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Case report: orthodontic management of patient with multiple missing teeth and canine substitution.

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Abstract:
Background*: The selection of the treatment protocol for a patient with multiple dental agenesis will depend on many factors, being relevant the number of missing teeth, the age and economic solvency of the patient.*
Case Report*: A 14 year old male patient was taken to the Orthodontics Department of the Autonomous University of Baja California (UABC), Mexico, asking for orthodontic treatment. Taking in considerationthe results of the different established analyses, a skeletal class II was diagnosed. The replacement of lateral incisors with canines, as well as rehabilitation with implants, is a treatment aimed at restoring both functionality and esthetics in patients with dental agenesis and should be treated by an interdisciplinary team.*
Results*:* Dental class I is achieved, lip competence, facial harmony, class I molar relationships, and the patient satisfaction.
Conclusion: *Canine replacement and dental implants can be used effectively in the treatment of multiple congenital absences. Both treatment options have remained stable in the patient presented here, without causing periodontal alterations or dysfunction in the temporomandibular joint.*
Key Word*:Orthodontic, Agenesis, Canine substitution.*

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I. Introduction

The congenital absence of some dental organs is an anomaly that, with the passage of time, has been increasing in frequency, being observed with greater regularity in patients in clinical practice.[1] The treatment of patients with dental agenesis is aimed at restoring both functionality and esthetics and should be carried out by an interdisciplinary team.

Dental agenesis is the most common anomaly of dental development. The term dental agenesis is used to describe both congenital dental absence due to a variety of syndromes, as well as missing or absent teeth that have a genetic but not a syndromic cause.[2]

The absence of dental organs can occur in any dental arch, with greater repercussion on the permanent dentition. The condition of dental agenesis seems to be more frequent in the last teeth of each group, being these the lateral incisors, second premolars and third molars, being rare the absence of canines. The dental organ with the highest prevalence of agenesis is the lower third molar, with the lower second premolars being the next most frequent, followed by the maxillary lateral incisors. Agenesis generates both esthetic and functional problems, so its detection during primary or mixed dentition helps to make a good therapeutic planning to successfully correct this problem.[3]

It is generally reported that the prevalence of agenesis in the permanent dentition increases with time and varies between 1.6% and 36.5% depending on the population investigated. In Latin America, it has been shown that the frequency of dental agenesis oscillates around 5.75% of the population, excluding the third molar, affecting more women than men. The most common missing tooth is the lower second premolar followed by the upper lateral incisors. Bilateral agenesis is frequently seen in upper lateral incisors, while unilateral agenesis is more frequently seen in the lower second premolars [4].

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Class III Surgical Patient with Conventional Management

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Abstract
Introduction:*The treatment of class III malocclusion in adults can be approached from dental camouflage to interdisciplinary surgical treatment. The selection of treatment will depend on the severity of the maxillary-mandibular bone discrepancy and symptomatology of TMJ problems.* ***Case Report:*** *A 19-year-old female patient shows up at the campus of the Autonomous University of Baja California (UABC) Tijuana, México requesting orthodontic treatment.* ***Diagnosis:*** *At the extraoral inspection, mandibular prognathism and TMJ pain, intraoral retroclination of lower incisors and proclination of the superior incisors are observed.* ***Treatment:*** *The orthodontic treatment of choice was to prepare the patient for the orthographic surgery, always having an interdisciplinary approach from the beginning with the maxillofacial surgeon.* ***Result:*** *The objectives set from the beginning were achieved, the TMJ problem was eliminated improving the masticatory functionality and the patient's facial appearance.* ***Conclusion:*** *The success of the treatment of this type of patients depended on the correct diagnosis, as well as the interdisciplinary approach.*

Keywords:*class III malocclusion, orthognathic surgery, mandibular prognathism.*

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I. Introduction

Class III malocclusion was defined by Edward H. Angle for the first time in the year 1889, as one in which the lower molar is located mesially in relation to the upper molar and the alignment (or lack thereof) of the teeth with reference to the occlusion line[1,2]. Over time this definition was acquiring certain modifications, including data that were discovered as the relationship of the jaw with the maxilla and its growth pattern; therefore, in a mandibular class III relationship, it is in a more mesial location in relation to the maxilla and / or the cranial base[2]. These malocclusions when they occur severely can alter or compromise the patient's state of health, causing for example speech disorders, masticatory dysfunction, poor oral hygiene, even a temporomandibular joint dysfunction, that is why the orthodontist must be able to diagnose and plan a treatment to treat the patient correctly[3].

Within the diagnosis, the etiology of the malocclusion must be recognized, which is multifactorial (genes, ethnicity, environmental, habits, etc.), producing both skeletal and dental physiological compensation components, presented individually or in combination, which will be characterized by a mandibular prognathism, a maxillary retrognathism, retrusive mandibular incisors and protrusive maxillary incisors[4]. Producing in this way in some occasions a molar relationship class I but with a skeletal pattern class III[2]. For a final and definitive diagnosis of a class III malocclusion we could rely on the following points:

- Presence or absence of a habitual predisposition.
- Cephalometer parameters, which include a decrease in ANS, negative ANB, mandibular length.
- Incisal relationship.

Once the diagnosis is established, it is necessary to carry out the patient's treatment plan, always taking into account the stage of facial skull development of the patient or if it is over and it is an adult patient[1]. If we include the therapeutic methods of this type of malocclusion we find orthopedic devices either introral (modified Bionator III, Frankel III, etc.) or extraoral (facial mask, etc.) that will help us to an early modification of growth; dental compensation or orthodontic-surgical treatment in patients whose growth has ended (adults)[3].

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Clinical Case Report of a Class Ll Patient Treated With Pre-Orthodontic Treatment Occlusal Guard

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Abstract
Temporomandibular disorders are a group of clinical problems, the origin can be of a muscular nature or by involvement of the joint complex. In some of the cases, the skeletal class ll patients present signs and symptoms in the Temporomandibular Joint, because in this type of patients the condyle presents an advanced position regard to the articular fossa. It is vitally important to correctly diagnose the presented disorder in order to give a correct treatment and end the patient's discomfort. This article shows the clinical case of a patient who was treated with two phases, the first with a dental guard and second with orthodontic treatment.
Key words: *Class ll, occlusal guard, Temporomandibular disorders.*

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I. Introduction

There are different classifications of skeletal biotypes, which are classes l, ll, lll. Each of them has its own structural characteristics as the result of genetic expression [1].

Class I: Exposes a normal relationship between the maxilla and the mandible, regularly has a straight or slightly curved profile.
Class II: Exposes a distal relationship of the mandible with respect to the maxilla, regularly has a convex profile and may or may not present a protruding maxilla with respect to the skull.
Class III: It shows a mesial relationship of the mandible with respect to the maxilla, presents a concave profile and may or may not have a protruding maxilla with respect to the skull.

The classification of malocclusions is different, according to Angle it is also divided into classes I, II and III. Where describes class ll with the lower molar located distally in relation to the upper molar, unspecified occlusion line.

Malocclusions occur due to hereditary or genetic factors, such as the presence of a syndrome and environmental factors such as habits, trauma or diseases [2]. The etiology is difficult to classify, since it is often multifactorial [3].

There are etiological factors that influence one type of malocclusion more than another; those that generate and contribute to class II malocclusion are different from those that cause class III. Therefore, identifying the type of malocclusion and skeletal class that the patient presents is essential to choose the best treatment to follow.

Temporomandibular disorders (TMD) are a set of clinical problems [8] and according to the American Academy of Orofacial Pain they are divided into two: [4]

1. Disorders of Origin (myogenic)
In their pure form they lack destructive TMJ changes and are generally the result of overload, fatigue or muscle tension causing limitation of opening and pain.

2. Joint Disorders (Arthrogenic)
They usually result from inflammation, disease, or degeneration of the soft or hard tissues of the TMJ. The most common disorders are: capsulitis, synovitis, dislocation of the disc and degenerative arthritis.

Corrección de maloclusión clase II mediante el uso del aparato de reposicionamiento anterior mandibular.

