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THE IMPLICATIONS OF THE LOSS OF TEMPORARY TEETH IN THE REHABILITATION OF THE OCCLUSION OF THE YOUNG ADULT

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ABSTRACT

In today's understanding, oral health means more than just healthy teeth, with an increasing emphasis on social and quality of life implications. Oral diseases markedly affect an individual's perception of general well-being, self-image and self-esteem. The WHO report highlights the importance of risk factors on the health status of the individual or the whole population. No single risk factor acts in isolation, many having their roots in a complex chain of events over long periods of time. Risk factors can be proximal (directly causing illness) and distal (acting at a distance and through intermediary factors). Dental occlusion is a key parameter in the evaluation of the harmonious growth and development of the young patient, already tracing the evolutionary trajectories of the balance of the stomatognathic system of the future adult. The presence of malocclusion in 46% of the cases confers complex valences to the therapeutic approach, initially correcting affected parameters of static and dynamic occlusion.

Malocclusion directly correlates with TMJ damage and dysfunctions of the stomatognathic system.

Key words: temporary teeth, occlusion, stomatognathic system

INTRODUCTION

In today's understanding, oral health means more than just healthy teeth, with an increasing emphasis on social and quality of life implications[1-9].

Oral diseases markedly affect an individual's perception of general well-being, self-image and self-esteem. The WHO report highlights the importance of risk factors on the health status of the individual or the whole population. No single risk factor acts in isolation, many having their roots in a complex chain of events over long periods of time. Risk factors can be proximal (directly causing illness) and distal (acting at a distance and through intermediary factors).

Health promotion is the process by which individuals or communities can increase their control over the determinants of health in order to improve them. Health promotion includes considerations that motivate a health-promoting lifestyle approach[10-21].

Dental occlusion can be defined as an intermaxillary relationship, or, more precisely, as the manner in which the mandibular dental arch comes into contact, statistically and dynamically, with the maxillary dental arch, depending on the mutual relationship of the teeth within each dental arch .

Scandinavian authors consider dental occlusion as an interdigitation of maxillary and mandibular teeth that depends on the three-dimensional developmental processes of the skull base, arches and eruption of teeth[22].

The normal in occlusion would be an "optimal morpho-functional and aesthetic balance particular to each subject, characterized by dental alveolar harmony and balanced morpho-functional relationships in the three directions of space"[23].

The state of equilibrium of the evolving dental occlusion is dependent on the time, sequence and mesial component of eruption of each dental type, the optimal ratio of tooth size to available space and facial growth pattern and the balanced

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activity of the functional matrices[24,25].

The evolution of dental-prenatal occlusion, differentiated growth of the jaws in the first two months of intrauterine life creates an intermaxillary relationship of mandibular retrognathia followed by mandibular prognathia (from the third month) and then the second stage of mandibular retrognathia[26-30].

At birth, the upper alveolar growth is horseshoe-shaped and longer and wider than the lower.

The lower alveolar growth is U-shaped, with maximum posterior opening and flattening of the anterior area.

The buccal side of the lower alveolar ridge is narrower and more outwardly sloping[31-35].

The lower arch is 0-8mm posterior to the upper arch.

Postnatally, the occlusion considered normal is characterized by neutral relationships and will be defined as "neutral occlusion"[36-40] .

Occlusion characterized by at least one altered ratio will be defined as 'malocclusion', listing the altered ratios in the order of the three directions (sagittal, transverse and vertical) in which it was examined.

Signs of the evolution of dental occlusion towards imbalance can be noticed at birth, during the period of temporary dentition and the development of the mixed dentition[41..

It should be noted that genetic determinism is strong in the case of number anomalies, agenesis, in determining the shape of the dental crown, the number of cusps, root shape, tooth size, taurodontism, as well as certain craniofacial characteristics; prognathies, mandibular and maxillary retrognathies, dental alveolar disharmonies, but for arch shape, pro-alveolus, versions, rotations or occlusion mode this genetic determinism is less clear[42.

