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P R E S E N T I N G T H I S I S S U E

Dentofacial orthopedics and temporomandibular disorders (TMD) : *primum non nocere*

Preface

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The relations between dentofacial orthopedics and occlusodontics are an on-going subject of interest for practitioners of both disciplines. The numerous publications, including several previous special issues of the *Revue d'ODF/ Journal of Dentofacial Anomalies and Orthodontics*, that have been devoted to this topic over the last thirty years bear ample testimony to its importance.

Temporomandibular disorders (TMD), that orthodontists encounter in their assessment of patients seeking treatment or in the course of treatment challenge them with the need to respond to three diagnostic and therapeutic objectives:

- respond to the complaint of pain;
- plan a treatment protocol adapted to the functional problem;
- modulate or adapt their treatment plan to deal with the current array of symptoms and the possible ultimate appearance of structural modifications.

Primum non nocere[1] (First, do no harm). Do we really respect this aphorism from the master teacher of the school of Cos?

[1] Hippocrates, Treatise *on Epidemics* (1, 5)
[2] Mohlin B, Axelsson S, Paulin G, Pietillaï T, Bondemark L, Brattström V, Hansen K, Holm AK. TMD in relation to malocclusion and orthodontic treatment. Angle Orthod 2007;77:542-8.
[3] Michellotti A, Iodice G. The role of orthodontics in temporomandibular disorders. J Oral Rehabil 2010;37:411-29.
[4] Luther F, Layton S, MCDonald F. Orthodontics for treating temporomandibular joint (TMJ) disorders. Cochrane Database Syst Rev. 2010 Jul 7;(7):CD006541.

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The answer is probably ''Yes,'' according to the most recent data published in the literature[2,3,4]:

– orthodontic treatment does not appear to increase the incidence of TMD;
– data provided in the most recent studies do not justify any indication for orthodontic treatment whose unique objective is to cure TMD.

Still, we must interpret the data with great care. The authors of systematic reviews and meta-analyses are unanimous in pointing out their limitations, caused by the lack of homogeneity in the methodologies employed and of the highly imprecise definitions of the diagnostic criteria used to delimit TMD.

The current absence of proof is in itself no proof that a relationship between orthodontics and TMD will never be found but the principle of *Primum non nocere* and plain old common sense already assign to orthodontists the obligation of optimizing the occlusal functioning of their patients by placing teeth in well stabilized, well centered and well guided positions[5].

They also encourage orthodontists to exercise especial vigilance in caring for patients with a history of TMD and for controlling factors that favor it such as noxious habits.

Similarly, in difference to the dictum *Above all, do no harm,* the American Association of Dental Research, the AADR, in 1996 published a scientific advisory on the diagnosis and the treatment of TMD[6]. An updated version of this document, which came out early in 2010 and is available on line[7], reaffirms the absence of any evidence based reason for instituting preventative protective treatment against TMD for asymptomatic patients. It also repeats the injunction that all therapy for patients who do suffer from TMD pain should be non-invasive, simple, and reversible.

It must be noted that because of its frequent association with acute or chronic pain and the distress it causes patients in committing any oral function, TMD a major topic of interest in odontology as a whole and specifically in dentofacial orthopedics. That is why the editors of the *Revue d'Orthopédie Dentofaciale/JDAO* wanted to devote a special issue to ''TMD in orthodontics'' so as to provide useful information for dealing with the dysfunctional problems that they confront in their daily practice.

Jean-Daniel Orthlieb's editorial illustrates perfectly the aphorism of Hippocrates, *Primum non nocere.* Faithful to his concept of ''Functional gnathology'' it reminds us how important it is for us to consider not only the adaptive capacities of our patients, but also for us to us to bear in mind, above all, of the possibility that our therapeutic endeavors may, in fact, be harmful to our patients.

Readers (with good memories) will recall that Pierre Carpentier, Rufiono Felizardo, Jean-Pierre Yung and Geraldine Cledes published an article

[5] Orthlieb JD, Amat P. Relations occlusodontie-orthodontie : entretien avec JD Orthlieb. Orthod Fr 2010;81:167-88.

[6] AADR Reports 1996; 18(4); original text in Greene CS *et al.* Am J Orthod Dentofac Orthop 1999, 116:430-1.

[7] http://www.aadronline.org/i4a/pages/index.cfm?pageid=3465

''TMJ, the sense of motion,'' an anatomical description of the joint in a 1987 issue of the Revue d'ODF. In this issue they complete this description from a more dynamic point of view, appraising the relationships of different components of the TMJ and reviewing recently published data on the anatomy and electromyography of the joint and the lateral ptyergoid muscles. This analysis helps us to understand the complex physiology of the TMJ and the mechanisms that contribute to its dysfunctioning.

The American Association of Dental Research[7] recommends that orthodontists rely primarily on the history and the clinical examination in diagnosing TMD and orofacial pain. In the light of the most recently published data, Audrey Chanlon, Hatem Bedoui, and Bernard Fleiter carefully analyze the validity and the reliability of different commonly used tests for establishing a clinical diagnosis of TMD.

What attitude should we adopt in dealing with emergencies visits from patients whose jaws have locked in an open or a closed position or who are suffering from muscular or joint pain that had suddenly afflicted them? Olivier Laplanche, Pierre Pedeutour, Gerard Duminil, and Elodie Hermann describe the means of diagnosing TMD and prudent, appropriate, and swift treatment of rapid onset dysfunctions of the masticatory apparatus.

The consensus of the data published in the current literature indicates the first approach to TMD treatment should be primarily conservative and reversible and include exercise therapy , The editorial committee of the Revue d'ODF has asked us to present the theoretical and clinical elements so that our readers will get an understanding of the why, the when, and the how of this therapeutic modality.

After having been considered for many years by most practitioners to be the principal cause of TMD, occlusion has now been relegated by a consensus of scientific judgment to a minor role in its multi-factorial etiological complex. Lorraine Belotte-Laupie, Millewa Sayagh, and Armelle Manière-Ezvan present the conclusions they derived from a systematic review of the literature since 2000 devoted to the relationship that may exist between TMD and malocclusion.

Orthodontic treatment aims at a global rehabilitation of occlusion, one of whose objectives is achieving optimized function. The final stage of orthodontic treatment, the fine detailing of occlusion is difficult, complex, and crucial. Danielle Deroze and Jean Lacout outline keys to the concept of elasto-positioning, which is based primarily on a deeply considered and codified notion of individualization. The therapeutic tools associated with the scheme, an Elasto-finisher and an Elasto-aligner, aid in reconciling the sometimes-conflicting demands of ''the variability of human biological diversity, the organization of the dental arches, and the individual dental morphology during orthodontic treatment.''

Who among us has not had a ''plague day'' at the office struggling to find readable occlusal contact points with articulating paper? Daniel,

Sophie, and Georges Rozencweig explain in admirably rigorous terms, clarity, and good humor how to deal with the loss of marking power possessed by articulating paper stored in the open air of the office.

Finally, this issue continues the established *Revue d'ODF/JDAO* policy of publishing the eagerly awaited and instructive rubrics that constitute a connecting link between successive issues of the publication. This time the rubric *Clinical Cases* presents the records of the treatment of a severe Class III malocclusion by Mourad Sebbar and Lachen Ousehal.

We hope that our readers will find this special issue on ''Orthodontics and TMD'' to be source of up-to-date and practical information that will help them to ease the suffering of patients afflicted with TMD by soothing their pain and helping them to regain comfortable functioning of their masticatory apparatuses.

Happy and productive reading to all.