AJO-DO

Interdisciplinary approach for a patient with unilateral cleft lip and palate

Letizia Perillo,[a] Maddalena Vitale,[a] Fabrizia d'Apuzzo,[a] Gaetano Isola,[b] Riccardo Nucera,[b] and Giovanni Matarese[b]
Naples and Messina, Italy

The oral rehabilitation of patients with cleft lip and palate is a challenge. The aim of this case report was to underline the importance of a sequential interdisciplinary approach to correct functional problems and improve facial esthetics for a patient with unilateral cleft lip and palate. Few clinical reports have described this treatment in a teenager. The patient, a girl, age 12.6 years, had a complete right cleft lip and palate with a Class II molar tendency and a full Class II canine relationship on the right side, and a full Class II molar relationship with a canine Class I on the left side. Transposed, impacted, and anomalously shaped teeth and crowding added to the patient's problems. Treatment included maxillary expansion and maxillary and mandibular extractions. An interdisciplinary approach was necessary to achieve proper occlusion and better esthetics. (Am J Orthod Dentofacial Orthop 2018;153:883-94)

Cleft lip and palate is the most common congenital craniofacial deformity with a higher frequency in Asian people than in other races.[1,2] These anomalies are the result of genetic and environmental factors[2,3] and can be 1 feature of various genetically determined syndromes.[4] Because of the failure of fusion between the medial nasal and maxillary processes in the primary palate (lip and premaxilla) or the palatal units in the secondary palate, clefts can occur from the fourth to the twelfth weeks of gestation.[2]

Clefts can be bilateral or unilateral (UCLP) and incomplete or complete according to their severity.[4] UCLP is the most frequent cleft, with a frequency of 33% and a separation of the upper maxilla into greater (noncleft side) and lesser (cleft side) segments.[5]

The deficiency of maxillofacial growth in patients with UCLP is related to various factors including lack of tissues and intrinsic growth potential as well as the early reconstructive surgery.[4-8]

[a]Multidisciplinary Department of Medical-Surgical and Dental Specialties, Second University of Naples, Naples, Italy.
[b]Section of Orthodontics, Department of Biomedical, Dental Sciences and Morphological and Functional Images, University of Messina, Messina, Italy.
All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest, and none were reported.
Address correspondence to: Gaetano Isola, Department of Specialist Medical-Surgical Experimental Sciences and Odontostomatology, University of Messina, AOU Policlinico "G. Martino", Via C. Valeria, 98125 Messina, Italy; e-mail, gisola@unime.it.
Submitted, July 2016; revised and accepted, December 2016.
0889-5406/$36.00

https://doi.org/10.1016/j.ajodo.2016.12.035

Thus, the deficiency of maxillofacial growth in the cleft population may be a result of the cleft or the repairing surgery.[4]

However, cleft lip and palate affects not only craniofacial but also dentoalveolar development. Thus, dental abnormalities such as hypodontia, malformations, and abnormal eruption patterns frequently occur more often in cleft patients than in the noncleft population.[8-12]

The lateral incisor bud develops in the region of the dentoalveolar cleft and is sensitive to developmental disorders. A congenitally missing maxillary lateral incisor on the cleft side is the most common finding in cleft patients, and a supernumerary tooth in the cleft region is the second most frequent anomaly.

In addition, other tooth alterations can occur in location (mesial or distal to the cleft), shape (pegged or conical teeth), size (microdontia), and time of formation and eruption.[12]

These anomalies create esthetic concerns and can also cause functional, periodontal, and restorative problems.

For all these issues, UCLP patients require interdisciplinary treatment including occlusal rehabilitation to restore their functional and esthetic needs,[13] with the main goal to obtain stability and prevent relapse and significant disadvantages in their social lives.[14] However, due to their complexity, the outcome of these treatments differs widely.[15,16]

The purpose of this clinical case report was to point out the interdisciplinary approach in a teenaged patient with UCLP and a complex problem list.

