



Correlations Between Dental Incidental Findings and Various Cleft Types

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INTRODUCTION

Cleft lip and palate (CLP) are some of the most common congenital anomalies that affect the orofacial region. Dental anomalies have been found to occur at a higher rate in CLP patients compared to non-CLP patients. These anomalies include variations in tooth size, shape, number, structure, and position with the most common anomalies being agenesis and ectopic eruption. 3-Dimensional Cone Beam Computed Tomography (CBCT) is used in the field of dentistry to assess the oral and maxillofacial region and is often used in planning for many surgical procedures. The production of high quality 3-dimensional imaging using CBCT scans leads to more efficient identification of incidental findings that occur in CLP patients due to the reduction of superimposition seen in 2-dimensional radiographs.

OBJECTIVE

The aim of this study was to assess the occurrence, type, and location of dental incidental findings with cleft lip and palate (CLP) prior to phase I orthodontic therapy, alveolar bone grafting, and related dental interventions

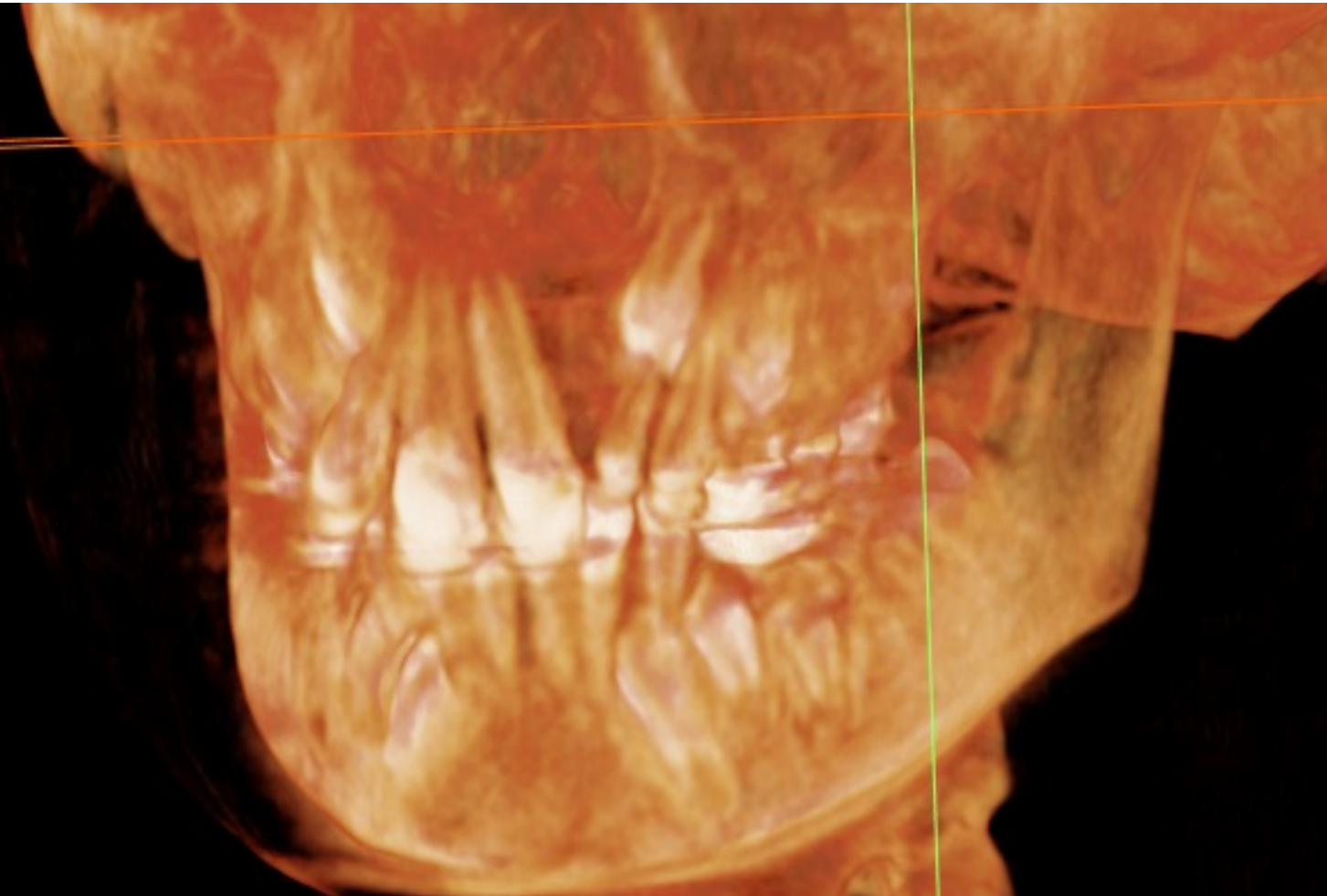
MATERIALS AND METHODS

This is a retrospective radiographic and chart review of head and neck cone beam computerized tomography (CBCT) scans taken for non-syndromic CLP patients in the early mixed dentition stage between January 2010 – June 2023. Only subjects with CBCT scans taken prior to any alveolar bone graft procedure or phase I orthodontic therapy were included. Invivo 6 Software was used to view the images for the included subjects and screen them for aberrations in dental development including supernumerary teeth, teeth with atypical crown and/or root morphology, missing, ectopic, and impacted teeth. Age, gender, and severity of the cleft were extracted from the charts.

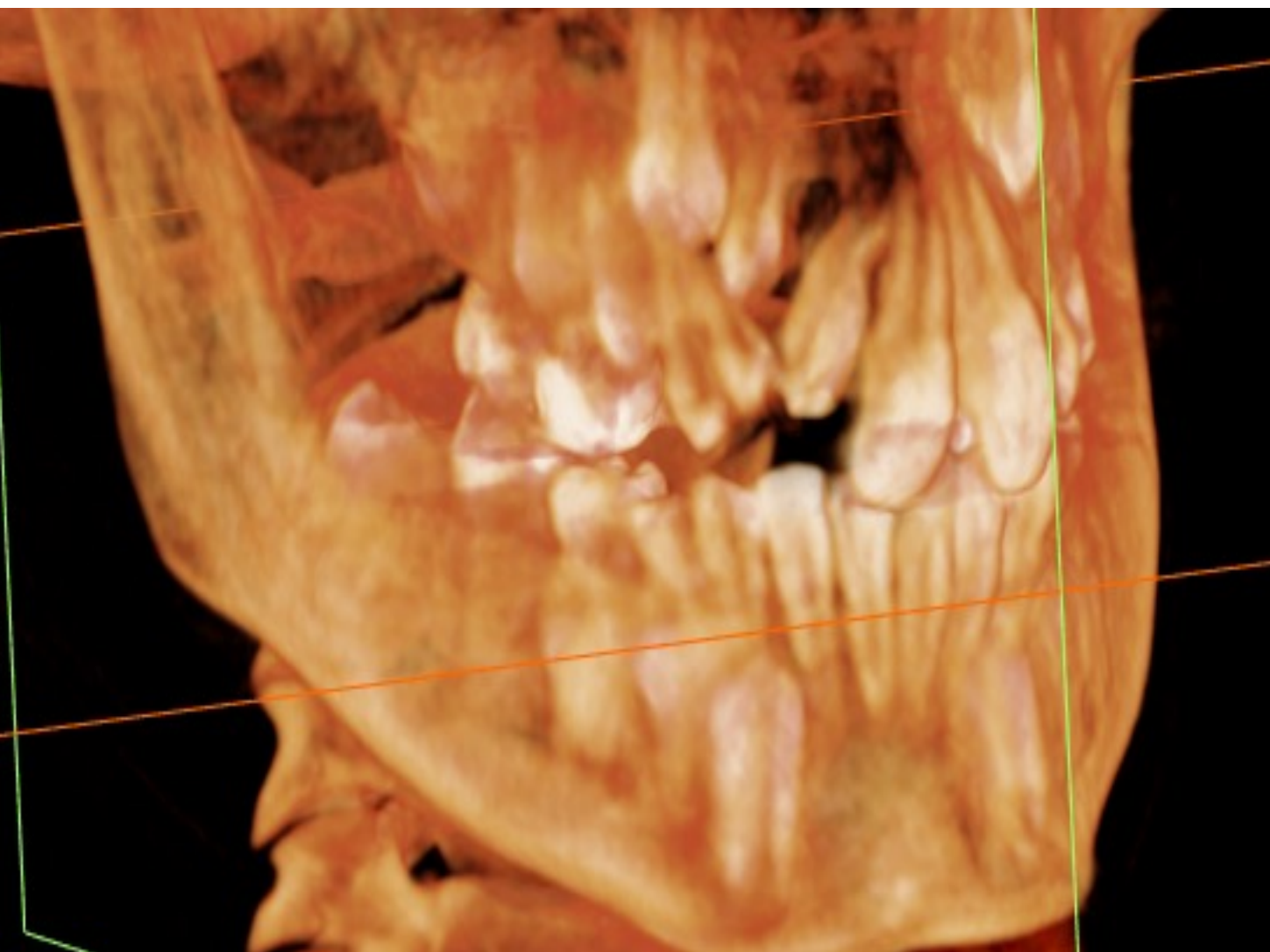
RESULTS

- 65 total charts received but only 31 fit inclusion criteria
- 10 patients had bilateral CLP, 14 left CLP, 7 right CLP
- 14 Female patients, 17 male patients
- 30 patients (96.7%) with incidental dental findings
- 26 patients (83.9%) with hypodontia
- 15 patients (48.4%) with ectopic eruption
- 10 patients (32.3%) with supernumerary teeth
- 4 patients (12.9%) with microdontia
- 3 patients (9.7%) with transposition

