DTMEA introduces 'Ortho Tribune' section

Non-extraction treatment of adult skeletal Class III maloclusion

The patient was male, aged 24 years and was initially classified as needing orthognathic surgery, but he and his parents wanted to avoid that. The Class III malocclusion was corrected by non-extraction orthodontic treatment with fixed appliance only. Class I molar and canine relationships were achieved, and the facial profile improved substantially.

This case report describes the non-surgical, non-extraction treatment of a 24 years-old male with a skeletal Class III malocclusion, a prognathic mandible and retrusive maxilla. He was initially classified as needing orthognathic surgery, but he and his parents wanted to avoid that. The Class III malocclusion was corrected by non-extraction orthodontic treatment with fixed appliance only. Class I molar and canine relationships were achieved, and the facial profile improved substantially.

Class III malocclusions are usually growth-related discrepancies that often become more severe until growth is complete.1 Facial changes can influence a patient’s self-confidence and interpersonal relationships.1 2 In adults orthognathic surgery is the most effective treatment.2 Correction of Class III without surgery can be challenging.3 Therefore the purpose of this article was to describe the nonsurgical treatment of a patient with Class III dental and skeletal relationship.

Diagnosis and etiology

The patient was male, aged 24 years and 5 months, whose chief complaint was the overlapping upper anterior teeth. He had Class III canine and molar relationships on both sides, 3 mm negative overjet, 5 mm negative overbite, bilateral cross bite with both maxillary and mandibular midline coincident to the midsagittal plane, unilateral posterior cross bite at the area of the right premolars, upper dental arch had about 5 mm crowding and lower dental arch had 3 mm spacing (Fig 1). Cephalometrically, there was a Class III jaw relationship and increase vertical facial height (fig 2). He was in good health and his medical history showed no contraindications to orthodontic therapy.

Treatment objectives

Treatment objectives included correction of the posterior and anterior crossbites, improvement of dentoalveolar and maxillo-mandibular relationships, improvement of facial esthetics and establishment of a stable occlusion and better smile.

Treatment alternatives

Three treatment options were suggested to the patient. The first alternative consisted of combined surgical and orthodontic treatment with a high LeFort procedure and mandibular osteotomy to improve skeletal and facial appearance. The second consisted of maxillary expansion and extraction of the mandibular first premolars with the maxillary second premolars. Ties would correct the Class III dental relationship, but it also involves retraction of mandibular incisors without protrusion of the maxillary incisors; this was thought to be unsatisfactory for this patient’s retruded maxilla. The other treatment alternative was a non-extraction orthodontic approach with maxillary expansion and protraction of upper anterior segment. The patient did not want orthognathic surgery or teeth extractions. Therefore, he chose this non-extraction orthodontic treatment.

Treatment progress

Treatment began with placement of fixed posterior composite bite plate at the area of second molars both sides, fixed pre-adjusted appliances (0.022 in slots) were placed on maxillary teeth, leveling and alignment progressed up to rectangular 0.019×0.025 stainless steel arch wire with posterior stops for the wire and extension a head from anterior teeth then ligated to them, this initial phase of treatment lasts for 5 months (Fig 3). After, fixed appliances were placed on mandibular teeth and Class III elastics were used for 3 months to aid in correcting the anterior cross bite (Fig4). The second molars were not included in bracketing to prevent molar extrusion; this could have caused more downward mandibular rotation. After correction of the cross bite and creation of a class I occlusion, detailing and finishing were undertaken. The total active treatment time was 11 months. Pa-
tient compliance was good. For retention, fixed upper and lower retainers plus Essix retainer during sleeping.

