

## Early Treatment Revisited

In the discussions concerning early treatment in orthodontics, a general conclusion during the latest years has been that a suggested time to start the orthodontic treatment is when the second deciduous molars become loose and when the mixed dentition is turning to its end. This makes sense in the way that when we take into account the occlusion. We have the possibility to move many of the teeth, including bicuspid and mostly the cuspids, while they are emerging. A definite good side of this simplification is, furthermore, that the rule is easy enough, so even not a specialist can adopt it and, if not to treat the patient, at least is able to refer the patient to further treatment.

But is this rule going too far in simplification of the timing? There are many aspects that tend to affect this way.

First, if we take into account the fact that the rule is based on dental emergency and development only and the given fact that dental development has a very low correlation to other growth and development phenomenon. This issue is further complicated by the fact that of other developmental factors, like chronological age skeletal maturation are much better correlated with each other than with dental maturation. Thus, if we apply the dental maturation as the timing of the initiation of orthodontic treatment, we may be in a risk to start the treatment either too early or too late, if we aim to use the pubertal growth spurt to enhance the treatment effect. This fact becomes very evident while treating Class II malocclusions, but also very much so in the cases of expansion of the dental arches, which on the other hand, is gaining more popularity.

Another drawback of the rule is that it does not take into account the gender difference. Girls mature about two years earlier than boys, but their teeth emerge about half-a-year earlier than in boys. This makes about one and a half year difference between the genders in pubertal spurt and the end of mixed dentition, which certainly

makes difference in treatment response, at least if functional or expansive appliances are considered.

The third problem with the rule becomes obvious, when we consider the dimension of the main orthodontic effect and the maturation. There is increasing evidence that the transversal expansion of the maxillary dental arch is relatively stable, when the expansion is done early. The same appears to be true, when Facial Mask-therapy to pull maxillary structures forward is considered. The treatment effect in these two treatment modalities are much based on growth effects on maxillary sutures. In this respect these differ fundamentally from Class II treatments, where a relapse is to be expected, if treatment is done much before growth spurt, at least when skeletal effect is considered.

The general trend in orthodontics during the last decades has been to avoid bicuspid extractions due to crowding, when possible, at least in borderline cases. The choice of treatment naturally is most often to expand dental arches. Early lateral expansion of the maxillary arch seems to be stable. On the other hand we know that in the cases of moderate crowding the early lateral expansion tends to decrease the need of bicuspid extractions. Thus if we have a moderate crowding in dental arch and if we consider to avoid the extraction of permanent teeth, early expansion is a feasible choice, at least if the long-term stability of the result also is the goal.

There is not much strong evidence concerning the effects of orthodontic treatment on TMD. One thing which, however appears to be evident is that by correcting lateral forced bite early enough, we can achieve a symmetric development of occlusion, TMJs and facial balance. As the lateral forced bite, as well as anterior crossbite, interfere so much with the functional balance of the masticatory system and the further growth, it gives a very good indication to correct these malocclusions rather

early than late in the mixed dentition.

So in conclusion, the timing of orthodontic treatment in mixed dentition is not a straight forward issue that can be determined by the emergency of permanent dentition only. Rather the issue is rather complicated and various individual characters must always be taken into account when planning the treatment entity. This does not exclude the fact that in most cases we can achieve equally good results, whether the treatment is initiated earlier or later, but in a part of the cases the age of initiation may become the key issue. Another issue is the burden of treatment to the children and their parents. If there is some way to ease or shorten the treatment, it should be chosen, if the long-term results otherwise remain the same.