Cerrillo Lara Daniel, García Landín Lorena, García Nava Ruth

Resumen

Este artículo presenta un caso clínico en el cual se utilizó el aparato de reposicionamiento anterior mandibular (MARA), el cual consiste un dispositivo fijo indicado en pacientes con maloclusión Clase II (esquelética y / o dental); que colocado en edades tempranas logra obtener resultados excelentes a la vez que reduce la necesidad de extracción y/o la cirugía ortognática en el futuro.[1] Objetivo. Mostrar los resultados obtenidos en un paciente clase II esquelética debido a un maxilar protrusivo y con una clase II div. 1 dental, en el cual se utilizó el MARA para llevar a cabo la corrección de la maloclusión. Presentación del caso: Paciente de sexo masculino, de 9 años de edad, con diagnóstico de clase II esquelética debido a un maxilar protrusivo, perfil convexo, tipo de crecimiento normal, se trató con el aparato funcional(Mara)y aparatología fija ortodóncica después del uso de este. Conclusión. Se obtuvieron cambios favorables en las estructuras esqueléticas y dentales con el uso del aparato MARA, logrando una oclusión adecuada.

Palabras clave: Aparato de Reposicionamiento Anterior Mandibular, Maloclusión Clase II División I.

Abstract

This article presents a clinical case in which the Mandibular Anterior Repositioning Appliance (MARA) was used, which consists of a fixed device indicated in patients with Class II malocclusion (skeletal and / or dental); that placed at early ages achieves excellent results while reducing the need for extraction and / or orthognathic surgery in the future. [1] Objective. Show the results obtained in a skeletal class II patient due to a protrusive maxilla and dental class II div 1in which the MARA was used to carry out the correction of the malocclusion. Case presentation: Patient 9 years old male, diagnosed with skeletal class II due to a protrusive maxilla, convex profile, normal growth type, was treated with the functional apparatus (MARA) and orthodontic fixed appliances after use of this. Conclusion. Favorable changes were obtained in the skeletal and dental structures with the use of the MARA device, achieving an adequate occlusion.

Key words: Mandibular Anterior Repositioning Device, Class II Division I Malocclusion.

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Introducción

Un problema frecuente que se le presenta al ortodoncista es la corrección de la maloclusión clase II esqueletal. En el pasado la mayoría de las maloclusiones clase II fueron corregidas mediante procedimientos quirúrgicos, arcos extraorales, oelásticos. [1,2]

La distoclusión, Clase II (Según Angle), es la maloclusión en la que hay una relación distal del maxilar inferior respecto al superior. La nomenclatura de la clasificación de Angle enfatiza la ubicación distal de la mandíbula respecto al maxilar superior en la clase II, pero en muchos casos el maxilar superior es prognático, una morfología cráneo-facial muy diferente, pero que produce una relación molar similar y, por eso, la misma clasificación.[3] Se ubica exclusivamente en una relación sagital de los primeros molares permanentes, no valora otros planos de espacio (vertical y transversal), ni considera diferentes circunstancias etiopatogénicas, sino que se limita a clasificar la relación antero posterior anómala de los dientes maxilares con respecto a los mandibulares tomando como referencia a los primeros molares permanentes. La Clase II o distoclusión puede ser resultado una mandíbula retrógnata, de un maxilar prognata o una combinación de ambas.[4,5]

Existen diversos aparatos para tratar esta maloclusión, entre ellos se encuentra el Aparato de Reposicionamiento Anterior Mandibular (MARA), que fue creado en 1995 por los doctores Jim Eckhart y Douglas Toll con la ayuda de Ormco y AOA Laboratory. Este funciona bien con todos los tipos diferentes de problemas dentales y esqueléticos de Clase II, especialmente casos de clase II braquifaciales con mordida profunda. Sin embargo, los casos con ángulo abierto pueden presentar más aumento vertical de la cara a medida que se corrige la Clase II, pero existen medidas para evitarlo como usar tracción cervical por la noche.[2]

Indicaciones para el tratamiento con el MARA: Cuando el maxilar está en buena posición y se quiere avanzar la mandíbula (niños). Para inhibir el crecimiento anterior maxilar y producir un aumento en la longitud mandibular. Recapturar un disco desplazado. Casos de adultos, cuando la cirugía de la mandíbula no es una opción, y se necesita la corrección a la clase II. El resultado es principalmente dental, sin embargoen algunos casos puede ocurrir la migración mesial del cóndilo en la fosa. [4]

El MARA funciona de manera similar al Herbst ya que posiciona la mandíbula hacia delante a manera de permitir que el crecimiento condilar y la remodelación de la articulación temporomandibular nos lleve a una oclusión clase I.[6] Un MARA básico consta de: Cuatro coronas o bandas con tubos soldados para los primeros molares, arco transpalatino superior soldados

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Correction of Class II maloclusion with the pendulum appliance. Report of a case.

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Abstract
Introduction*: Different devices allow the correction of class II malocclusion, taking into account the etiology of the problem. This report describes the orthodontic treatment in which the conventional pendulum-type device was used for the distalization of the upper molars, then the treatment with fixed appliances will continue.* ***Results****: The photographic and radiographic records show the distal movement of the upper molars. for the correction of class II malocclusion presented by the patient without compromise in the facial profile or long-term stability of the lower dental organs.* ***Conclusions****: the use of the pendulum-type device can be of great help for the correction of class II malocclusion as long as the secondary effects are controlled either during the use of fixed appliances or using bone anchorage.*

Keywords*: class II malocclusion, molar distalization, pendulum.*

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I. Introduction

The pendulum-type distalizer is indicated for the treatment of dental class II malocclusions in which no extractions will be performed during early or mixed permanent dentition. This device gives us dentoalveolar effects in a very short treatment time, in such a way that in three or four months it is possible to see the results of the distalization that is approximately five mm from the molars (1). That is why the distalization of the upper molars has been more popular in treatments without extractions, since it helps us in mild or moderate arch length discrepancies, having benefits in the sagittal plane (2).

There are different devices to resolve Class II malocclusion, these vary according to the growth pattern, etiological factor, age, and cooperation of the patient. Treatment can vary in the case of extractions or not, use of headgear, intermaxillary elastics, functional or mechanical orthopedic appliances, and fixed intraoral appliances (3). The cooperation of the patient can be crucial to achieving the success of the treatment, which is why they use of devices that require minimal cooperation should be the first choice (4).

For the correction of class II malocclusion with the use of distalizers, it is considered as the first phase of the treatment as is the case of the use of the pendulum and after this, fixed appliances are placed acting as a second phase and thus correcting the effects of the distalization as well as the malocclusion that the patient presented (5).

The movement of the molars occurs mainly due to distalization but is also associated with the loss of anchorage as well as the mesialization of the premolars and canines, giving a protrusion of the anterior segment. To achieve a stable occlusion, it is important to consider that the transverse dimension should not be affected since a decrease in the intercanine width may occur when using narrow arch forms (1).

Since the beginning of the Hilgers tooth-supported pendulum, modifications have been made to the size, position, and incorporation of the expansion screw of the palatal button, in the extensions for the premolars there can be two or four with the variant of being welded to bands or attached with resin to the occlusal surfaces and finally, the springs can have modifications in the number of loops, all this to improve their effectiveness in the treatment (6). There are alternatives to counteract the secondary effects that are obtained when using the pendulum with the occlusal supports in the premolars, such as the use of microscrews in the palatal region located parallel to the midline, to achieve maximum anchorage and avoid mesialization of the teeth premolars. (7)

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Caso Clínico

Distalización de molares con péndulo en paciente clase II y apiñamiento severo. Reporte de un caso

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RESUMEN

Introducción. Existen distintas alternativas de tratamiento de las maloclusiones de clase II esqueléticas y dentales, las cuales incluyen las extracciones de dientes permanentes o la distalización de los molares maxilares con aparatos extraorales e intraorales, que busca convertir una relación de distoclusión en una neutroclusión y solucionar el apiñamiento anterosuperior en las etapas iniciales del tratamiento ortodóntico. **Presentación del caso.** Facialmente se observa, perfil convexo, asimetría facial y competencia labial. Al análisis intraoral presenta clase II molar de Angle y clase canina indeterminada derecha e izquierda, debido a caninos ectópicos, sobremordida horizontal de 0 mm, sobremordida vertical del 30%, apiñamiento moderado. Cefalométricamente se diagnostica como clase II esquelética con mandíbula retraída, dientes superiores retroinclinados y anteriores inferiores proinclinados, y mentón poco prominente. **Discusión.** Los resultados obtenidos en este paciente plantean que el péndulo es eficaz en la distalización de primeros molares superiores, utilizándolo por 12 meses para obtener una sobrecorrección de la clase molar. **Conclusión.** El péndulo de Hilgers como aparato distalizador brinda a los especialistas en ortodoncia la posibilidad de ganar espacio, siendo conveniente, para los fines del tratamiento temprano, contribuyendo a la función oclusal a largo plazo.

