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INTERRELATION BETWEEN PROSTHETIC AND ORTHODONTIC TREATMENT

Diana Cerghizan[1], Neagu Anca Iulia[2], Marius Maris[4*], Buruiana Daniela Laura[2], G.G. Condurache[3], Topor Gabriela[2*] , Mădălina Matei[2]

1.University of Medicine and Pharmacy, Faculty of Dental Medicine, Tg. Mures, Romania,
2"Dunărea de Jos" University, Faculty of Medicine and Pharmacy, Galaţi, Romania,
3"Dunărea de Jos" University, Galaţi, Romania,PhD
4,,Titu Maiorescu,, University, Faculty of Dental Medecine, Bucuresti, Romania

Corresponding author*: e-mail: marius@drmaris.ro
e-mail: topor_gabi_atu@yahoo.com

ABSTRACT

Prosthetic deal with methods of morphological-functional and aesthetic restoration of the maxillary (ADM) by means of biocompatible prostheses. The type of restored structures determines the delimitation of two distinct sub-domains: dental prosthetics and maxillofacial prosthetics; the first approaches the restoration of the dento-alveolar arches, and the second the prosthesis of other maxillofacial structures.. Orthodontics as a branch of dentistry has emerged as a way to correct dental malocclusions (poor alignment of teeth), but in contemporary society its goal has become to obtain an optimal position of facial soft tissues, so improving facial aesthetics while obtaining a functional occlusion (bites). Material and method: The paper presents an epidemiological study, conducted by clinical examination and observation sheets, of a representative group of 5 9 children aged 6-16 years, adolescents and young adults, which aimed to analyze the causes associated with the need for application prosthetic treatments in growing patients and establishing the frequency of prosthetic treatment necessary and performed at the level of permanent teeth. Results and discussions: There is a need to establish a prosthetic treatment for the growing patients, highlighting the consequences of non-prosthesis, as well as identifying treatment solutions targeted to each stage of age. Conclusions: Prosthetic treatments present in growing patients, satisfy a small proportion of their needs.

Keywords: morpho-functional restoration, prosthetics, orthodontics, poor alignment of teeth.

INTRODUCTION

The child does not realize, the young man does not think, the adult abuses, and the elderly regrets.

A phrase that mirrors health behavior. The beneficiary does not know or does not comply with the prescriptions, cannot give up the harmful temptations of modern life or is overwhelmed by environmental stress. Consequently, the medical act, ethical by definition, does not respond perfectly to the procedures performed. Awareness of responsibility is needed at the level of each individual and the group[1-5].

Orthodontics is the part of dentistry that deals with misaligned or incorrectly arranged teeth, it also deals with unsightly teeth, diagnosing them and proposing methods to correct them; is a branch of dentistry that deals with diagnosing and treating dento-maxillary anomalies and achieving correct intermaxillary relationships (orthos = straight, dontos = teeth).

It is very important to correct the position of the teeth on the arch not only from an aesthetic point of view but also for functional reasons. Crowded teeth can be much harder to sanitize and for this reason can cause cavities and bleeding gums (gingivitis) in the first phase and then severe periodontal problems.

Incorrect reports between the two dental arches can cause disorders that are manifested by poor chewing, muscle fatigue and joint pain. All this can be prevented by an orthodontic treatment, the straightening of the teeth not being a fad but a necessity[7-10].

Preventive orthodontics consists in finally obtaining the three main objectives regarding the morphology of the face (*aesthetics*), the correct performance of the dento-maxillary apparatus functions (*breathing, mastication, swallowing, speech and physiognomy*) and balancing the occlusion and the five muscle groups antagonist, craniofacial.

Orthodontic treatment is the clinical way to correct dento-maxillary disharmony, correcting the position of the teeth. Dental alignment is performed using mobile or fixed orthodontic appliances. The braces have become the favorite accessory of teenagers around the world, who have understood that a perfect smile for a lifetime is obtained by following an appropriate orthodontic treatment: correcting malocclusions specific children and adolescents; it helps to reposition the teeth to get not only a beautiful smile, but also a healthy one.