**Treatment results**

The post treatment extradental photographs show general improvement in the facial profile. The post treatment intraoral photographs show satisfactory dental alignment. Class I canine and molar relationships (Fig 5). There was significant improvement in the maxillomandibular relationship as Cephahometically shown by changes in the ANB angle, Wits appraisal and overjet. The maxillary arch moved forward and the mandibular had a slight backward rotation. The superimposition shows an increase in lower anterior facial height with opening of the mandibular plane angle. The maxillary incisors had labial proclination and the mandibular incisors were retruded lingually (Fig 6). At the end of treatment, a normal morphologic and functional occlusion was obtained, with anterior guidance on lateral excursion and protrusion. Class I molar and canine relationships were obtained on both sides. The good interdental relationship also provided a well-balanced facial profile with lip competence.

**Discussion**

The treatment objectives were attained with the non-extraction treatment protocol. Obviously, the results reflect the effects of not only the protrusion of upper anterior teeth but also the Class III elastics. The occlusal and facial results were good, and the patient was satisfied. The upper lip protrusion consequent to protrusion of the soft tissue over jet that had to be corrected. The use of Class III elastics also can cause backward and downward mandibular rotation. Backward mandibular rotation is favorable to correct Class III malocclusion, because it makes the mandible appear less prognathic and contributes to improvement in the facial profile. 4

**Conclusions**

Successful occlusal and esthetic correction of a Class III malocclusion in the permanent dentition can be accomplished with protrusion of upper anterior teeth and Class III intermaxillary elastics when the patient compliance in wearing the elastics is satisfactory. Once the correction is successful, active retention and Annual follow up are essential.

**References**


**Contact Information**

Dr. Khaled Abouseada, BDS, MS, Orthodontist, who is involved in private practice in Saudi Arabia, Bahrain and Egypt plus teaching orthodontic in BMC and SAMAT. He graduated from Alexandria University in 1993, Fellow of the World Federation of orthodontics and member in multiple regional and international orthodontic associations. Dr. Khaled has to his credit of teaching in National and international journals. He has lectured at many international and national dental and orthodontic forums. Winner of I Love MY DENTIST AWARD 2010 and 2011 and short listed winner of best orthodontic case award in MENA area 2010 and 2011. Being the proud holder of 4 international certifi-
cations in different CAD CAM aligners systems and also practicing CAD CAM lingual and labial orthodontics he is also a certified trainer for CAD CAM aligners; these years of practice make him one of the most experienced doctors in the continent to have practiced orthodontic CAD/CAM therapy.

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**Orthodontics has evolved dramatically during the past ten years**

By Dr. Khaled Abouseada

We are in for a real treat today. I have the honor to introduce our guest who has been the driving force behind Orthodontic practice for many years. He is the person who knows the whole history of how we got to where we are today: the stories, the challenges and the little known secrets. Not only that but he’s a remarkably professional lecturer, a Visiting Professor who has extensively profounl in giving lectures and courses all over the world spe-
cifically in the United States, Europe, Middle East and North Africa. Based on his knowledge and enthusiasm, he is eminently qualified to speak to us today about himself and his scientific experience. Please join me in giving a very warm welcome to Professor Joseph Bousheral.

Dr. Joseph Bousheral is Professor in the Department of Orthodontics at Saint Joseph University and maintains a private orthodontic practice in Beirut. He was former Head and Director of the Program (1995-2010) and President of the Lebanese and Arab Orthodontic Societies. Actually, he is a Research Associate at the University of Toulouse, a Member of the Executive Committee of the World Federation of Orthodontists, an Affiliate Member of the Angle Society of Orthodontists, East Component and a Fellow of the Tweed Foundation for Orthodontic Education and Research. He earned a Doctor in Dental Surgery Degree from Saint-Joseph University, a Master Degree in Orthodontics from the University of Louvain, a Continuing Education Diploma in Orthodontics from the University of Southern California, a Diploma of Specialist in Lingual Orthodontics from the University of Paris VII, a Diploma in 3D Imaging and a Diploma in Dental Clinical Research from the University of Toulouse. He is a PhD candidate at the University of Li ge in Belgium. I am also delighted to mention that in addi-
tion to all the above-mentioned achievements, he also published articles in local and international journals and successfully conducted many research projects leading to a master or PhD degrees. His main inter-
ests are Vertical Dimension Control, Treat-
ment of Asymmetries, Adult Orthodontics, Transverse Dimension, Mini-implants and 3D Imaging. You chose orthodontics as your first pref-
erence, how did take such a decision?

