

Comments on the article by P.J. Gugny (The orthodontic surgical treatment of dentofacial anomalies. *Rev Orthop Dento Faciale* Volume 4, number 3, July 1970) and the conversation between Dr. Muller and Dr. Delaire (Brest dental journals, 1968)

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I carefully read this article by our colleague Dr. Gugny and the minutes of the conversation between Dr. Muller and Prof. Delaire, both of which are great teaching tools for anyone wishing to broaden their vision on how to manage dentomaxillary dysmorphisms (DMD). These articles date back to 1970, and it is interesting to note the fundamentals of modern orthodontic surgical protocols were already in practice at that time.

The indispensable collaboration between the orthodontist and the surgeon was in its infancy in France, and as C. Duchateau pointed out in his introduction of the conversation: "*It is extremely rare for one to listen to the other ...*" However, this collaboration was first initiated in the United States by Wilray Blair (a surgeon) and Edward Angle (an orthodontist) in St Louis,

Missouri, at the end of the 19th century⁵. In France it first happened during the annual 54th conference of the French Society of Dento-facial Orthopedics (1981), titled "The orthodontist meets the surgeon." It was here that the respective roles of the surgeon and orthodontist were defined in the management of DMD. The very title of this conference shows the need for techniques where the techniques of the surgeon and the orthodontist overlap, and both had been developing techniques and strategies so that one could work without the other... Time has fortunately done its work and the close collaboration of surgeon and orthodontist is currently the gold standard in DMD management, with each being aware of what the other can bring to ensure the quality and stability of treatment to their patients².

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There are still “gray” areas when it comes to treating these dysmorphisms, and the introduction of the conversation also states that *“therapeutic boundaries are not yet well defined...”*

In just over 45 years, little progress has been made in this area because this essential distinction between dentoalveolar anomalies (accessible to orthodontic therapeutics) and basal cranial anomalies (which only osteotomies can correct) was already established. Similarly, this fundamental notion of a dual functional and esthetic objective was already present in 1970, even if the author (P.J. Gugny) notes that *“the improvement of the esthetics will then have to be given priority...”* in case of a significant anomaly. At present, no esthetic or functional compromise is preferable the evolution of surgical and orthodontic techniques, which makes it possible to treat virtually any dysmorphism, no matter how severe. Lastly, the notion of “orofacial functions,” the main theme of the National Congress of Maxillofacial Surgery in 2016, was also touched upon in 1968 and as Professor Delaire opportunely said *“that it is appropriate to assign the most importance to basal shift, teloradiographic analysis and the study muscular function.”* The role of orofacial dysfunctions (swallowing, respiration, lingual dyspraxia, etc.) no longer needs to be demonstrated in the genesis, perpetuation, and recurrence of dental dysmorphisms.

Naturally, in the field of surgical techniques, these articles and comments from 1970 are now “dated.” Sagittal osteotomy of the mandibular ramuses, which is currently the reference intervention in the field of

mandibular dysmorphisms, had been described by Hugo Obwegeser only a few years earlier (1955) and its use remains anecdotal. As for the LeFort I osteotomy, it was almost unheard of in 1970 after the first publication of a series of maxillary osteotomies such as those currently practiced currently date from 1969³. Previously, only the “Guerin therapeutic fracture” made maxillary advancement possible, and Prof. Delaire described this technique at the time as *“indisputably difficult and uncertain.”* Therefore, mandibular prognathism was almost always corrected using various mandibular recoil techniques, such as subcondylar osteotomies and angular osteotomies. The oral volume available for the tongue was therefore systematically reduced, and this was the time when glossectomies and tongue reductions were performed. It was the anatomical work of W.H. Bell on the vascularization of the maxilla, which, during the 1970s, which made the LeFort I osteotomy the cornerstone of correcting Class-III dentoskeletal anomalies¹. The gain was twofold. Functional gain: on the one hand, by increasing the oral volume available in Class-III cases, making the various glossectomies and tongue reductions, which were performed regularly, obsolete. Esthetic gain: on the other hand, for the increase of the volume of the mediofacial area, which is effective in for correcting the esthetic stigma in Class-III cases. The evolution of osteosynthesis is the greatest change in the last 40 years in the field of maxillofacial surgery. Wire fixation of the osteotomy sites made it necessary to add bone grafts (preferably autologous) providing osteoinductive factors, as well as the prescription of

a rigid postoperative maxillomandibular blockade for several weeks. The introduction of metal plates and miniaturized and titanium screws in the late 1970s was a real revolution in terms of stability, reliability, and speed of orthodontic surgical procedures⁴.

Finally, some of the authors' comments are surprising and have not stood the test of time! For example, when P. J. Gugny states that *"The surgical-orthodontic solution, as for it, often requires only a few weeks of rigid immobilization, and the complete process can be completed in a few months."* The current standard would be >18–24 months for an orthodontic procedure, followed by a lifetime of retainer use. To say that *"The modern operative techniques can avoid injury to the inferior alveolar nerve;"* few surgeons would dare to say such a thing today, probably because of the risk of litigation.

In conclusion, it must be recognized that what our masters "mastered" at the start of the 1970's is the basis of what makes a modern orthodontic surgical procedure good: good collaboration between practitioners, awareness of the importance of orofacial functions, and striving for the dual objectives of function and esthetics. In the very specific field of orthognathic surgery, advances in computer science and imaging—which are integral to clinical practice in other fields of medicine—are nothing compared to the revolution brought about by rigid and semi-rigid titanium osteosynthesis, the veritable spark which launched the widespread use of orthognathic surgery around the world.

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