Jaw movements, generally automated, are based on acquired conditioned reflexes. They can occur in all directions, but with different amplitudes, due to the limitation of this movement by anatomical elements such as: the A.T.M. capsule and ligaments, the morphology of the glenoid cavity, the fascicles and fasciae of the muscles with mandibulo-maxillary insertion, the inter-arch contact[43-48].

Overall, the movements of the mandible take place within the limits of a three-dimensional space, determined by the maximum amplitude of these movements and forming the so-called "envelope of extreme movements". All functional movements of the mandible will also be included in this envelope, as they have a smaller amplitude than the extreme movements.

Functional movements are characterized by a wide range of values of individual parameters related to the direction, amplitude and force with which these movements are performed. The variability of these values is evident, both between individuals and, for the same individual, at different times of the masticatory cycle. [49]

Analysis of mandibular kinematics can be performed in the three reference planes, sagittal, transverse and vertical, by relating the inferior inter-incisor point and the condylar center to the reference positions of the mandible relative to the maxilla and to the base of the skull (position of maximum intercuspidation, centric relationship and rest position of the mandible).

The dynamics of the masticatory process is highly complex and can only be partially objectified by clinical examination of the patient, and a large part of the individual masticatory dynamics can only be analyzed using complementary study methods[50].

The aim of the study is to determine the prevalence and incidence of early of temporary teeth, with the identification of their etiology and the prospects of restoring the affected morpho-functional parameters, anchored in provisional or definitive solutions, according to the age and morpho-functional development of the patient.

MATERIAL AND METHOD

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The study group consisted of 110 patients presenting to the Pediatric Dentistry Clinic and private practice in the time interval 2022-2023, diagnosed with multiple and varied pathologies, among which early loss of temporary teeth was found in the majority of cases.

RESULTS AND DISCUSSION

Statistical processing was done in SPSS 15.0 and Microsoft Excel was used for graphical representations.

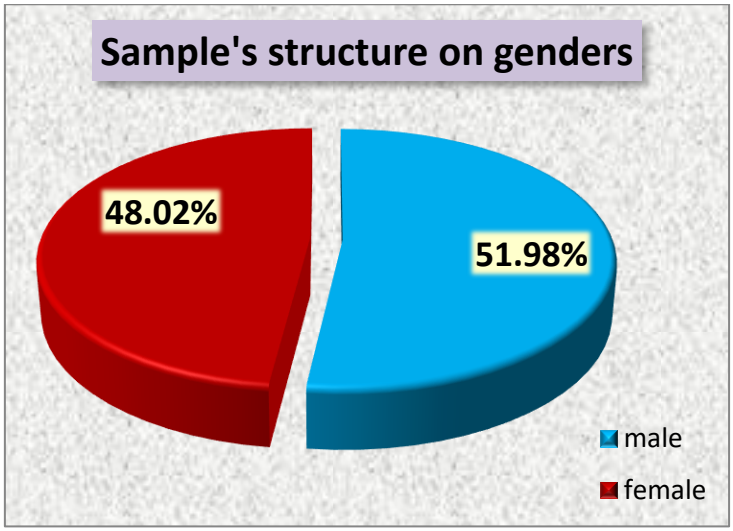

Fig. 1 Distribution of patients according with gender

We note the prevalence of the male gender at 51, 98% compared to the female gender at 48,02%.(Fig.1)