Type of Anomaly	Missing Teeth	Ectopic Eruption	Supernumerary Teeth	Microdontia	Transposition
Cleft Type					
BL CLP	10	7	4	2	2
Left CLP	11	4	4	2	0
Right CLP	5	4	2	0	1
Totals	26	15	10	4	3



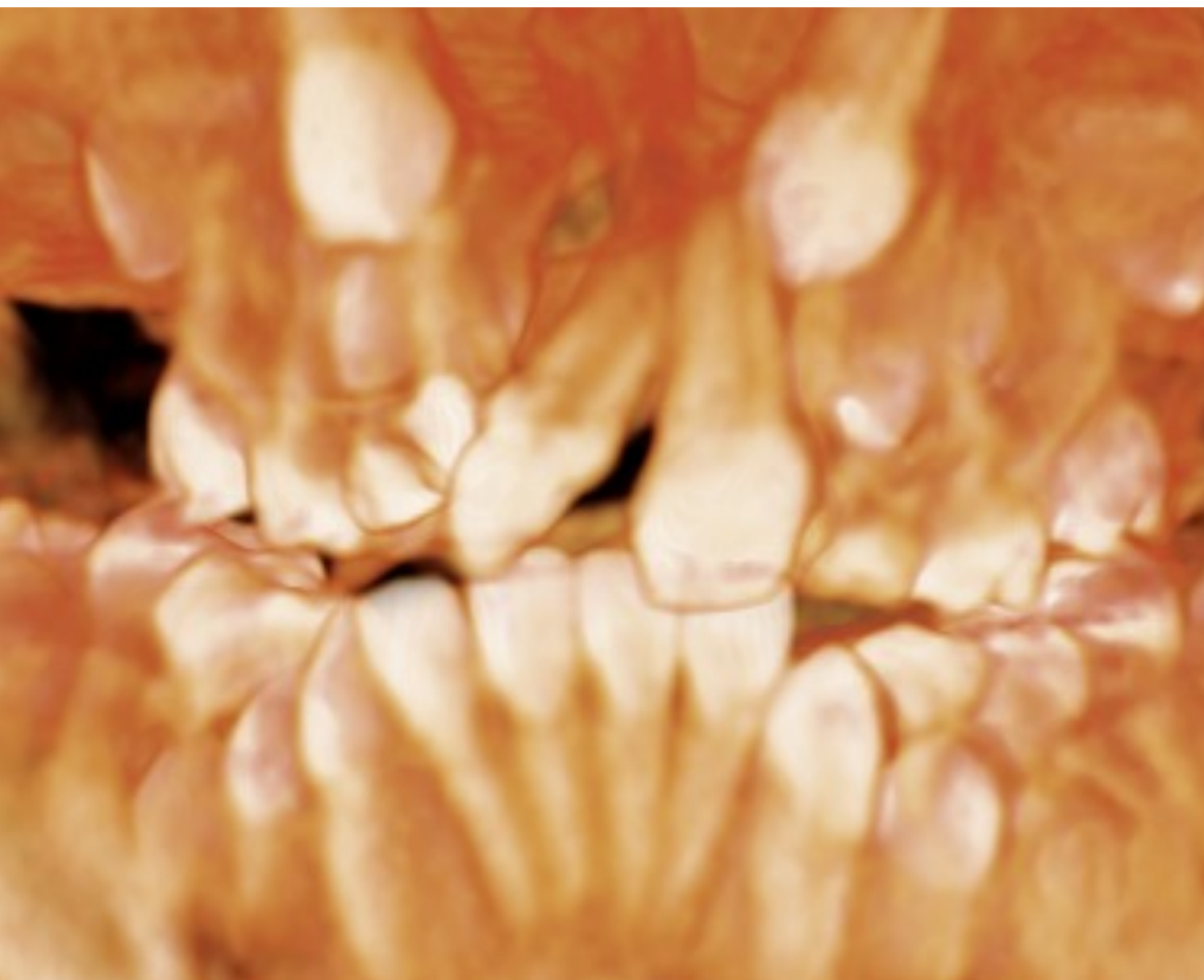
3-Dimensional CBCT image of a CLP patient showing a congenitally missing permanent lateral incisor



