Three-dimensional stereophotogrammetric analysis of soft tissue changes of the nasolabial region following rapid maxillary expansion

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Aim: Rapid Maxillary Expansion (RME) represents an orthopedic and orthodontic procedure aimed at increasing maxillary transverse dimension in growing patients. In orthodontic practice, the rapid maxillary expansion treatment is adopted to expand the maxillary arch, solve skeletal or dentoalveolar cross-bites and arch perimeter deficiency in mild to moderate crowding cases. The rationale underlying the approach is that the heavy orthopedic forces exerted by fixed appliances with a jackscrew can mechanically separate the maxillary segments at the level of the midpalatal suture. These appliances produce orthopedic and orthodontic effects by tipping the posterior teeth buccaly and enable dental extrusion and lateral rotations of the alveolar segments. Since the bone base and soft tissue are closely related, this orthopedic therapy may affect the nasolabial region shape and dimension. Three-dimensional stereofotogrammetry is a technique described to analyze the nasolabial soft tissue changes following RME therapy. Three-dimensional stereofotogrammetry involves the use of several digital cameras that simultaneously capture images of the same object from different viewpoints: software'reconstruction algorithms integrate matching regions in both images to compute the coordinates of all the points that outline the surface frame of the 3D object This study aims to analyse on facial soft tissue effects of RME evaluated by means of 3D stereophotogrammetry.
Methods: Three patients requiring maxillary expansion using RME were recruited. Soft tissue changes were evaluated using 3D facial images obtained with 3dMD Vultus software (Atlanta, Georgia, USA), a face imaging system. The 3D facial images were obtained at the beginning of the treatment (T0) and at the end of the three months retention period (T1). All images were taken with the head in a natural head position and lips closed in a rest position. The patients were treated with a bonded acrylic cap splint RME appliance. The ethical committee of the University Cattolica del Sacro Cuore(Rome,Italy) approved the study with unique protocol ID : 49889/18.
Results: When the 3D facial images at the beginning of the treatment and at the end of the three months retention period were compared in terms of effects on the facial soft tissue, there was no difference between them. The mouth and the alar base width did not show a significant increase.
Conclusion: There were no changes between the 3D facial images at the beginning of the treatment and at the end of the three months retention period. Weak correlations were found between the skeletal and soft tissue changes.

Effect of functional therapy and ohrqol of patients affected by juvenile idiopathic arthritis

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Aim: The objective of the study was to evaluate the impact of temporomandibular joint (TMJ) arthritis on the functional disability and quality of life in patients affected by juvenile idiopathic arthritis (JIA). Juvenile idiopathic arthritis (JIA) is a chronic disease of unknown ethiology, with an estimated incidence of 16 to 150 cases per 100 000 children worldwide. Temporomandibular joint (TMJ) arthritis is a common consequence of the systemic disease in patients with JIA.
Methods: Sixty-two consecutive patients with JIA with or without TMJ arthritis and 35 healthy control subjects were enrolled in the study. The demographic data, disease activity and clinical characteristics were obtained from all patients. The functional disability was assessed using the Italian version of the Childhood Health Assessment Questionnaire (C-HAQ). The oral health-related quality of life (OHRQoL) was assessed using the Child Perception Questionnaire (CPQ11-14). Possible determining factors of TMJ arthritis comprised demographic, disease characteristics and scores derived from questionnaires that were assessed by a uni and multivariable logistic regression analysis. All statistical analyses were executed using a software program (SPSS version 17.0 for Windows, Chicago, IL). The parametric approach was used because the data are normally distributed, as verified by the Kolmogorov–Smirnov test. The chi-square test and the t-test were used to compare the categorical and the continuous variables, respectively. A univariable logistic regression analysis was used to assess the influence of the quality of life measurements on TMJ involvement. The same analysis was performed in order to recognize factors distinguishing JIA patients with the presence/absence of TMJ arthritis by using the C-HAQ and CPQ11-

