

O O R S P R O N K E L I J K E B I J D R A G E N

PREVENTIVE ORTHODONTICS — AN AID IN DENTAL GROWTH *)

OREN A. OLIVER, D. D. S., L. L. D.

It is certainly a pleasure for me to have the privilege of addressing this large and cosmopolitan group of dentists.

My subject, *Preventive Orthodontics — An Aid in Dental Growth*, is very close to my heart and one that I feel, if practiced properly, can definitely help our children to grow to maturity with the least possible interference. It used to be that we as dentists and orthodontists were the only ones who were interested in preventive orthodontics, but today the public as well is interested in this vital subject. They will many times ask you, "Is it time to start little Johnny?" The maintenance of the teeth as a unit to preserve their greatest efficiency is the responsibility of the general practitioner of dentistry. As dentists we are in the same situation as are our colleagues, the physicians. It is the family physician in the country, not the specialist, who is the man responsible for the health of our people as a whole. In practicing preventive orthodontics, or the prevention of malocclusion, it is the general dentist who must practice this prevention rather than the specialist or orthodontist, for he is the first one to see the malocclusion developing. It is his obligation to share this responsibility with the orthodontist, and if he cannot successfully treat the case, then the patient should be sent to the orthodontist for treatment. In order for us to practice any preventive measures it is necessary for us to know and recognize the causes of these measures or conditions. For the family dentist to practice preventive orthodontics, it is necessary for him to understand malocclusion and the etiological factors of malocclusion. He must have both hindsight and foresight of growth and development of the child. This is certainly a full order for any dentist, but it is one that he must continually strive to fulfill. He has to be acquainted with the normal development of the teeth, the jaws, and the associated structures, and give especial attention to the growth and development of the jaws, — namely, he must help the child to grow up to dental maturity. If he recognizes any interference with the normal growth and development from whatever source, then he must recognize this as a real cause for malocclusion. Any undue interference with the normal and orderly process of growth and development of the teeth and jaws requires a more thorough understanding of just what is normal growth and development.

*) Voordracht gehouden ter gelegenheid van het jubileum Congres der Nederlandse Tandheelkundige Verenigen te Scheveningen op 10 Juni 1954.

Change in growth

From birth to maturity the structure of the jaws is ever changing. Even throughout life the jaws continue to show changes. Occlusion is not a static condition but an everchanging one. At 3 years of age there is a definite relation of the lower teeth to the upper with a noticeable overbite of the anterior teeth. At $5\frac{1}{2}$ years of age this relationship is changed until there is now an end-to-end bite in the anterior teeth, while the lower posterior teeth have moved forward from their previous relation to the upper. At 8 years of age the overbite is again showing and is definitely present in the young adult, with a molar relation considered normal. In old age the lower teeth have again moved forward to a relation comparable to that at $5\frac{1}{2}$ years, with an end-to-end bite in the anterior region and a more forward relation of the lower molars to the uppers than is present in the young adult. Therefore, from the foregoing, we draw the conclusion that normal occlusion at one age cannot be considered normal for a later age, and that we are to expect changes. The changes in the mouths of children are brought about by the processes of growth and development, and interruption of the processes may lead to malocclusion. We must all realize that our responsibility of prevention with the child patient does not stop at filling cavities, making space maintainers, cleaning and polishing the teeth, but also it involves planning for the future growth of the patient. We could greatly increase the value of our services and, I am sure, prevent many cases of malocclusion reaching advanced stages if we would but observe these changes in our children.

Time of treatment

There are two schools of thought as to when to treat malocclusion. One is to treat as soon as you see any abnormality starting; the other is to wait until the eruption of a full complement of teeth, with the exception of the third molars. It is not safe to follow either school of thought too closely, for, I am sure you all agree that many dentures do straighten out with approaching maturity or when the permanent teeth have all erupted, and we do find a normal and healthy occlusion. On the other hand, if we adopt the policy of treating all cases in very young children we shall treat many cases unnecessarily and overlook the powerful forces of nature which are capable of bringing the individual to normal maturity. At the same time, a waiting policy followed too closely may do great harm in certain cases because it will be too late to obtain the optimum results from treatment. We as general practitioners must be able to recognize these foregoing problems and do as much preventive work as possible so that these problems will not occur. The substance of any problem consists in knowing what to do, when to do it, and how to do it.

For convenience let us divide the causes of malocclusion into two divisions — direct and indirect. The direct causes of malocclusion may be divided into local or mechanical disturbances which directly influence the positions of the teeth, and a condition we might help by preventive measures. The second — the indirect — are those causes which are due

to some disturbance in the general growth pattern and are reflected in the growth and development of the bones forming the jaws and face.