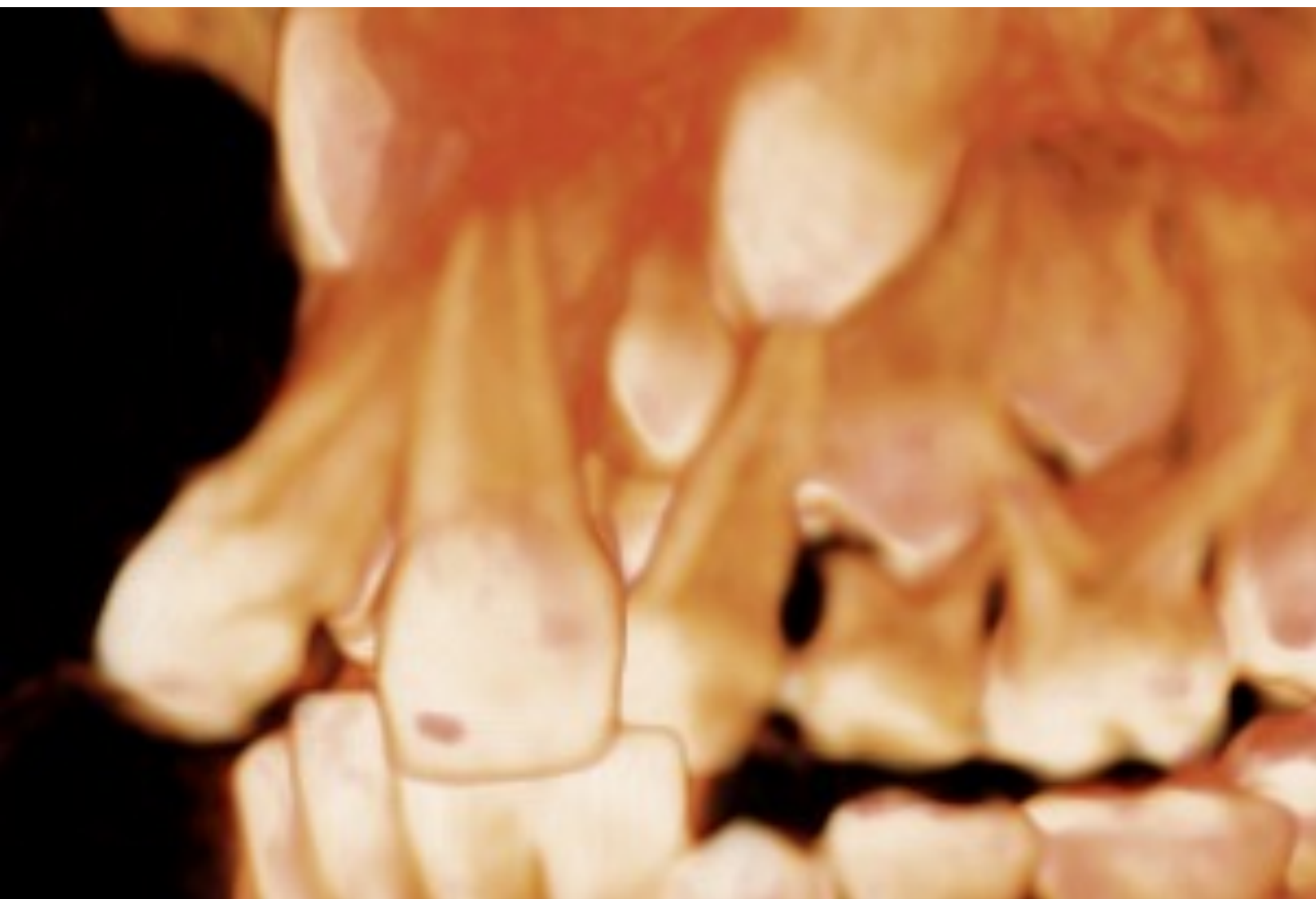
3-Dimensional image of a CLP patient showing supernumerary teeth



3-Dimensional image of a CLP patient with ectopic eruption #9/10/11



3-Dimensional image of a CLP patient with transposition #8/9



3-Dimensional image of a CLP patient with a microdont tooth #10

CONCLUSIONS

- 96.7% of the CLP patients presented with some form of incidental dental finding
- 100% of the bilateral CLP patients presented with some form of incidental dental finding
- The side of the cleft was the most common area of presentation for dental anomalies
- Congenitally missing teeth were the most common
- The most common missing tooth was the permanent lateral incisor on the side of the cleft