Palabras clave: péndulo, distalización, maloclusion

ABSTRACT

Introduction. There are different treatment alternatives for skeletal and dental Class II malocclusions, which include extractions of permanent teeth or distalization of maxillary molars with extraoral and intraoral appliances. Maxillary molar distalization aims to convert a distoclusion relationship into a neutral occlusion and to resolve anterosuperior crowding in the initial stages of orthodontic treatment. Clinical case. **Case Presentation.** Facially the patient had a convex profile, facial asymmetry and lip competition. Intraoral analysis showed Angle molar class II and indeterminate right and left canine class, due to ectopic canines, horizontal overbite of 0 mm, vertical overbite of 30%, moderate crowding. Cephalometrically it is diagnosed as skeletal class II with a receding mandible, retroinclined upper teeth and proinclined lower anterior teeth, and a slightly protruding chin. **Discussion.** The results obtained in this patient show that the pendulum is effective in the distalization of upper first molars, using it for 12 months to obtain an overcorrection of the molar class. **Conclusion.** The Hilgers pendulum as a distalizing appliance offers orthodontic specialists the possibility of gaining space, being convenient for early treatment purposes, contributing to long-term occlusal function.

Keywords: pendulum, distalization, malocclusion.

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Expansión palatina rápida asistida con tornillos de anclaje óseo: reporte de caso clínico

Rapid palatal expansion assisted with bone anchor screws: a case report

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RESUMEN

Introducción: el correcto diagnóstico y manejo de problemas transversales en pacientes que han sobrepasado su pico de crecimiento conlleva una tarea compleja para el ortodoncista. Alternativas recientes de tratamientos no quirúrgicos como el MARPE (*microimplant-assisted rapid palatal expansion*), reducen el costo y los riesgos al paciente, obteniendo resultados clínicamente aceptables, así como estabilidad en la expansión maxilar. **Reporte de caso:** paciente masculino de 19 años de edad, diagnosticado con mordida cruzada por deficiencia transversal del maxilar y tratado ortopédicamente con MARPE anclado mediante cuatro tornillos bicorticales. **Conclusiones:** la tomografía computarizada pre y post MARPE muestra una apertura de la sutura media palatina de 8 mm, demostrando así que la aplicación de un MARPE puede lograr resultados exitosos en la expansión transversal del maxilar en un paciente que ha sobrepasado la edad típica aceptable para una expansión palatina tradicional.

Palabras clave: MARPE, deficiencia maxilar transversal, colapso maxilar, anclaje óseo.

ABSTRACT

Introduction: *the correct diagnosis and management of transversal problems in patients who have exceeded their growth peak entails a complex task for the orthodontist. Recent alternatives to non-surgical treatments such as MARPE (microimplant-assisted rapid palatal expansion), reduce the cost and risks of the patient and obtain clinically acceptable results and stability in maxillary expansion.* ***Case report:*** *19-year-old male patient, diagnosed with crossbite due to transverse maxillary deficiency and treated orthopedically with MARPE anchored by 4 bicortical screws.* ***Conclusions:*** *pre and post MARPE computed tomography shows an 8 mm mid palatal suture opening, thus demonstrating that the application of a MARPE can achieve successful results in the transverse expansion of the maxilla in a patient who has exceeded the typical acceptable age for a traditional palatal expansion.*

Key words: *MARPE, transverse maxillary deficiency, maxillary collapse, bone anchorage.*

INTRODUCCIÓN

En la práctica ortodóncica regularmente se observan pacientes con una deficiencia transversal del maxilar superior que, con un diagnóstico y tratamiento oportuno, puede ser corregida adecuadamente con una expansión palatina rápida convencional. Sin embargo, hay ocasiones en las que el paciente llega a tratamiento una vez que ha sobrepasado su pico de crecimiento y la sutura media palatina se encuentra totalmente osificada, dificultando la expansión del paladar mediante el

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Literature Review:Relationship between Radiotherapy and Orthodontics

Rubén D. Pérez, Jessica Quirarte, Josué Villegas, Daniel Cerrllo, Jorge Paredes-Vieyra

Abstract:*In Mexico, cancer is the third cause of death and according to estimates by the Union for International Cancer Control, each year more than 128,000 cases of Mexicans are added. Patients who have recovered from cancer, especially during childhood, have an association of dental complications such as caries, dental development abnormalities including agenesis, microdontia, short roots or enamel defects, which can occur in different stages of cancer or once the treatment is completed. In the ages when orthodontic treatment should start, between 5 and 14 years, it is shown that leukemia (26%), tumors of the central nervous system (27.8%) and lymphomas (17%) predominate among cancers. That is why the orthodontist must have communication not only with the patient and his parents but with the entire medical team.*

Keywords:*Cancer Effect · Radiotherapy · Orthodontic Care · Dentistry · Dental Effects*

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I. Introduction

The American Cancer Association estimates that 10,590 children under the age of 15 in the United States(Ritwik 2018) were diagnosed with cancer in 2018 and in France(Boyer et al. 2017) each year approximately 1,700 children under the age of 15 and 800 adolescents between 15 and 19 years of age are diagnosed with cancer. In Mexico, cancer is the third cause of death and according to estimates by the Union for International Cancer Control, more than 128,000 Mexican cases are added each year, although the International Agency for Research on Cancer raises this figure to 140,000.(SMeO 2016)

Patients can take different treatments such as chemotherapy, immunotherapy, radiotherapy, surgery and/or hematopoietic cell transplantation. Likewise, breast cancer is the second cause of cancer-related deaths in both developed and developing countries, due to advances in treatments in recent decades, the minimum 5-year survival rate is 83-90%.(Boyer et al. 2017; Willershausen et al. 2019)

Despite the fact that with advances in medicine there are still side effects to these treatments and the orthodontist can resolve some of them.

Patients who have recovered from cancer, especially during childhood, have an association of dental complications such as caries, dental development abnormalities including agenesis, microdontia, short roots or enamel defects, which can occur in different stages of cancer or once the treatment is completed.(Busenhart et al. 2018; Çetiner et al. 2019; Gawade et al. 2014; Javed et al. 2010; Ritwik 2018)

II. Materials And Methods

Studies from the last 10 years (2010 to 2020) were obtained to collect the information using the UABC (Autonomous University of Baja California) metasearch engine administered by EBSCO*host* in Spanish or English using the keywords of "chemotherapy and orthodontics or dentistry" and "quimioterapia AND ortodoncia OR odontología". Once compiled, analysis and writing of the current article began.

Pediatric and adolescent patients

Treatment at an early age shows to be associated with an increased risk of dental agenesis, xerostomia, microdontia, root changes and enamel hypoplasia.(Gawade et al. 2014; Ritwik 2018) The severity and intensity depend on the age of the patient and the dental stage of development at the time of chemotherapy.(Ritwik 2018)They can present other complications such as mucositis, infections, neurological, bleeding tendency and development of osteonecrosis.(López, Esteve, and Pérez 2011; Willershausen et al. 2019)

A Busenhart(Busenhart et al. 2018) meta-analysis collected 741 studies, only 16 were eligible to verify the adverse effects of chemotherapy in the mouth of children, the most common adverse effect showed to be agenesis, then in order was microdontia, premature apical closure, caries, high rates of dentobacterial plaque, enamel hypoplasia, modified root development, dental discoloration, reduced salivary capacity and increased *Streptococcus mutans* count.