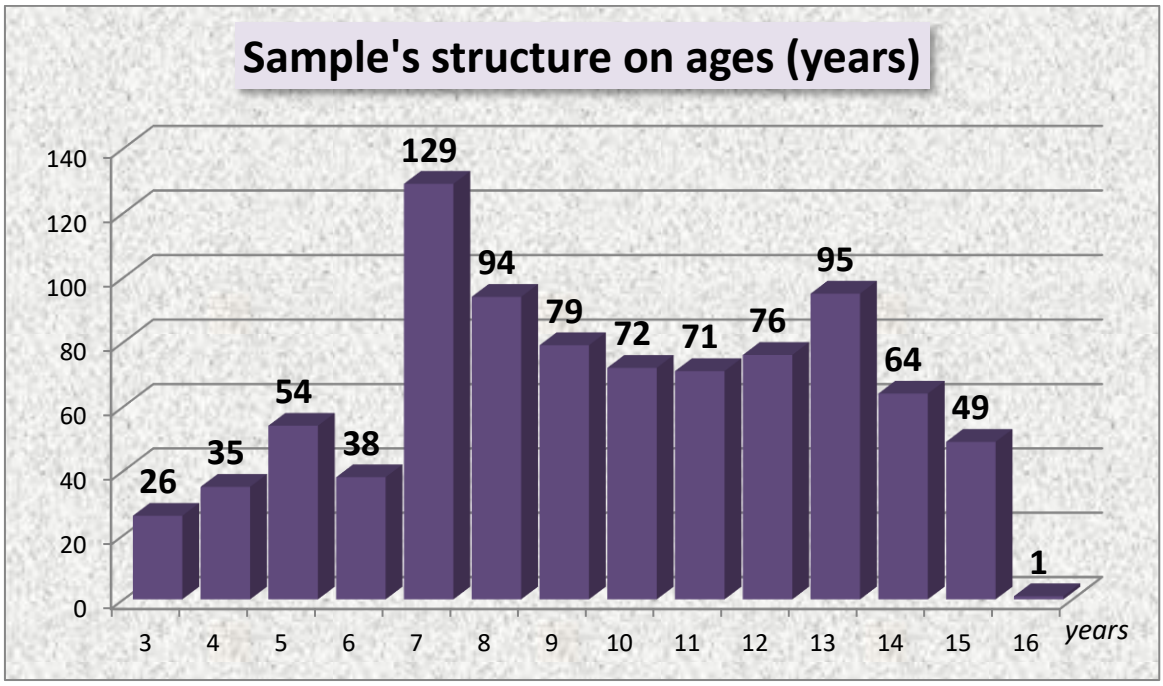

Fig.2 Distribution of patients according with ages

The study group includes patients aged between 3 and 16 years, this wide range was designed to see the variability of clinical situations in which temporary teeth are lost and

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very importantly what happens occlusally in the case of permanent dentition preceded by early loss of temporary teeth(Fig.2).

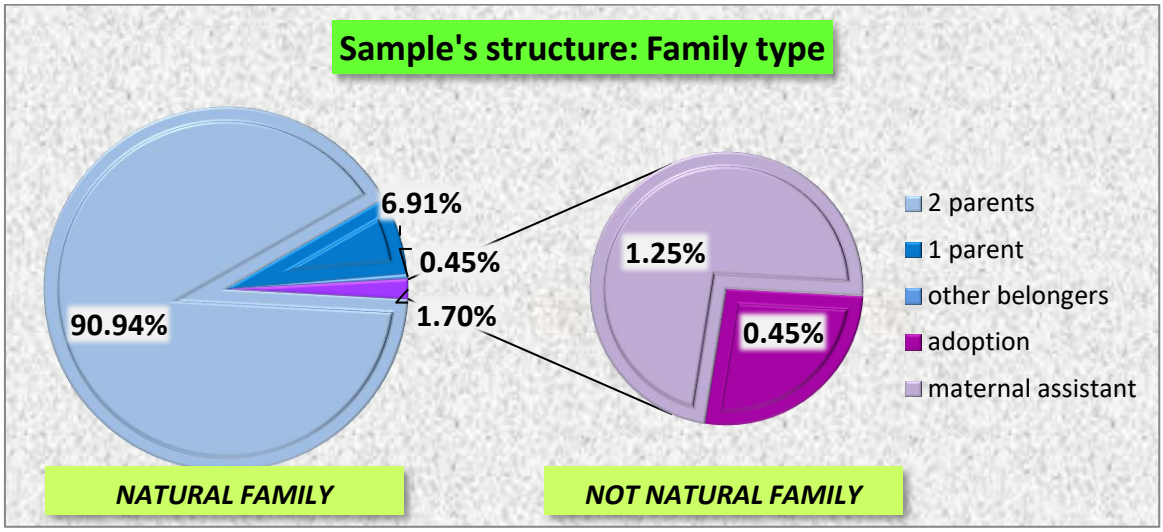

Fig.3 Distribution of the patients according with family type

In the analyzed group, the two-parent family prevails in a percentage of 90,4% followed by the single-parent family in a percentage of 6%, adoption cases were found in 0, 5% and foster care in 1.25%. This assessment of family type is extremely important in assessing the level of healthiness, in the implications it has in the early interception of changes due to the loss of temporary teeth(Fig.3).