In the first group are found the conditions brought about by abnormal habits, such as thumb-sucking, which is often associated with other habits as lip-biting, lip and cheek-sucking, and abnormal lip movements and function. These habits should be broken by the time the child is three years of age. Any longer persistence in this habit would be considered as abnormal. Lamons feels that a thumb-sucking habit should be stopped by the time a patient is three years of age, and any longer continuation is considered abnormal. Lewis has shown evidence in cases presented that if this habit is broken before the child is five years of age the attending malocclusion will in all probability be overcome in the growth periods following. Another prevalent cause of malocclusion which is preventable is the condition due to premature loss of deciduous teeth. In every case of the premature loss of a deciduous tooth the space does not close up, but it is a very good rule for any dentist to maintain this space. I cannot urge you too strongly to maintain the space when a deciduous tooth is lost prematurely.

Another direct cause of malocclusion is that of prolonged retention. Sometimes this is due to the unequal resorption of the roots of the deciduous teeth. These roots deflect the course of the permanent teeth. When this is suspected the remedy is extraction, and it is an easy one. But remember, if the permanent tooth will be quite some time in erupting it is always advisable to use a space maintainer. Another of our direct causes is supernumerary and missing permanent teeth, which are not common, yet are frequent enough to warrant careful consideration. If possible the supernumerary teeth should be taken out and missing teeth may or may not be replaced, depending upon the type of occlusion and amount of space left. (*Slide*)

In turning to the subject of the abnormal superior labia, I am turning to a favorite subject of mine. The general practitioner has been admonished to remove them as early as possible. Many orthodontists are of a different opinion, however, and I concur with the belief that in no case should a labial frenum be dissected out until the lateral incisors and cuspids have erupted. Even then, the advisability of surgical measures is quite questionable.

Of course we all recognize that the improper placement and finishing of restorations in both the deciduous and permanent teeth can be a frequent cause of malocclusion. The maintenance of a healthy primary dentition is both valuable and necessary for the young patient to have a normal mouth. We must not neglect dietary instruction to our parents and patients. We very seldom have to add to their diet, but usually have to subtract something harmful to the tooth structure. This may very well be an excess of sugar.

In our preventive measures of caries control we must certainly include the application of sodium fluoride to the surfaces of the teeth in our young patients. Any move to add sodium fluoride to the drinking water of our city should be supported to the fullest extent by us as dentists.

I cannot over-emphasize the importance of a full mouth X-ray as a part of our whole plan of prevention. Lamons says, "Every child is entitled to a full mouth radiographic survey by the time he is six years old and as often thereafter as may be indicated." In studying our patient let us take note of the facial contour and expression. If the muscles of the face have little tone, then muscle exercise is indicated to improve function and esthetics. In America, Rogers has advocated muscle training as a definite preventive measure.

Indirect causes

The indirect causes of malocclusion are those due to some disturbance in the general growth pattern as a whole which is reflected in the bones of the face, jaws and related structures. It is in this group that a knowledge of growth changes which take place is of prime importance. These factors include heredity, which predetermines the shape of the face, the size and the shape of the teeth and the form of the arches. The application of the laws of heredity as problems of individual orthodontic diagnosis are difficult, perhaps owing to the fact that experimental work along this line has never been carried out in the human family. We can be assured that the hereditary factor does have an influence, and here again the general practitioner can contribute greatly to orthodontic knowledge by keeping more adequate records. I am sure in your own practice you have noticed the similarity between parent and patient. It is not our obligation to change the whole hereditary facial pattern in a child, but if this pattern is abnormal or unpleasant it is our obligation to deviate it, or prevent it from becoming severe. We cannot prevent hereditary causes of malocclusion, but we can deviate them.

The following slides we will try to demonstrate what we can do directly to prevent malocclusion; (*Slides*)

Conclusion

In order for us to practice preventive orthodontics properly it is imperative that we render the following procedures to our young patients:

1. Remove all diseased structures.
2. Restore lost structures and impaired function when possible.
3. Educate the patient and parent in the necessary procedures to keep good oral hygiene.
3. Render assistance to help the child reach dental maturity with the least amount of interference possible.

The conditions met by the family dentist in the care of his child patients are so numerous that it is impossible to enumerate all of them, but I trust that in the slides enough of the common-place has been presented to be of some benefit to you. I hope I have stimulated your thinking in our great and interesting experience of helping our young patients to attain normal dental maturity.

Bibliography

1. Lamons, Frank F. : Reaching Maturity with the Optimum in Dental Development and Health.
2. Lamons, Frank F. : The General Practitioner's Responsibility in the Prevention of Malocclusion,
Jour. A. D. A. Vol. 26, June, 1939
3. Oliver, Oren A. : Preventive Orthodontics in Every Day Practice.
4. Oliver, Oren A. : The Role of the Orthodontic in Oral Health.
Amer. Jour. of Ortho, Vol. 34, July 1948
5. McBride, Walter C. : Juvenile Dentistry. Lea and Debiger, Philadelphia, 1941
6. Rogers, A. P. : Place of Myofunctional Treatment in the Correction of Malocclusion.
Jour. A. D. A. XXIII, Jan. 1936.