EARLY ORTHODONTIC THERAPY IN ANGLE CLASS III MALOCCLUSIONS

Hompoth Zsuzsa¹, Klara Brânzaniuc², Mariana Păcurar³

Abstract

Introduction: Dento-maxillary abnormalities included in Angle class III are dismorphic entities with multifactorial aetiology and different clinical manifestations. They can develop from simple forms (reverse interlocking) to major modifications in the facial harmony (mandibular protrusion with macrognathism).

Aim of the study: to assess the frequency of Angle Class III malocclusion in a group of children, with emphasis on early therapeutic methods that can prevent the evolution of severe anatomical forms.

Materials and method: The study group comprised 355 children (200 females, 155 males), aged 4-6 years, with dento-maxillary abnormalities. Investigations were conducted over a period of 3 years (2007-2010) by analyzing patients’ records from the Department of Orthodontics, Tg. Mureș. The children were examined both clinically and radiologically.

On clinical examination, the facial form was evaluated from the frontal and side view, while medical history established the involvement of genetic factors in patients with Class III abnormalities. Paraclinical examinations included study design (perimeter and sagittal arrow), lateral cephalometric examination (to assess bone deviations) and panoramic radiography (to assess Björk’s structural signs of mandibular growth rotation). The retropulsion test made possible the differential diagnosis between different clinical forms.

Results and discussion: The study first evaluated the gravity of malocclusion Class III out of the total dento-maxillary abnormalities, the 2.81% percent obtained, ranking between 2.82% and 3.5%, corresponding to the values published by Schapira in literature (Fig. 1).

A higher frequency of abnormalities was observed in young males, specifically 6 cases were recorded in boys and 4 cases in girls. (Fig. 3)

The clinical forms had the following distribution: 10% reverse interlocking, 20% mandibular prognathism, 30% false prognathism, 40% true prognathism, as illustrated in Fig. 2.

The number of reported clinical cases regarding the clinical forms is represented in the following chart:

Fig. 2. Clinical Forms of Class III Malocclusions

Fig. 3. Gender-based distribution of abnormalities

Taking into consideration each patient’s dentition and gender, the clinical cases occur as: 1 case of temporary dentition, 4 cases of mixed dentition (4 males), 4 cases of young permanent dentition (3 females and 1 male), 1 case of adult permanent dentition. Data are presented both in a table and as a graph. (Fig. 4)
Analysis of the above chart shows that most of the patients were in the mixed and young permanent dentition period. The mixed dentition period is a proper period for the correction of these abnormalities while, during the young permanent dentition period, the possible correction of these abnormalities also depends on the severity of the morphological changes. The study included only 1 case in the temporal dentition period, known as ideal for a permanent correction of this abnormality without relapses.

Our results are similar to data published in the literature on the prevalence of the abnormality, namely between 1-3% in white people and 4-5% in Mongoloid people. Although they occur only rarely, these anomalies have serious clinical manifestations by their impact on the evolution of the dento-maxillary functions, so that therapeutic intervention during temporary dentition is required.

Illustrative for the early orthodontic therapy is the case of N.P, a 6 year-old patient with long facies concave profile and progenia (Fig. 5), who came to us for orthodontic treatment, because of physiognomic and functional reasons (locked bite due inverted occlusion).

For the applied functional therapy, Frankel’s function regulator was used as orthodontic appliance.

Two years after starting the treatment with type III Frankel’s functional device (Fig. 7), the accomplishment of retrognathia and improvement of the facial aspect may be observed.
Fig. 8. Facial and teleradiographic aspect 2 years after the treatment

CONCLUSIONS

1. The incidence of Angle class III malocclusion in our study is 2.81%
2. Gender-based distribution indicates a higher occurrence in young males than in young females, but the degree of addressability is higher among young females.
3. Angle class III malocclusion is an orthodontic emergency and should be diagnosed and treated since early temporary dentition.
4. The earlier the orthodontic treatment is performed, the more efficient it is. The explanation is twofold: on one hand, the abnormality is intercepted at a less prominent stage, on the other hand, bone plasticity (which decreases with age) allows an increased efficiency of the orthodontic appliances.

References

12. Tse Agnes, Bendeus Margareta – A follow-up study of early treatment of pseudo Class III malocclusion. The Angle Orthodontist