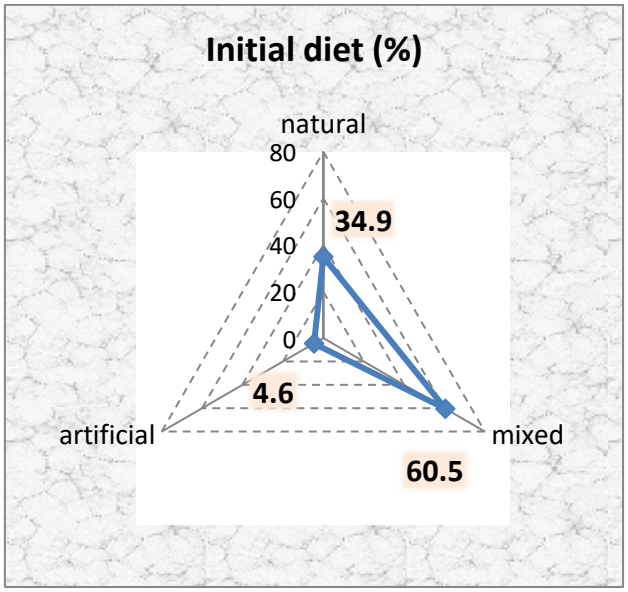

Fig 4. Distribution of the patient according with initial diet

In order to have a correlative view of the factors that can lead to early loss of temporary teeth and to evaluate their consequences on the occlusal imbalance that can be triggered, we paid particular attention to the evaluation of the type of initial feeding, thus it resulted that mixed feeding has the highest share of 60.5%, followed by artificial feeding with 4.6% and

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natural feeding with 34.9%.(Fig.4)

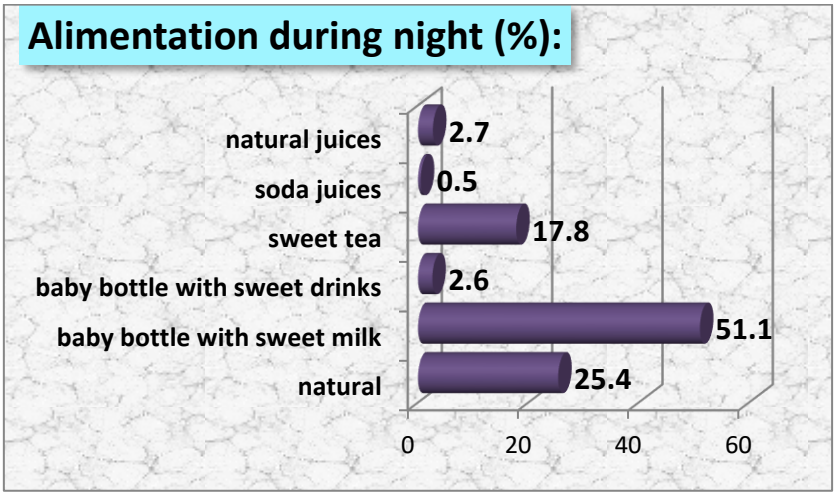

Fig.5 Type of alimentation according with alimentation

As for eating habits during the night, we note the consumption of a bottle of sweetened milk in a percentage of 51.1%, followed by the use of sweetened tea in a percentage of 17.8% and the use of fizzy juices in a percentage of 0.5%(Fig.5).

