: Seven infants with unilateral cleft lip and palate (CLP) underwent both conventional impressions and optical impressions using an intraoral scanner. We compared the precision and safety of both methods. The intraoral scanning technique successfully produced detailed 3D models and reduced clinical risks such as accidental aspiration or airway obstruction. This approach also minimizes stress for both infants and healthcare providers, offering a safer and more practical alternative.

Future Prospects: We plan to expand this method to a broader range of pediatric patients with difficulties in impression-taking, further verifying its safety and effectiveness. This technique has the potential to enhance safety in pediatric dental care and promote child-centered clinical practices through digital innovation.

Reference

Comparison of conventional impression making and intraoral scanning for the study of unilateral cleft lip and palate. *Congenital Anomalies* doi: 10.1111/cga.12499
2023