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Management of Lateral Incisor Agenesis by Dental Substitution. Report of A Case.

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Resumen

La agenesia es una patología congénita que se caracteriza por la ausencia parcial o total del germen dentario de uno o varios órganos. El presente caso clínico muestra a paciente con ausencia congénita de incisivos laterales mandibulares tratada con cierre de espacios y sustitución canina, y extracciones de premolares maxilares.

Palabras clave: *agenesia, laterales, sustitución.*

Abstract

Agenesis is a congenital pathology characterized by the partial or total absence of the dental germ of one or more organs. The present clinical case shows a patient with congenital absence of mandibular lateral incisors, treated with space closure and canine replacement, and extractions of maxillary premolars.

Keywords: *agenesis, laterals, substitution.*

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I. Introduction

Agenesis is a congenital pathology characterized by the partial or total absence of the dental germ of one or more organs.(1) The etiological factor is multifactorial, whether due to artificial, genetic or pathological causes. (2)

Dental agenesis affects preferentially the permanent dentition and in the female sex, and the most affected area is the anterosuperior region. (3) The range of agenesis of permanent teeth, excluding third molars, varies from 1.6 to 9.6%, depending on the population studied. The maxillary lateral incisor is twice as likely to be absent as the mandibular lateral incisor, however there is a strong association between absence of the primary tooth and absence of the permanent successor(4).

The absence of one or more dental organs constitutes a problem both in esthetics and function, because if it is not treated it can trigger malocclusion, masticatory and periodontal problems. From the esthetic point of view it can develop self-esteem problems. The therapeutic options to solve this problem are divided into 2 groups: space closure, with the substitution of the lateral for the canine for its later characterization and; to conserve and/or open spaces to receive any type of rehabilitation. (5)(6)

This paper reports a clinical case of congenital absence of maxillary lateral incisors treated with space closure, canine substitution and characterization.

II. Description of the case.

Female patient 8 years old attends the Orthodontic specialty clinic of the Autonomous University of Baja California campus Tijuana, without systemic or allergic references that compromise the treatment to be performed. She presents apparent facial symmetry, lip incompetence, straight profile, non frank and low smile. (Figure 1)

Figure 1. Extraoral photographs.

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Caso Clínico

Manejo de canino impactado palatalmente mediante fuerzas ligeras.

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Pérez Vázquez José Luis, Ayllón Monteón Grelda Berenice.

Resumen

Una impactación dental es el órgano dentario que no ha erupcionado aun después de la formación completa de la raíz de esta existe evidencia radiográfica y clínica que no presenta posibilidad de erupción. Se presenta reporte de caso clínico de canino superior derecho impactado por palatino al cual se decidió exponerlo quirúrgicamente y traccionarlo mediante fuerzas ligeras. Es clave el diagnóstico temprano de un canino impactado y la tracción mediante fuerzas ligeras controladas a un vector de fuerza adecuado para un buen pronóstico de su incorporación al arco dentario y sin lesionar órganos dentarios adyacentes ni comprometer al órgano dentario traccionado.

Palabras claves: Impactado, canino, fuerzas ligeras.

Abstract

A dental impaction is the dental organ that has not erupted even after the complete formation of the root of this, there is radiographic and clinical evidence that there is no possibility of eruption. A clinical case report of a right upper canine impacted by the palatine is presented, to which it was decided to expose it surgically and pull it with light forces. Early diagnosis of an impacted canine and traction using light forces controlled to an adequate force vector are key for a good prognosis of its incorporation into the dental arch and without injuring adjacent dental organs or compromising the tracted dental organ.

Keywords: Impacted, canine, light forces.

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Introducción

La impactación dental se refiere al órgano dentario que no ha erupcionado aun después de la formación completa de la raíz de esta existe evidencia radiográfica y clínica de no tener la posibilidad de erupcionar.[1,2] La impactación más frecuente es la del tercer molar seguido del canino maxilar.[2-7] Esta relación puede variar de 3: 1 a 12: 1.[8,9] Entre las impactaciones caninas palatinas, el 92% tienden a ser unilaterales y solo el 8% tiene incidencia bilateral.[10] Existe una amplia variación entre las diferentes poblaciones, las repercusiones palatinas son más comunes en personas caucásicas, mientras que la raza asiática presenta impactaciones bucales,[11] respecto a género, las mujeres son más afectadas que los hombres.[12,13] Se presenta reporte de caso clínico de OD# 13 impactado por palatino el cual se decidió exponer quirúrgicamente y traccionar mediante fuerzas ligeras.

Descripción del caso

Paciente masculino de 11 años de edad acude a la Clínica de Especialidad de Ortodoncia en la Universidad Autónoma de Baja California, Facultad de Odontología, Campus Tijuana, no refiere datospatologicos ni alérgicos. Presenta facial aparente, perfil convexo sonrisa franca tipo alta-consonante (Figura 1).

Se observa dentición mixta, 25 órganos dentarios presentes en cavidad bucal, OD # 23 en proceso eruptivo, OD # 55, 65, 75 presentes, OD#53 con corona de acero-cromo, palato versión de OD#12, líneas medias dentales no coinciden, diastema presente entre OD#11 y 21, forma de arco superior e inferior elipsoidal. (Figura 2) OD# 13 con impactación en cuadrante 1 por palatino con buen pronóstico de acuerdo a la clasificación de Ericsson y Kurol. Clase II Esqueletal, crecimiento vertical con proclinaciones dentoalveolares superior e inferior. (Figura 3). Como objetivos se buscó integrar órgano dentario #13, mantener Clase I molar izquierda – derecha, lograr una oclusión funcional, armonizar arcadas, mantener salud periodontal y dental.

Se colocó aparatología fija roth slot 0.018" superior e inferior, se alineó y niveló con arcos NiTi 0.014" y NiTi 0.016x0.022" para continuar con la etapa de trabajo con arco 0.016x22 de acero inoxidable, se tomó radiografía oclusal de control (Figura 4) y extracción de OD# 53 (Figura 5. A), en conjunto con la intervención quirúrgica de O.D

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CASO CLÍNICO

Manejo ortodóncico de un paciente con maloclusión clase I con mordida cruzada anterior con crecimiento vertical y biprotrusión dental tratado sin extracciones

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RESUMEN

Este artículo informa sobre el diagnóstico de ortodoncia y la planificación del tratamiento de una paciente de 17 años con problemas estéticos y funcionales. Presentó maloclusión de Angle clase I, mordida cruzada anterior, doble protrusión incisiva e incompetencia labial, además de un perfil facial recto ligeramente cóncavo. Los objetivos fueron mantener el control vertical, mejorar la estética facial, eliminar el apiñamiento y corregir la mordida cruzada anterior. El tratamiento de ortodoncia no requirió extracciones. La mordida cruzada se corrigió mediante desgastes interproximales y fuerzas mecánicas a través de elásticos intermaxilares, lo que contribuyó a la alineación y nivelación de los dientes así como a mejorar el perfil facial de la paciente.

Palabras clave: Mordida cruzada anterior, desgaste interproximal, elásticos.

INTRODUCCIÓN

La decisión de realizar un tratamiento de ortodoncia con o sin extracciones de dientes sanos resulta complicado en muchas ocasiones. Dentro de los factores que contribuyen al proceso de toma de decisiones encontramos la cantidad de apiñamiento, el efecto pronosticado del tratamiento en la protrusión labial, cantidad de sobremordida y estado periodontal del paciente, entre otros.