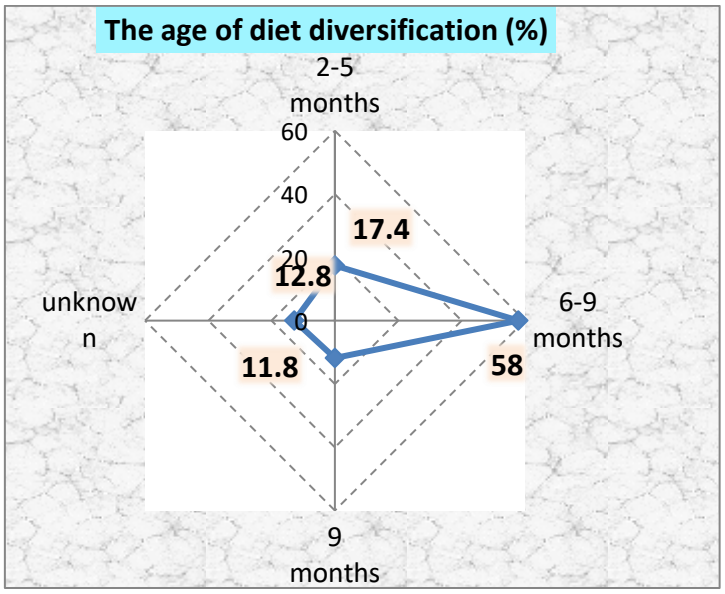

Fig.6 Distribution of patients according with age of diet

In the evolution of oral health status in the period of temporary dentition the age of diversification of feeding is also very important; we note that a significant percentage occurred around the age of six to nine months and a smaller percentage at 2 to 5 months(Fig.6).

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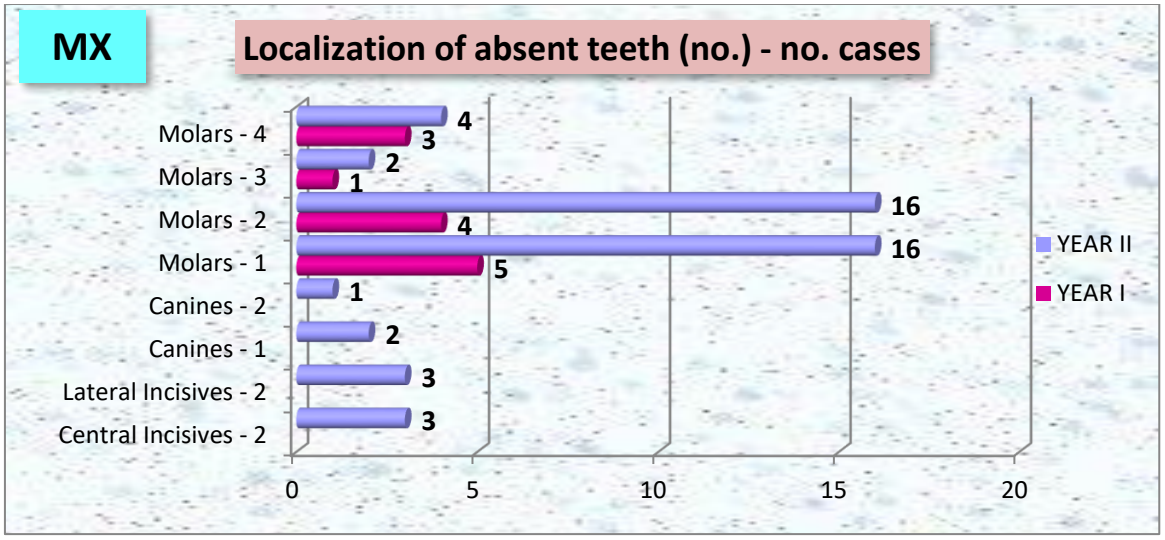

Fig.7 Localization of absent teeth

An important role in the assessment of occlusal changes is played by early molar loss. In the study it will be important to correlate the timing of the loss of temporary teeth with the type of tooth, the age of occlusal development, and the type of parameters affected(Fig.7).