The dental abnormalities that braces treat are: dental crowding, teeth rotated from their normal axis, teeth that are too far forward or too far back from their normal position on the dental arch, diastema/trema ("lathe"), the space between the two teeth, malocclusions (upper teeth do not match the lower ones when bitten): the upper teeth are positioned further forward compared to the lower ones and cover them too much; lower teeth outgrow upper teeth; there is a space between the upper and lower teeth, a space in which the tongue often penetrates during speech or swallowing and creates phonetic difficulties, closing the post-extraction spaces to avoid dental work, bringing on the arch of permanent teeth blocked in bone. They are also used to get rid of the practice of vicious habits such as: oral breathing, finger sucking, nail biting and pushing the tongue against the teeth during swallowing[11-19].

Crooked, spaced or crowded teeth are one of the main health conditions and are dental tics among children; if they are not treated in time, they lead to complex and long lasting treatments.

Failure to treat dental malpositions causes**:** digestive disorders caused by defective mastication, emotional-affective complexes due to poor aesthetics, the appearance of dental caries on crowded teeth, pronunciation imperfections, the development of abnormalities such as malpositioned or oversized teeth, pain in the dental arches.

Orthodontics is the specialty of dentistry that aim getting occlusion (bite) so that its ideal health tissue in maxillary stay healthy. Without an orthodontic treatment, then, that when it is appropriate, the risks associated with caries processes are the difficult to treat periodontal disease or a condition involved is serious[19-24].

Orthodontics offers on the one hand therapeutic alternatives for dental prosthetics as well as solutions for optimizing the support, aesthetics, reliability, etc., of dental prostheses.

Conversely, dentures can solve some anomalies of tooth position or results can sometimes stabilize the results of the orthodontic treatment; surgery, maxillo-facial surgery and prosthetic means orthognatic often used to restore the defects and / or post-operative stabilization.

Orthodontics and Dento-Facial Orthopedics is the specialty that studies the growth and development processes of the dento - maxillary apparatus, including the etiopathogenesis, diagnosis and treatment of dental and dento-maxillary anomalies as well as congenital malformations[25-32].

Any dental treatment and especially the prosthetic one modifies the occlusal morphology, the functional occlusal relations can also be negatively modified; the symptoms that may appear in these cases are often located at a distance from the place where the prosthetic part was applied, and their therapeutic solution becomes, over time, more and more difficult; the reliability of prosthetic treatment may be poor precisely because of non-compliance with occlusal functional requirements.

Untreated or improperly treated dento-dental and dento-maxillary abnormalities in childhood, lead, in adulthood, to important functional disorders. On the other hand, old edentations also frequently produce the same disorders, due to the migration of neighboring and antagonistic teeth. The important development of the means of fixed orthodontic treatment, based on fundamental studies and the clinical experience allows today to correct a significant percentage of anomalies[33-47].

Orthodontic treatment also helps dental prosthetics, creating the premises for an aesthetic and functional reconstruction, correcting post-extraction dental migrations or redistributing existing prosthetic spaces; the orthodontic treatment no longer has an age limit or means, this being part of complex oral rehabilitation.

Growing patients have a varied pathology, represented by: caries, dento-periodontal trauma, dental abnormalities, which may require prosthesis.

The therapeutic complexity of this category of patients, generated by etiological factors, individual features, age-dictated behavioral characteristics, changes in oral and facial structures as a consequence of the growth process, as well as increased treatment duration and high costs can be a challenge for both the medical team as well as for patients and their parents.

There is a need to institute a prosthetic treatment for their growing patients, highlight the consequences of non-prosthesis, as well as identify treatment solutions targeted at each stage of age.

MATERIAL AND METHOD

The paper presents an epidemiological study, conducted by clinical examination and observation sheets, of a representative group of 5 9 children aged 6-16 years, adolescents and young adults, which aimed to analyze the causes associated with the need to apply prosthetic treatments to patients increasing and determining the frequency of prosthetic treatment necessary and performed at the level of permanent teeth.