La terapéutica de extracción o no extracción ha recibido mucha atención por parte del ortodoncista. En particular, el procedimiento de «no extracciones a cualquier costo» enunciado por Angle ha sido sustituido por «extracciones en caso necesario» propuesto por Case.[1] Hay distintos criterios que debe tener el ortodoncista para evitar un tratamiento con extracciones. Sin embargo, uno fundamental es que debe existir una relación maxilomandibular clase I, misma que facilita su tratamiento ortodóntico.[2] De igual manera, el análisis de perfil facial del paciente facilita el tratamiento ortodóntico. Conocer las distintas biomecánicas que tenemos a la mano para resolver casos que se encuentran en el límite (*borderline*) entre extracciones o no extracciones, nos ayudarán a ser ingeniosos a fin de adaptarlas a las necesidades del paciente. El uso del desgaste interproximal del esmalte es una excelente herramienta para liberar el espacio en casos de apiñamiento leve y corrección en la sobremordida borde a borde. La cantidad de desgaste está directamente relacionada con la cantidad de apiñamiento por resolver y sus indicaciones señalan remover en anteriores sólo 1 mm (0.5 mm por superficie proximal).[3-5]

El propósito de la presentación de este caso es mostrar el manejo ortodóncico de una paciente con mordida cruzada anterior con incremento del tercio inferior y biprotrusión tratado con desgaste interproximal.

CASO CLÍNICO

Para corregir la sobremordida se recurrió a la mecánica de elásticos intermaxilares. Un material esencial en el tratamiento con múltiples aplicaciones clínicas que inclu-

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Non-Surgical Orthodontic treatment of a patient with skeletal class lll malocclusion.

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Abstract:
Correction of skeletal class III malocclusion does not always require a Surgical treatment approach, nowadays several options can be offered to the patient in order to avoid surgery. Orthodontic camouflage can be used to correct skeletal class III malocclusion, for certain cases as long as biomechanics involved do not compromise long term stability and integrity of the dental and bone structures. The aim of the present article is to present the case report of an 11-year-old female patient with a horizontal grown pattern and with dental and skeletal class III malocclusion treated with orthodontic camouflage.

Key words: *Class lll, surgery, dental compensation*

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I. Introduction

Skeletal class III malocclusion can occur for different scenarios according to Hogeman and Sanborn: [1]

1. Maxilla in norm and protruded jaw
2. Retruded maxilla and normal jaw
3. Retruded maxilla and protruded jaw [1,5.]

According to Angle the "class III molar malocclusion occurs when the mesiobuccal cusp of the upper first molar occludes behind the mesiobuccal sulcus of the lower first molar"[1,10].

Early treatment in skeletal and / or dental class III patients returns balance and function to the stomatognathic system, thus facilitating corrective procedures and reducing the probability of performing extractions, providing psychological benefits and better development [4].

The following report describes a clinical case of a female patient treated with an orthodontic camouflage to avoid orthognathic surgery.

II. Materials And Methods

An 11-year-old female patient is admitted to the Orthodontic Postgraduate Clinic of the Universidad Autonoma de Baja California, Tijuana campus. The reason for consultation was "I don't bite well and I have crooked teeth"

Extraoral analysis: Mesomorphic patient, straight profile, obtuse nasolabial angle, obtuse mentolabial angle, asymmetrical face, lower third of the face increased with respect to the upper and middle, the dental midline does not coincide with the midline facial, shows 90% of the upper dental clinical crown when smiling (Figure 1)

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Orthodontic approach of a patient with dental fusion of lower incisors: Case report.

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Abstract:
Introduction: *Union dental anomalies include dental fusion, which arises through the union of two normally separate dental germs. Some authors suggest a multidisciplinary treatment in patients with fused teeth, performing root canal treatment and veneers. Treatment options depend on several factors, such as the type of anomalies; root development; age and compliance of the patient; and the morphology of the pulp chamber and the canal.*
Case report: *This report is about a case of dental fusion in lower incisors, treated orthodontically with first premolar extractions. The objectives were to improve the profile orthodontically, keeping the fused teeth to achieve dental harmony. Orthodontic treatment is performed on an 11-year-old female patient, using MBT slot 0.018 appliances, with extractions, transpalatal and lingual arch to maintain anchorage. Following the MBT protocol.*
Results: *The results were satisfactory both facial and dental, achieving the previously established objectives, such as Class l molar and canine relationship, keeping the fused incisors in a good position.*
Conclusion:*To decide the treatment, its clinical characteristics as well as the aesthetic and periodontal involvement must be taken into account. These can be successfully treated with a multidisciplinary team and achieve aesthetic and functional results.*
Keywords: *dental fusion, orthodontics, premolar extraction.*

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I. Introduction

Dental anomalies, like fusion, concrescence, and gemination, are considered congenital malformations caused by the lack or excess in the development of dental tissues; they're divided by their shape, number, size, and position; these can cause a delay in the replacement of the dentition and sometimes it can also cause a deficit in the development of the jaws[1,2]

Dental gemination and fusion are often confused. Dental fusion is the union of two contiguous tooth germs in the developmental process, determined by the union of two pulp chambers. If fusion occurs in the primary dentition, there may be a congenital absence of one of the successor's teeth. Dental gemination is described as an attempt to divide the tooth bud. In most cases, the division is incomplete and leaves a single root with a root canal. The differential diagnosis can be made based on clinical inspection, by counting the teeth of the arch, presenting in fusion a reduced number, while in gemination the amount is considered normal.[2]

The prevalence of dental fusion is 0.5% to 2.5% in primary dentition, with a lower prevalence in permanent dentition (0.1% to 1%). There are no differences in the incidence between the sexes. It occurs frequently in the lower incisors, althoughit generally affects upper incisors, either as a fusion of the central and lateral incisors or as the union of a normal incisor and a supernumerary lateral incisor. A predilection for localization in the anterior areas of the jaws has been demonstrated, affecting more often incisors and canines; and less commonly the premolars and molars. There are also cases of bilateral fusions, being also more frequent in the primary dentition and the mandible. [4,5]

Its presence in the interincisal region can cause esthetic problems, which are not easy to solve if the fusion extends radicularly. Problems related to loss of arch length and delayed or ectopic eruption of permanent teeth can also occur, as well as caries along the attachment line and periodontal abscesses. Therefore, the clinical management is interdisciplinary and the surgical procedure used to separate the two teeth is a good alternative for a conservative solution, given the presence of pulp chambers and independent root canals. [5,6]

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Orthodontic approach to gemination: a clinical case report

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Abstract:
Background*: Dental gemination is an abnormality of size and shape that occurs when a dental germ attempts to divide in two by invagination, resulting in the incomplete formation of two teeth. This dental anomaly causes discrepancies in the arch and interdigitation, producing deviation of the midline, crowding, late eruption of other teeth, some form of malocclusion in the dentition, among others.*
Case Report*: 16-year-old female patient with a geminated lower right incisor, asymptomatic that requires multidisciplinary treatment to achieve functional and aesthetic harmony of her teeth.*
Discussion: *The approach for this clinical case was more conservative than previous studies by opting forFinkelstein's second option, accompanied by a root canal treatment and interproximal enamel reduction (IPR). A posterior restorative treatment on the tooth with gemination is suggested to improve the aesthetics of the tooth and cover the exposed dentin tissue.*
Results*: The geminated tooth was integrated into the arch with an ideal anatomy, the shape of the arches are more uniform, and the dental crowding was released.A functional occlusionmolarand canineclass I were obtained and by incorporating the geminated tooth with an ideal anatomy avoiding dental extractions.*
Conclusion: *There are few registered cases carried with orthodontics, despite this the orthodontist must be able to identify the anomaly and by knowing the options to solve the problems that may be present to be able to plan an effective treatment.*
Key Word*: Orthodontics, gemination, dental anomaly.*

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I. Introduction

Different dental anomalies are found randomly when performing different diagnostic studies by the orthodontist prior to start the orthodontic treatment[1-3].

Gemination is an abnormality of size and shape that originates when a tooth germ attempts to divide in two by invagination, resulting in the incomplete formation of two teeth. It can be a partial or total invagination as well as involve the dentin and/or enamel or even the dental pulp. Twinned teeth usually have a single root with a wide root canal [4-6].