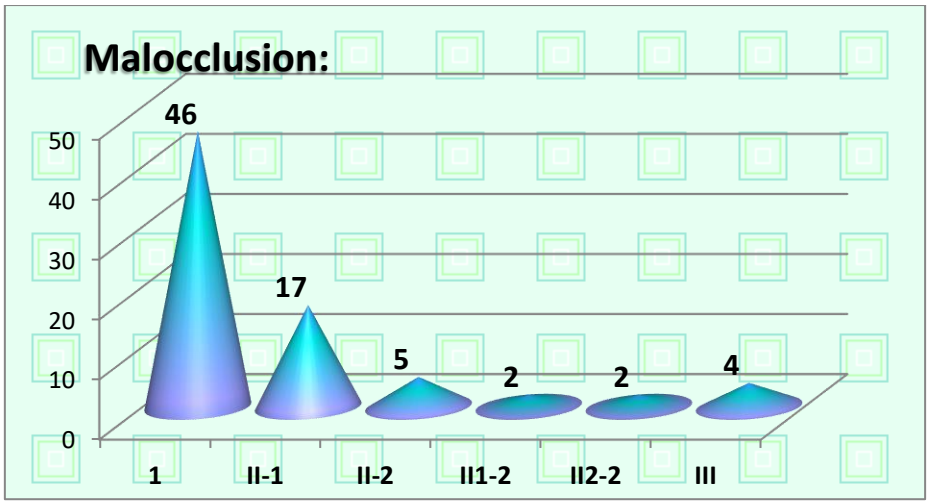

Fig.8 Aspects of the prevalence of malocclusion in the analyzed group

The presence of malocclusion in 46% of the cases confers complex valences to the therapeutic approach, initially correcting affected parameters of static and dynamic occlusion(Fig.8).

Malocclusion directly correlates with TMJ damage and dysfunctions of the stomatognathic system

In accordance with the problem addressed, we will detail some representative cases.

1.ID, 8-year-old, female Reference elements: Hyposoma, cooperative**,** Facies slightly undersized, asymmetric user**,** Sublingual deglutition**,** Mixed dentition**,** Late dental age**,** Diagnosis,Malocclusion class II Angle, overbite2/3,Untreated or incompletely treated simple and complicated multiple cavities**,** Reduced maxillary frontal and fronto-lateral edentulousness or edentulousness by agenesis 12, 22, 32**,** Profound physiognomic, masticatory and occlusal dynamics. Good prognosis with treatment(Fig.9).

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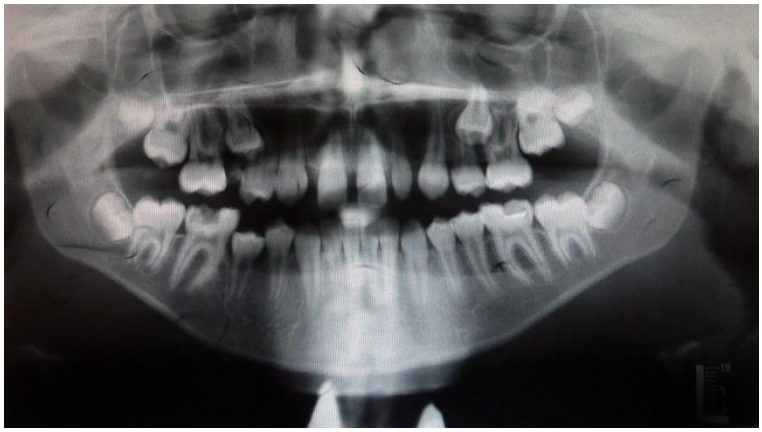

Fig. 9 I.D, 8-year-old. Aspects of initial paraclinical evaluation

Treatment plan L:Occlusal mesial and elevation,Closure of edentulous gaps by orthodontic mesiogression of the dental pattern 13,23,14, 15,16,24, 25,26, Achieving continuity and contiguity of the dental alveolar arches by removable orthodontic therapeutic means, The complexity of the clinical case requires medium-term monitoring. T.A.7-year-old, male Reference elements:hyposome,Introverted, potentially cooperative, Allergic to dust, pollen, penicillin (he is monitored by the specialist service-Botosani),mixed dentition,Diastasis and pathological tremor bimaxillary,Bimaxillary spatial arches, Reduced bimaxillary frontal edentations - i.e., edentulousness through agenesis 12, 22, 31, 41, agenesis 45,Partial intraosseous transposition23/24,Context of malocclusions II/1 Angle,Good dental prognosis with treatment.Treatment plan:orthodontic closure of edentulous spaces by orthodontic mesiogression of adjacent dental types as well as of the types to be clinically erupted.Palate-version11, 21, permanentizing 7,1,81, measurement and occlusal raising.The clinical case is currently in the intermediate treatment stage.The systemic integrative particularity of the clinical case in question requires its long-term active systematic monitoring(Fig.10, Fig.11).