When I was at my 4th year in the dental school at Saint-Joseph University, we open our undergraduate orthodontic teach-
ing with Professor Peter Riscalah, founder of the department and the Lebanese Orthodontic Society, who was a highly culti-
vated man, eager to teach and multitalent-
ed, and later on with Professor Far s Abou Obeid who was so communicative, humble and open-minded. Both teachers get me to know this discipline and to be attached to it. How far would you expect yourself to con-
tribute to this profession?

In general, a contribution could be in an academic direction through clinical teaching and research or in a professional one by integrating local, regional or international orthodontic organizations. My contribu-

**By Dr. Khaled Abouseada**
was more academic at the beginning and than I integrated the professional channel. Due to the increase of the amount of work in both directions, I was obliged to become more selective in my teaching and more research oriented. I tried to limit my professional contribution to my position as a member of the Executive Committee of the World Federation of Orthodontists representing the Middle East and Africa. You are asking me "How far?" You know in line. This evolution has traced a border between orthodontists before 2000 who haven’t followed it and orthodontists after 2000 who have got the possibility to do it. "We can’t treat our patients in 2012 with an orthodontic department as Head and/or Program Director.

What would you describe your knowledge of current technology and procedures?

I finished my orthodontic specialty in 1986 and learned the main different techniques at that time. Then I was useful in the mentorship to help me to treat my patients till 2010 when new technologies emerged and obliged me to develop myself in different new areas: I followed two courses about mini-implants and obtained a diploma in Lingual Orthodontics from Paris VII University, a diploma in Dental Clinical Research and another one in imaging from Toulouse University. These scientific acquisitions helped me to level myself with all new technologies and procedures and to develop...
The “Apple” of the implant market

The Swiss company, TRI Dental Implants Int. AG, was founded in 2010. The IDS 2011 marked its first “public appearance”. So what do these three letters stand for, what similarities are there to Apple and what can the dental market expect from TRI Dental Implants? The company’s CEO, Tobias Richter, provided us with interesting answers to these and other questions.

Dental implant Tribune

D I: Mr. Richter, which product did you present to start off with?

Tobias Richter: At the heart of the product portfolio is the TRI® Performance Concept, with its independent product properties Zirconia Blast Media implant surface (ZBM), TRI BoneAdapt implant design, TRI Friction implant connection and TRI Soft Tissue concept. We are convinced that, with this, we have successfully fulfilled the fundamental modern demands made of implantology today in a holistic implant system. This technology is integrated in the product lines TRI® Vent Dent implant System (with the diameters 3.7 / 4.1 / 4.7 mm) and TRI® Narrow Dent implant System (3.3 mm). In addition, we also offer a very streamlined and innovative surgical kit with an intelligent drill stop system. These core systems are complemented with additional implant product lines (angled screw-retained abutments for all-on-four restorations) as well as navigational systems (angled screw-retained abutments for all-on-four restorations) as well as navigational.

For us, it was essential that we created the most efficient and flexible implant system possible, the “Apple of the implant industry” so to speak. Our implant system comprises a total of just 180 implant components which represents a more than 50% reduction in components compared to conventional systems. The key factor behind our success lies in the fact that we only have one implant connection and thus the number of components is reduced to an absolute minimum. This equates to a minimization both of storage costs at practices and application errors when assisting.

D II: How has the company developed since its foundation?

TRI: We now employ a total of 50 members of staff. In the direct markets we have a 30-strong sales team and, via our distributors, are already represented in 11 countries with our products. What’s more, we are currently involved in negotiations aimed at expanding our international activities further. We opened our international distribution and service centre in Freiburg on 1 April in order to cope with the high level of demand through efficient and centralised order processing.

D II: What does the corporate structure look like?