This dental anomaly causes discrepancies in the arch and interdigitation, producing midline deviation, dental crowding, late eruption of other teeth, some form of dental malocclusion, among others. It usually manifests itself to a greater extent in the incisor teeth, mainly the upper ones, however, there are cases that occur in other teeth, including molars and premolars [3-5].

Gemination and fusion are dental anomalies that have similar clinical and radiographic characteristicsand they may result from the deviation of the development of the ectodermal and mesodermal linings during morphological differentiation of the dental bud, making them difficult to differentiate from each other and both are referred as "twin teeth" or "double teeth" [1, 2, 4, 5, 7].

The exact etiology of the "double tooth" is unknown, however, it may be associated with some syndromes such as achondroplasia and chondroectodermal dysplasia, in addition there is evidence that this condition has a familial tendency and may be due to a variety of genetic, environmental factors, traumas, vitamin deficiency or systemic diseases[3-8].

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Orthodontic Case Report: A Deep Bite Corrected With An Intrusion Arch

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ABSTRACT
Introduction: *Class II malocclusion are one of the main reasons patients seek orthodontic treatment. The intrusion of incisors, either upper or lower, is done to obtain a correct overbite, the posterior extrusion and leveling of occlusal plane are some options to correct it.*
Case Report: *It is chosen a McNamara expander and a Jackson, then the bonding of preadjusted appliances with 0.018" slot, after 16 weeks of retention with the expander it is removed and bonded the upper appliance in posterior with sectioned arch for anterior intrusion. Once the overbite is corrected it continues with arch sequence and after the treatment objectives are completed the fixed appliance is removed and placed the retainers.*
Conclusions: *The correct management of biomechanics and control for the overbite correction allow us to get an adequate occlusion on our patients.*

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I. Introduction

Class II malocclusions are one of the main reasons patients seek orthodontic treatment. The combination of dental and skeletal factors that contribute to the malocclusion may vary from mild to severe.
The Class II division 2 it is characterized by retroclination of the upper incisors and an increased overbite[1]. Within the population it is very common to observe characteristics of malocclusions in our country, the most frequent being class I malocclusion (37.3%) described by Angle followed by class II (31.9%) and type III infrequently (17.6%) without influence sex or socioeconomic level[2].

The intrusion of the incisors, whether upper or lower, is performed to obtain a suitable vertical overbite, extrusion of the posterior teeth, leveling of the occlusal plane among others.[3]

II. Case Report

A 16-year-old and 6 months old female patient, goes to the orthodontic clinic at the "Centro Universitario de Posgrado en Investigación en Salud " at the "Universidad Autonoma de Baja California" (UABC), located in Tijuana. The patient refers to the reason for consultation due to "I don't like my crooked teeth." Medical and family history without medical relevance.

During the intraoral examination and study models, a mixed dentition is observed due to the presence of the dental organ 65, a vertical overbite of 95% and a horizontal 4 mm with mismatched midlines as well as a class II canine relationship on the right side and class III on the left side. As for the molar relations, a class I is observed on the right side and on the left side a class III relationship. The dental organ 45 retained in infra-occlusion is also observed. A transverse collapse is seen in both arches (Figure 1).

Her radiographic study concludes with the diagnosis of: Female patient of 16 years of age, mesomorph, dolichofacial with slight facial asymmetry and convex profile. Tendency to vertical growth. Skeletal pattern class II division II with agenesis of dental organ 25 and upper and lower third molars. With slightly incisive upper incisors.

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Orthodontic management of a patient with severe crowding. Report of a case.

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Abstract
Introduction: *Different factors make patients request an orthodontic treatment such as dental crowding, which can be related to the width and length of the dental arch, the diameter of the mesio-distal tooth, and the dental proportions.* ***Case Report:*** *A 12-year-old female patient comes to the consultation referring to having "crooked teeth".* ***Diagnosis:*** *The extraoral inspection observed facial asymmetry, facial incompetence, concave profile with severe crowding.* ***Treatment:*** *The orthodontic treatment to follow was premolar extractions with the use of fixed appliances.* ***Results:*** *The objectives proposed in the treatment plan were satisfactorily corrected, such as severe dental crowding.* ***Conclusion:*** *The results obtained in the present study highlight that premolar extractions are an adequate option when the patient presents severe crowding with labial incompetence and a class I skeletal pattern.*

Keywords: *Severe crowding, changes in arch width, removal of premolars*

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I. Introduction

One of the reasons why patients start orthodontic treatment is anterior crowding. Many factors are related to anterior dental crowding, including dental arch width and length, mesio-distal tooth diameter, and tooth proportions. (1) However, incisor crowding is not simply a discrepancy in the size of the dental arch. Other variables, such as the direction of mandibular growth, early loss of deciduous molars, oral and perioral musculature, incisor and molar inclination, may be associated with crowding. (2)

The inclination of the lower incisors is another factor that was considered when determining the cause of crowding in the dental arch, it was considered that a vertical or lingual inclination of the lower incisors in the mixed dentition is associated with crowded incisors in the permanent dentition. (3)

Poor relationships of the transverse or vertical arches, such as crowding and local pathologies, are common causes of malocclusions in skeletal Class I patients and are generally managed by extraction or non-extraction treatment in the permanent dentition. There is still controversy in the treatment plan, the question of whether better long-term results are obtained with or without extractions. (4)

It is established that if there is an increase in the width and length of the dental arch during orthodontic treatment, these tend to return to the pre-treatment values in the retention period. (5)

The undocumented criticism of the treatment with extractions is that it results in narrower dental arches compared to treatment without extraction. Non-extraction orthodontic treatments have gained great popularity because extraction treatment promotes narrow smiles, accompanied by dark corridors, concave lower third profiles, and unfavorable mandibular growth. (6)

It is for them that the objective of this clinical case is to point out the need for extractions due to the severe crowding that occurs without compromising the function or aesthetics of the patient.

II. Case Report

A 12-year-old patient comes to the consultation in the company of her mother, referring to having "crooked teeth" without a systematic or allergic history that compromises the case.

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Orthodontic therapy with a Wilson bimetric maxillary distalazing arch

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Abstract:
Background*: Several methods and appliances have been developed over time to produce molar distalization, there are some factors to considerate to make the best choice to treat the patient with class II malocclusion like the growth pattern, dental crowding, age, among others.*
Case Report*: A9-year-old male patient presented a skeletal class II malocclusion, a neutral growth pattern,as well as retroclined upper incisors and proclined lower incisors presentinga bilateral molar class II relationship, an indeterminate canine class relationship, an increased overjet with a 5mm value and mixed dentition. As the patient is still growing up a dentoalveolar compensation is chosen using a 3D Maxillary Bimetric Distalizing Arch (3D-MBDA).*
Discussion: *The approach for this clinical case was more conservative avoiding the maxillary first bicuspids extraction and producing maxillary first molar distalization with this appliance and wearing intermaxillary 5/16" diameter Class II elastics with 3.5 oz. 24 hours per day until obtain the objective.*
Results*: Obtained a class I molar and canine relationships in both sides, the overjet was reduced from 5mm to 2mm and better facial harmony were achieved.*
Conclusion: *TheWilson bimetric maxillary distalazing arch performed in this case report proved to be an efficient way to produce molar distalization and correct dental class II malocclusion.*
Key Word*: Orthodontics, Class II malocclusion, Molar distalization, 3-D Maxillary Bimetric Distalizing Arch.*

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I. Introduction

There are many options to correct Class II malocclusions, one of them is the distalization of the maxillary first molars providing a good alternative to gain space with an orthodontic treatment without extractions of the maxillary first bicuspids. Some of the intraoral devices that would make this possible are the pendulum,the distal jet, the 3D Maxillary Bimetric Distalizing Arch (3D-MBDA), the jones jig, the forsus, the Herbst, themicroimplant-based distalization and others. All of them requires less cooperation of the patient than an extraoral appliances such as headgear that also can be used to fix the class II malocclusion but is not aesthetic for the patients which causes them to not cooperate with the treatment.[1-7]

In 1978 the Modular Orthodontic System became known for William L. Wilson and Robert C. Wilson to help to correct class II malocclusions and proposed an appliance to help with it; the 3D Maxillary Bimetric Distalizing Arch (3D-MBDA)helps the clinician trough the loading of intermaxillary Class II elastics and a 3D lingual arch as anchorage to achieve a rapid molar distalization with less negative effects.[2, 6, 8, 9]

According to Rana and Becher (2000), in order to the treatment objectives met with the MBDA device, it is very important that the patient that will receive this type of therapy in their study must have minimal crowding, a normodivergent growth pattern, class II malocclusion, upright upper incisors and still be adolescent.[6]

The average time of treatment that has been advertised to bodily distalization of maxillary first molars by Wilson´s was 6 to 10 weeks wearing Class II elastics reducing the load to maintain the mandibular anchorage and reinforcing it with the 3d lingual arch.[10]

The purpose of this case report was to describe the technique used to perform molar distalization in a class II malocclusion using a Wilson bimetric maxillary distalazing arch and orthodontic fixed appliances.