RESULTS AND DISCUSSIONS

Children and adolescents represent a special category of patients, in which the growth of the structures that make up the facial mass and psychological development influence the design and conduct of prosthetic treatment.

The study performed on a group of 59 children with mixed dentition, aimed at analyzing the frequency and consequences of edentulous teeth, as well as establishing the need for prosthetic treatment by maintaining space, regarding the peculiarities and possibilities of prosthesis of growing patients and analysis of clinical need associated curative subject treated. For a successful outcome of prosthetic treatment, increasing patient behavior must be well analyzed and modeled its infancy, to ensure smooth and predictable long-term medical care.

The treatment is done gradually; the meetings for treatment should be short and painless planned when the patient is at rest; the use of tranquilizers or conscious sedation in the case of anxious children allows control of their attitude during treatment; the treatments are performed under deep sedation or general anesthesia, in the case of very young children, with physical/mental disabilities, totally uncooperative, with extensive dental treatments.

The facial skeleton has a predominant growth compared to the cranial box: from birth to puberty, the neurocranium increases its volume 4 times and the face 12 times (Izard, quoted by Boboc).

All the changes that occurred as a result of the growth processes occur up to 15 years in girls and 25 years in boys. The dental arches undergo significant changes in the intercanine distance, (Smith quoted by Boboc) appreciating the transverse development of the arches fast between 5 and 8 years and slow but continuous between 8 and 11 years; in the sagittal arches they suffer different changes in the front and rear zone three. The growth in the vertical direction is the most marked growth, since birth, the most active areas being the maxillary lateral areas near the permanent one molars and the mandibular frontal area near the incisors.

Assessment of bone development can be achieved by analyzing the radiography of the joint of the hand and fist, elbow, tarsus, iliac crest; CT of the clavicle; by computerized prediction methods.

When planning prosthetic treatment in young patients, the following problems should be considered: the application of bridges (especially if it affects the mid-palatal suture area) and dental implants should be postponed until the end of growth, until then the prosthesis is temporary and - with mobilizable prostheses; mobilizable prostheses: must distribute the mechanical stresses evenly, maintaining a favorable bone support and preventing its atrophy; the base of the prosthesis can incorporate orthodontic elements, which ensure the growth of the jaws and allow the movement of the teeth; the initial mounting of the teeth on the prosthesis is performed without diastema between the central incisors, but with tremor between the central and lateral incisors (activation of the median screw will later create the diastema); the prosthesis must not prevent the eruption of permanent teeth, the distal limit being placed up to the level of the postlacteal plane, and at the level of the saddles a color is created that allows the eruption of permanent teeth; the prostheses are adapted and rebased every 5 months and are periodically repaired to follow the growth rate of the jaws .

The morpho-structural peculiarities of the temporary teeth have the following clinical and therapeutic implications: in order to avoid the opening of the pulp chamber during the preparation of the teeth, conservative restorations are required, adapted to the size and color of the temporary teeth; prosthetic restorations should avoid overuse or root anchoring, which could interfere with physiological root resorption; the application of bridges in the frontal region is avoided, so as not to disturb the physiological spacing of the temporary teeth; removable prostheses aggregated by hooks have a favorable retention due to the convexity of the crowns; in the case of adhesive techniques, the duration of acid etching is double; the design of prosthetic works must ensure easy sanitation of the oral cavity[48-57].

Dental caries is the most common chronic disease in children with temporary dentition, mixed and permanent dentition.

In the temporary dentition, the most frequently being affected, symmetrically: the maxillary central and lateral incisors, the second and first mandibular molars, followed by the canines.

The clinical forms of dento-periodontal trauma that may require prosthetic treatment are: avulsion; extrusion, intrusion, lateral dislocation, root fracture with marked displacement; non-penetrating coronary fracture and the penetrating one. Dental erosion is the dominant form of wear; the frequency of patients with signs and symptoms of temporomandibular dysfunction is variable(Fig. 1).