TRI: We need to keep our company as streamlined and efficient as possible so as to be able to offer our partners and customers the best possible value for money. This is why we decided to base our headquarters, with management and development strategy for the international business, in the heart of Switzerland. The proximity to our Swiss production centres was the decisive factor behind this move. Our central international distribution and service centre, on the other hand, is located within the EU, in Freiburg. This enables maximum proximity to customers, speed and cost awareness. Our strictly lean-structured corporate structure is based on cooperation with the dedicated sales teams in the main markets of Germany and Italy which is managed directly from Switzerland. Other international markets are handled by experienced and professional distribution partners in Europe, Asia and South America. The complete corporate structure is subject to a modern corporate planning system (ERP) which coherently links process steps without the need for knots. Also, from registration of the order through accounting to delivery of the products.

D II: Which renowned practitioners and clinics were involved in the development of your products?

TRI: We developed the Performance Concept and the TRI® Dental Implant System in close cooperation with a group of leading experts, whereby Dr. Markus Steigmann (Institut Steigmann) was the decisive driving force. When developing the implant system, the main focus was on launching a user-friendly solution onto the market. Other international experts and study partners of the TRI Dental Implant System include Dr. Paolo Tresi (Italy), Dr. Wolff-Ulrich Mehmeke (Germany), Dr. Giulio Raspichini (Italy), Dr. Hom-Lay Wang (USA) as well as Dr. Alberto Rebaudi and Dr. Marco Esposito (Italy).

D II: What does TRI stand for: Tobias Richter Implant or, rather, “Through Research Innovative”?

TRI: The identical abbreviation is a pleasant coincidence. “TRI” actually stands for “Through Research Innovative”, a slogan which was developed by a group of leading experts with one common objective, namely the merging of the latest clinical findings and know-how from implant research to develop a performance-oriented and easy-to-use implantology concept. Our scientific consultant, Dr. Markus Steigmann, phrased this as follows: “The TRI project goal was to combine practical experience with the latest implant research to produce an enhanced performance-oriented implant concept. A concept that respects both the hard and soft tissue parameters and which also ensures maximum primary and secondary stability.”

D II: You are not an unknown entity on the implant scene. How much of Tobias Richter is there in TRI?

TRI: As a founding member, I have inevitably been involved in shaping the company’s profile. Yet at the heart of our success is the radical product philosophy of producing an extremely streamlined and, at the same time, flexible implant system which is able to satisfy the latest findings from implant research. In this regard, thanks must be given to the developers and pioneering opinion leaders.

D II: What is the target group for your system – newcomers or experienced practitioners?

TRI: Given our size, we are currently not able to comprehensively support newcomers entering this market. We focus on experienced implant practitioners who, in addition to their current “premium” implant system, are looking for a substantial system in the low price segment in order to accommodate the needs of more price-conscious patient groups. It is our experience that practitioners can indeed see the price pressure on the market but, at present, can only find very few sustainable alternative products priced at less than € 150 per implant.

D II: With each year the implant market is becoming increasingly more competitive. What is the key difference between TRI and your competitors?

TRI: I completely agree with you that there appears to be a surplus of implant companies. However, we have examined the market carefully and established that the companies are either positioned in the premium segment or in the low budget segment where the emphasis is on price. We are committed to striking a balance between these two extremes: We set great store by sustainability, quality and service and, at the same time, still offer attractive prices. This policy can be summed up as “Peak performance at the right price”. This is possible thanks to our very slim corporate and costs structures. We believe we have a great chance of achieving sustainable differentiation with the right team and our Swiss roots.

D II: Mr. Richter, in concrete terms what do you offer your customers?

TRI: Our customers are able to purchase our products from well-trained sales partners whose numbers we are successively developing. We can also be contacted directly via our online shop and, through European wide hotline which can be called daily on 0800 3313 3313. With the opening of the new service centre in Germany, we have created the ideal framework conditions for ensuring ongoing expert support through further training. We offer online webinars in order to reduce travel costs, keep content up-to-date and, nevertheless, guarantee that participants feel personally connected to the training offered.

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