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Orthodontic treatment of Class II Division 2 malocclusion patient: with Pendulum Fixed Appliance and TAD´s for improved anchorage: A case report

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Abstract
The purpose of this article is to present a clinical case report of a 13-year-old patient with a Class II skeletal diagnosis and Class II Div 2 malocclusion, emphasizing the treatment plan, progress, and results obtained from the case, which was carried out with a non-extraction therapy divided into 2 phases. First, the use of a Pendulum Fixed Appliance (PFA), followed by therapy with fixed appliances, modifying the anchorage after the PFA with infra-zygomatic mini-screws (TAD´s) for improved skeletal anchorage.

Keywords: *Class II , Distalization , Pendullum, TAD´s*

Date of Submission: 06-15-2020 Date of Acceptance: 21-12-2020

I. Background

Nowadays is a very important goal for orthodontic treatment not only to provide the patient with a functional result but also to provide an aesthetic and efficient treatment. The smile is considered the gateway to human relationships, for this reason, Orthodontists must use all resources to achieve this task. Orthodontists must take into consideration: occlusion that includes not only the relationship and interdigitation of the teeth but also the relationships of the teeth with the soft and hard tissues that surround them. As known, the key to a successful treatment is based on the recognition of the occlusal problems, and more important is to determine the best treatment approach. Class II division 2 malocclusion should be considered not only as a complex dentoalveolar problem but also as a condition that affects considerably patients profile. Clinically, this type of malocclusions is characterized by specific dental-skeletal and soft-tissue characteristics: retroclination of the maxillary incisors and proclination of the lateral incisors are generally associated with mesofacial or brachifacial biotype, characterized by a protrusion of nose, a decrease in the lower third of the face, retruding lips, protruding nose and chin which causes a concave profile[1,2]. The correction of class II can be hindered by molar distalization, obtained with non-compliance therapy that involves the use of appliances that minimize the need for such cooperation and attempt to maximize the predictability of results[3]. This kind of treatment approach should take into consideration several effects that may help or affect negatively the patient's treatment, base on the specific characteristic of the patient:

- Molar distalization produces a downward and backward mandibular rotation, in a clockwise direction
- An increase in the anterior facial height especially on the lower third
- Increase on the mandibular plane angle[4,5]

In order to accomplished molar distalization, various non-compliance fixed orthodontic devices had been propose. Such as the Pendulum[6], the Distal Jet, the Carriere Motion are among the most used, with a minimal variability of molar distalization and disto-inclination[3]. The pendulum fixed appliance (PFA) was first reported by Hilgers in 1992, Pendulum fixed appliance consists of an acrylic palate as an anchorage unit to distalize the first molars, distalization arms or springs are constructed from 0.6 mm stainless steel round wire or Titanium Molybdenum Alloy (TMA) that consists of a closed helix and a U-loop. The purpose of the closed helix is to allow for activation of the distalization arms. The U- loops are incorporated mesial to the molars to

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Orthodontic-surgical treatment of skeletal class II malocclusion: A case report

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Abstract:
Background: *Nowadays, patients with class II division 2 malocclusion refer to aesthetics as one of the main concerns. Sometimes, no matter how much you try to control growth and development with myofunctional appliances, the ideal results will not be obtained to modify the patient's growth pattern and orthognathic surgery will have to be performed.*
Case Report: *A 9-year-old female patient comes to the clinic with a class II division 2 malocclusion with a retrognathic jaw, with proclined upper central incisors and retroclined upper lateral incisors, where two-phase orthodontic treatment was performed.*
Results*: In the first phase, myofunctional appliances and 4x2 fixed appliances were used.*
In the second phase, decompensation and mandibular advancement orthognathic surgery were performed, achieving the established objectives: improving the facial profile, molar and canine class I relationships, providing function, occlusion, aesthetics and periodontal health.
Conclusion: *Surgical orthodontic treatment in a class II malocclusion gives us favorable aesthetic and functional changes.*
Key Word*:Class II, Malocclusion, Deep Bite, Orthodontic, Orthognathic Surgery.*

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I. Introduction

Through the period of growth and development, various malocclusions can manifest, including class II, which generally presents with skeletal, dentoalveolar, neuromuscular and joint alterations. Patients with this malocclusion are characterized by a deep bite, molars in distoclusion and retroclination of the upper incisors. [1]Class II malocclusions lead to a high percentage of orthodontic cases treated. Approximately 70% of patients have been associated with a skeletal discrepancy that is commonly the result of a retrognathic mandible. [2]

Currently, patients have stated that one of the main concerns for which they seek orthodontic treatment is facial aesthetics, since it affects their self-esteem and safety, in addition to having a high impact on their psychological health; for this reason, orthodontists seek, in these cases, to reduce the vestibularization of the incisors and improve the facial profile. The evaluation of facial balance and harmony includes studies on the relationship between the nose, lips and chin, which can be altered by the growth and development of each patient. [3]

The clinical management of this malocclusion is complex, due to its clinical characteristics and its tendency to recur. [3] Certain patients present severe skeletal discrepancies that require orthodontic and surgical treatment; where the objectives are to stabilize the facial profile and obtain a correct occlusion and function.[4]

Some class II patients can be corrected early with orthopedic appliances and later with orthodontic tooth movements, but the most severe cases can benefit from a change in skeletal relationships. Therefore, it is necessary to combine orthodontic and surgical treatment to achieve a stable result and better aesthetics.[5]

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Orthopedic and orthodontic interceptive treatment of a class III malocclusion. A case report.

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Abstract:
Background*: Class III malocclusion is caused by a maxillary deficiency, overgrowth of the jaw or a combination of both. The opportune treatment of a class III malocclusion may remove the option of an orthognathic surgery or in more severe cases reduce the surgery complications. Maxillary protraction and expansion are often used for orthopedic treatment and orthodontic apparatus for detailing and finishing in early stages of growth in patients.*
Case Report*: Male patient of 9 years and 8 months of age without personal pathological or allergic data, concave profile, brachyfacial biotype, horizontal growth, skeletal class III with mandibular prognathism, anterior and posterior crossbite.*
Results*: Skeletal class I is achieved, lip competence, facial harmony, molar and canine class I relationships, and the patient satisfaction.*
Conclusion: *Treating class III malocclusions with the correct diagnosis, plan and early treatment has more therapeutic opportunity for success, being the key factor the early treatment by observing the growth potential of the patient and plan accordingly, in this case presented the protraction mask in conjunction with the maxillary expansion made the orthodontic phase easier, obtaining the aesthetics and function established in the objectives.*
Key Word*: Class III, Malocclusion; Orthopedic; Interceptive; Orthodontic, Face Mask.*