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Fig. 10.Initial aspect of the clinical case

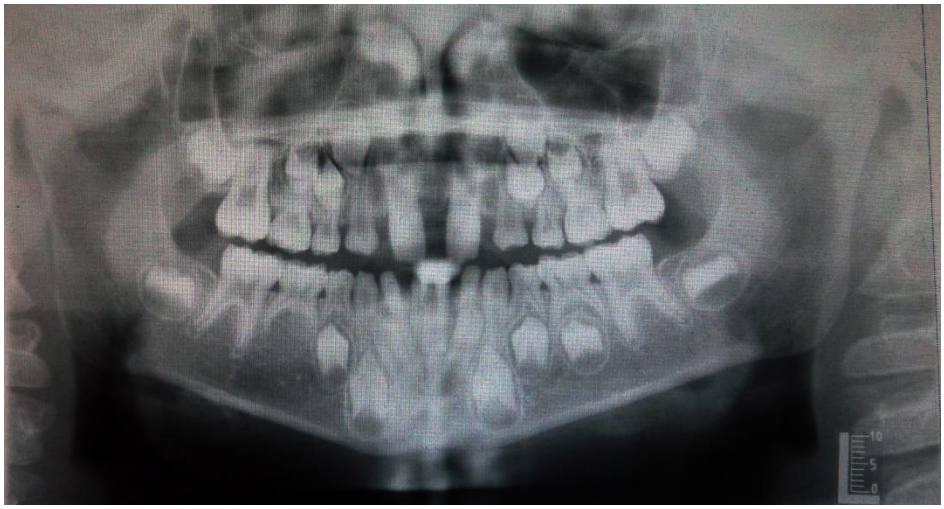

Fig. 11 Intermediate aspect of therapy

1. CB 9-year-old, Reference elements :Hyposoma, cooperative, Diagnosis: malocclusion class II/2 Angle, overbite 1/1, Right mandibular latero-deviation, sublingual deglutition,latero-lateral edentations by partial anodontia 15, 14, 24, 25,Simple and complicated multiple cavities in the bimaxillary, bilateral unhealed or incompletely and incorrectly healed support areas.

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Treatment plan:Morpho-functional rebalancing by:Surgical treatment staged and sequential extraction on 54, 53, 64, 65,7.5. 7.4 associative, wide decapping 3.4,84.85 associative slight tilting distally 44,8.3 associative slight tilting distally 4.3,Orthodontic treatment, occlusion elevation,favoring differentiated orthodontic tiling of dental patterns,1,3, 2,3 towards mesial,16, 17 towards mesial, 35, 33 towards distal, 3.7 towards mesial 4.4, 4.3 towards distal,46, 47 towards mesial, Permanentizing 55,Maintenance of edentulous space at level 6.5 with the prospect of implantation after completion of growth and development processes(Fig.12).

Fig. 12Initial appearance of the clinical case

Good prognosis with treatment.Clinical complexity of the case requires long-term monitoring

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CONCLUSIONS

1. Dental occlusion is a key parameter in the evaluation of the harmonious growth and development of the young patient, already tracing the evolutionary trajectories of the balance of the stomatognathic system of the future adult.
2. Early detection of occlusal changes due to the dynamics of temporary tooth loss is an extremely important step for a specific therapy and for obtaining parameters of stability in the stomatognathic system.
3. It is of utmost importance to assess the causes leading to the loss of temporary teeth in conjunction with the negative effects on occlusion, with particular attention to interceptive therapy.

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