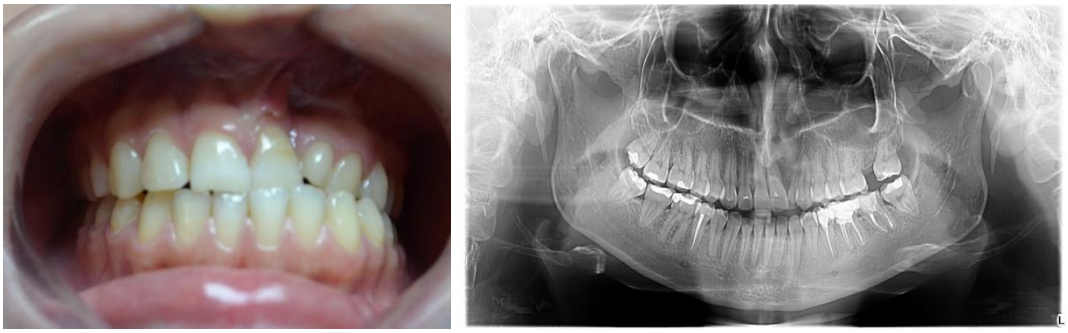

Fig.1 Clinical and paraclinical aspects of patient requiring orthodontic and prosthetic rehabilitation

In the case of growing patients are found: benign tumors of the soft parts and jaw bones, malignant tumors, infections of the jaw bones, whose clinical manifestations and treatment of choice (extraction of necessity, bone resection) require prosthesis.

The loss of canines and especially of the second molars generates significant consequences in terms of frequency and severity: deficit in the development of arches and jaw bones, disturbance of the sequence and eruption of permanent teeth, the appearance of vicious habits, disturbance of ApDM functions, psycho-somatic and psychological development. The principles of general
prosthetic treatment must be adapted and individualized to the somatic characteristics of growing patients(Fig. 2).

Fig. 2 Paraclinical aspect of pacient with impacted canines

Restorations with margins placed supragingival are preferred to prevent damage to the periodontal ligament and subsequent gingival retractions. In the case of restorations with intraradicular aggregation, the physiological resorption of the temporary teeth and the apexogenesis of the immature permanent teeth must be taken into account.

Prosthetic restorations must adapt and stimulate normal development of jaw bones: avoid bridges in the jaw before the completion of the work suture mediopalatine, orthodontic elements are incorporated in mobile prosthesis design. Mobile prostheses require periodic re-adaptation and to limit bone resorption. Prosthetic treatment will be based on the principles of functional occlusion. Chosing provisional prosthetic solutions ensure normal development of the jaw bone, hard structures coronary and immature permanent teeth roots[58-64].

In many cases, the prosthetic restorations will have a transitory character, until the completion of the growth process. Corono-root restorations are applied in the case of devital teeth, with a fully formed root and correct canal filling, which no longer has enough coronary substance for the retention of a crown[64-71].

Flexible prostheses are indicated for patients whose dental support does not offer the possibility of applying cast clasps, with allergy to acrylate or cleft lip and palate (DLMP).

Elastic prostheses are a conservative solution for the treatment of edentulousness, whose characteristics ensure patients aesthetics and comfortable adaptation.

Skeletal prostheses with cast clasps or special systems are indicated for long-term edentulous prosthesis. In the case of patients with disabilities, it is recommended to make prostheses from flexible materials, reinforcing with metal or thickening with

acrylate and writing the patient's name on the prosthesis.

CONCLUSIONS

Edentulous patients (with missing teeth) who require prosthetic treatment, may need pre-prosthetic orthodontic treatment to find the position of the teeth adjacent to the edentulous space in order to achieve the correct dental bridges. The most complex cases in adult orthodontics are performed in collaboration with orthogenous surgery - when the simple alignment of the teeth can not compensate for maxillary disharmony (jaw and / or mandible of too small, too large or too far apart).

The objectives of health promotion are clear: a fair, rational policy; creating an optimal infrastructure; jobs; educating the population's abilities regarding the protection and prevention of diseases. Political will is still missing.

All authors contributed equally to this work.

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