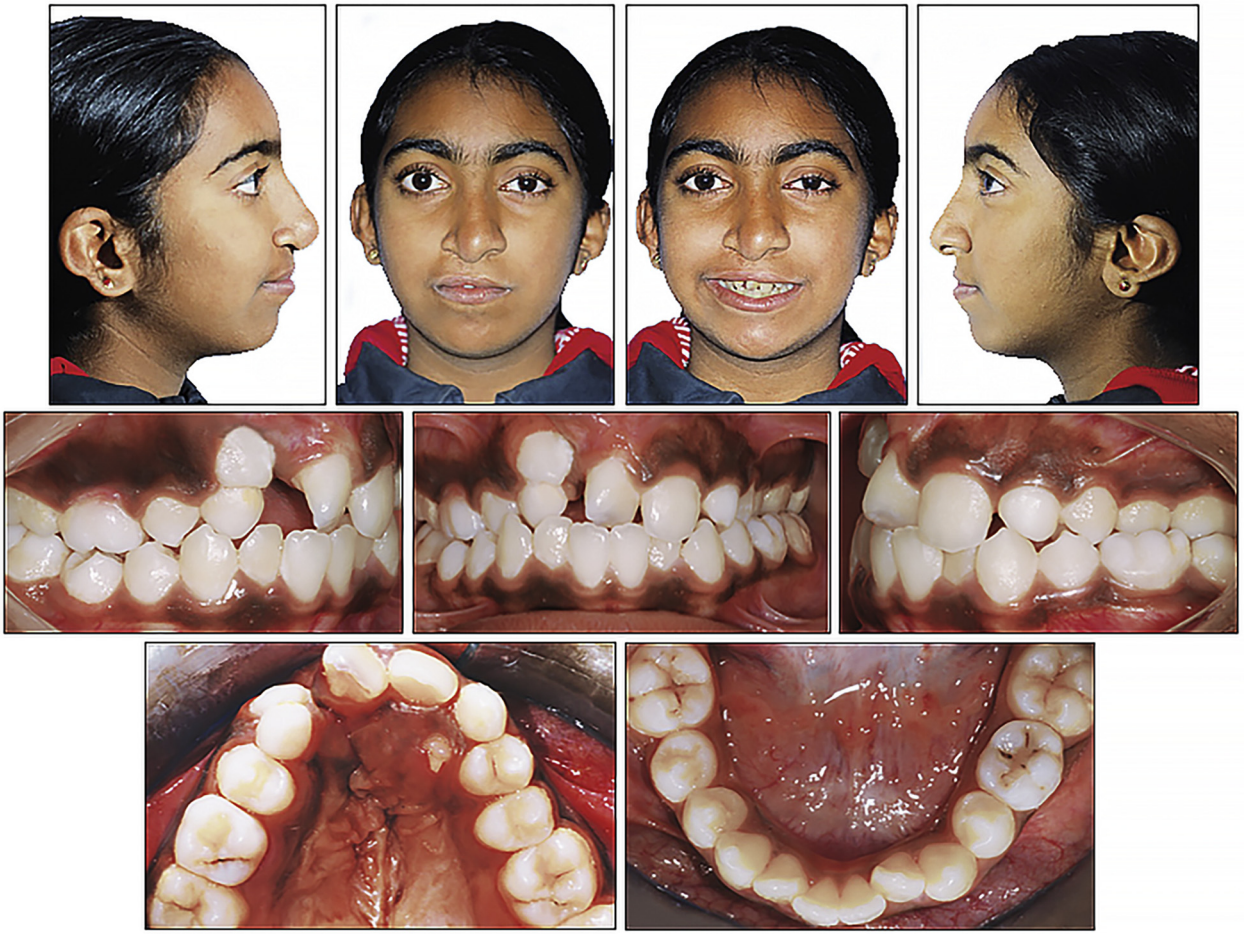

Fig 1. Pretreatment facial and intraoral photographs.

DIAGNOSIS AND ETIOLOGY

The patient was a Sri Lankan girl, age 12.6 years, in the late mixed dentition with a UCLP on the right side that had been surgically treated at 6 months of age (lip), 12 months of age (soft palate), and 18 months of age (hard palate), according to our protocol.

The patient was unhappy with her irregular smile, and her face was slightly asymmetric. Her profile was convex with a retruded upper lip, a reduced nasolabial angle, and a protruded lower lip.

The occlusion showed a Class II molar tendency with a full Class II canine relationship on the right side and a full Class II molar relationship with a canine Class I on the left side. The maxillary arch had a bilateral crossbite with a lower midline deviation. Overbite and overjet were decreased. The maxillary incisors were rotated toward the cleft side, the maxillary right canine was buccally ectopic, and both deciduous canines were still present. The patient had severe crowding of about 10 mm in the maxillary arch, whereas mild crowding of 4 mm was observed in the mandibular arch (Figs 1 and 2). The periodontal examination showed a good status of the dentition.

The panoramic x-ray showed included, transposed, and anomalous lateral incisors, impacted maxillary left canine, and a severely mesio-inclined mandibular left second molar. Almost all teeth had short roots, but no root resorption was detected.

The lateral cephalometric evaluation showed a skeletal Class I malocclusion (ANB, 3.5°) with a vertical growth pattern (SN/GoMe, 39°), retroclined maxillary incisors (1/SN, 94°), and proclined mandibular incisors (IMPA, 100°) (Fig 3).

The patient's medical and dental histories were unremarkable, with no family occurrences reported. No previous orthodontic treatment had been performed, and