14 domains as exploratory measures. To recognize factors independently associated with TMJ arthritis, multivariable logistic regression was performed.
Results: The demographic data, age and gender distribution, JIA types, drug therapy and the serological values of the sample are presented for a total of 88 patients participated in the study; 32 patients in the JIA +TMJ group,30 patients in the JIA group and 26 patients in the control group. The examined groups were matched for age and gender. Compared with patients without TMJs arthritis, JLA patients with TMJ arthritis presented higher functional disability. The multivariable logistic regression analysis performed showed that female subjects (OR = 1.5, P = 0.041), with a JIA duration over 3.9 years (OR = 2.7, P = 0.033) and presenting higher C-HAQ and CPQ11-14 scores (OR = 2.7, P = 0.012 and OR = 2.9, P = 0.015,respectively) were the greatest determining factors for TMJ arthritis.
Conclusions: JIA patients with TMJ arthritis presented a significant higher functional disability and daily difficulties and lower OHRQoL scores compared with JIA patients without TMJ arthritis. TMJ arthritis was associated with high JIA duration and activity and influenced some activities, such as eating, hygiene, emotional and social well-being, especially in female subjects.

Dental characteristics of patients with sleep-related breathing disorders (OSAS): a literature review

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Aim: The aim of this study was to analyze dental characteristics of patients with sleep-related breathing disorders (OSAS).
Methods: A review of the literature on the dental characteristics of pediatric OSAS patients was performed on the following search engines: PubMed, Scopus, ISI Web of Knowledge and Google scholar. Inclusion criteria: age between 2 and 18 years. Exclusion criteria: patients with primary immunodeficiency or AIDS, craniofacial syndromes (cleidocranial dysplasia, Silver Russel syndrome), non-syndromic deformities of the maxillary complex (cleft palate, emifacial microsomia), previous surgical treatments of the face and previous orthodontic treatments. The following measurements made on the dental models were considered: upper inter-molar diameter (from the palatal cusp of 1.6 to the palatal cusp of 2.6), lower inter-molar diameter (from the distolingual cusp of 3.6 to the distolingual cusp of 4.6), upper and lower inter-first deciduous molar diameter(between the tips of the mesio-lingual cups of the primary molars), upper incisal inclination (the average inclination of the facial axis of the crown of 1.1 and 2.1 with respect to occlusal plane), lower incisor inclination (the medial inclination of the facial axis of the crown of 3.1 and 3.2 relative to the occlusal plane), left and right Angle classification (I, II, III), overbite (the vertical overlap of the maxillary and mandibular anterior teeth), overjet (the horizontal overlap of the maxillary and mandibular anterior teeth), maxillary and mandibular arch length (from the labial surfaces of the incisors perpendicular to a line connecting the distal surfaces of the second molars), palatal height (depth of the palate posteriorly to the last molar, as the distance farthest from the horizontal line to the palatal apex), maxillary and mandibular arch breadth (the length of the line connecting the cusps of the canines, the mesiolingual cusps of the primary first and second molars and the permanent first molars, and the lingual cusps of the first permanent premolars or the second permanent premolars) and crowding (moderate or severe if there was >4 mm lack of space in the dental arch, and mild if >2 mm, but <4 mm lack of space existed).
Results: Patients with OSA presented short lower facial height with excessive overbite and larger overjet, full or subdivision class II molar relationship and tendency to maxillary and mandibular crowding. No statistically significant difference in the length of the upper arch, in the palatal height and in the mandibular width was found. The distances between the teeth for the first and second deciduous molars and the first permanent molars were significantly narrower than controls.
Conclusions: Patients with OSA did not seem to have a standard facial structure. They had a vertical facial disharmony and dental measurements demonstrated that the patients with sleep-related breathing disorders had a more narrow upper jaw.

Association between condylar morphology and mandibular asymmetry. Cases report

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Aim: The mandibular asymmetry is defined when there is an unbalanced regarding to the homologous parts composing to the mandible complex affecting the proportions among the structures.This condition