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I. Introduction

A class III malocclusion is a heterogeneous dentofacial phenotype characterized by overgrowth of the jaw, maxillary deficiency, or a combination of both and can occur either as part of a syndrome or in isolation. The prevalence of Class III malocclusion varies from one population to another worldwide, with the lowest prevalence (up to 4%) occurring in the European-American and the highest prevalence (15-23%) in Asian populations. Class III malocclusion generally manifests from a very young age and is typically evidenced by an edge-to-edge incisal relationship or anterior crossbite. [1]

The opportune treatment of a class III malocclusion in a patient in growth with an orthopedic and orthodontic approach, being the protraction mask commonly used only or with a maxillary expansion appliance and detailing the case with orthodontic apparatus, may remove the option of considering an orthognathic surgery or reduce the complications in more severe cases. [2] The fundamentals of maxillary protraction therapy are based on the cellular response that occurs at the suture level, different events and factors that could affect the response of craniofacial sutures to mechanical stimuli have been reported. Orthopedic and orthodontic therapy and the treatment of many craniofacial deficiencies require, in most cases, a non-surgical modification of one or more craniofacial sutures. Other factors such as the amount, direction, and duration of force application play an essential role in the success of such treatments.[3] Among the various types of facial mask available, the Petit model is a mask that reduces care time and is also the best accepted by patients as it is a simpler model. Among the treatment strategies mentioned, the orthopedic face mask has the greatest application and produces the most effective results in the shortest period of time. These characteristics allow its use in most Class III patients in early mixed dentition or late deciduous dentition with a good prognosis.[4]

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Orthopedic-orthodontic treatment of a class II malocclusion. Case report.

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Abstract:
Background*:Class II malocclusion is caused by mandibular deficiency, maxillary overgrowth, or a combination of both. Prompt treatment of a class II malocclusion can eliminate the option of orthognathic surgery or, in more severe cases, reduce the complications of surgery.*
Maxillary extension and expansion are often used in orthopedic treatments and removable appliances, to guide development during the early growth stages of patients.
Case Report*: This clinical case addresses the treatment of a 9-year-old patient with skeletal class II with maxillary prognathism. The treatment was carried out in two stages. The first stage with functional orthopedics, Hyrax maxillary expansion screw with occlusal tracks and Bimbler Type A; and a second stage with fixed appliances and extractions.*
Results*: Skeletal class I, class I canine relations, lip competence, facial harmony, and patient satisfaction.*
Conclusion:*The early diagnosis and treatment of class II malocclusions are a determining factor to obtain better results and avoid surgery, taking advantage of the growth potential.*
Key Word*:Class II, malocclusion, orthopedic, prognathism, orthodontics, Bimler.*

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I. Introduction

The goal of early orthodontic treatment is to correct existing problems and intercept developing problems and prevent them from getting worse. Treatment of class II malocclusion often aims to correct the skeletal discrepancy. [1] Multiple functional devices are currently used for its correction with the aim of improving skeletal imbalances. With them, it is expected to achieve an alteration in maxillary growth, a possible improvement in mandibular growth and positioning, as well as a change in dental and muscular relationships. [2, 3]

The rapid maxillary expansion has been in common use by orthodontists for several decades. Although expansion was initially used to correct posterior crossbites and gain arch perimeter, other possible indications for this technique have been proposed. McNamara defended the use of expansion in many class II early mixed dentition patients with mild mandibular retrusion and maxillary constriction. [1, 3, 4]

One of the functional appliances used is the Bimler Elastic Modeler, which is based on the modification of a certain muscle group during the resting position of the mandible, leading to an increase in its physiological activity. The Bimler A appliance reduces malocclusion by mandibular repositioning and large compensatory tooth movement, similar to other functional appliances.

Patients with class II division 1 malocclusion are characterized by proclined incisors and an increased overbite. Among the treatment options for this situation, the most frequent is the extraction of the four first premolars, because the problem is in the anterior segments of the dental arches, which allows direct access for the correction of crowding, severe dentoalveolar protrusions and achieve canine class I, which is one of the main objectives in orthodontics. [5]

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Patient with class II skeletal malocclusion and agenesis of central lower incisor

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Abstract
Background: *Barbero (2015) defined tooth agenesis as the congenital absence of one or more teeth. Dental agenesis is also known as hypodontia. This condition may be caused by genetic factors, local trauma, infections, or drug exposure during the dental development. The aim of this article is to show a case report of an adult patient with class II skeletal malocclusion and dental agenesis.* ***Case report:*** *A 20-year-old male patient with dental crowding, absence of a lower central incisor and class II skeletal malocclusion. The treatment plan was a McNamara expander and fixed 0.022¨alexander appliances. The result was a satisfactory treatment outcome.*
Conclusions: *A multidisciplinary approach when treating a patient with dental agenesis is the key to provide the best functional and esthetic results.*
Key word: *agenesis, hypodontia, permanent dentition, orthodontics.*

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I. Introduction

Barbero (2015) defined tooth agenesis as the absence of one or more teeth. Another name for this condition is hypodontia. Dental agenesis can be found as an isolated problem or as part of a group of abnormalities such as: dental transposition, impacted tooth, eruption problems, size and shape discrepancy, dental crowding, cleft palate and lip and craniofacial growth modifications. (1)(2)

Tooth agenesis can be caused by multiple factors such as alveolar process injuries, exposure to certain drugs or treatments, such as chemotherapy. Although, this condition can be caused also by genetic factors, it has been identified that some gens (MSX1, PAX9 and MSX24) are responsible for the absence of teeth, either on an isolated form or as part of a syndrome. (3)(4)(5)

Dental agenesis can cause an impact on the patient's oral health. The amount of impact will depend on the numbers and positions of the missing teeth. There are multiple problems that a patient can develop as a result of the agenesis: occlusal dysfunctions, speech disorders, and decrease of the alveolar bone. The treatment, for this condition must be handled with a multidisciplinary point of view and include a long-term treatment. (8)(9)

The McNamara is a bonded maxillary expander that has an acrylic splint that covers the posterior teeth, the occlusal coverage helps to control of the vertical dimension. (13)

The aim of this article is to show a case report of an adult patient with class II skeletal malocclusion and dental agenesis.

II. Case Report

A 20 year old male patient attended the orthodontic department of the Autonomous University of Baja California, campus Tijuana in Mexico, and when asked for the reason for his consultation said, "I want to fix my teeth, I want them straight."

Tratamiento interdisciplinario con regeneración periodontal en paciente con mordida abierta.

Barajas David, Guillemin Martin del Campo María Reina, Cerrillo Lara Daniel, Becerra Preciado Jennifer G, Arellano Cuen Sarahí, Ayllon Monteon Grelda Berenice, Ruiz Flores Brenda Lizbeth.

Resumen

Reporte de un caso clínico de un paciente del sexo femenino de 43 años de edad el cual al examen intraoral se pudo observar que presenta hábito lingual, así como múltiples diastemas entre los incisivos superiores e inferiores, así como mordida abierta anterior. Al examen radiográfico se diagnostica al paciente con un patrón esquelatal clase II y una dimensión vertical aumentada. Se realizo una tomografía, en la cual se revela marcada recesión ósea en área de los incisivos inferiores. El tratamiento consistió en un control del habito lingual por medio de trampas y recordatorios, injertos de tejido gingival para mejorar el grosor de la encía, corticotomias en conjunto con micro-osteperforaciones e injerto tejido óseo para mejorar la calidad del tejido periodontal. Los resultados obtenidos fueron una corrección de la mordida abierta, así como un aumento en el grosor y altura de las corticales óseas comprometidas.

Palabras clave: injerto tejido gingival, mordida abierta y hábito lingual.

Abstract

Report of a clinical case of a 43-year-old female patient who, upon intraoral examination, was observed to present a lingual habit, as well as multiple diastemas between the upper and lower incisors, as well as an anterior open bite. On radiographic examination, the patient is diagnosed with a class II skelatal pattern and an increased vertical dimension. A tomography was performed, which revealed a marked bone recession in the area of the lower incisors. The treatment consisted of a control of the lingual habit by means of traps and reminders, gingival tissue grafts to improve the thickness of the gingiva, corticotomies in conjunction with micro-osteperforations and bone tissue grafting to improve the quality of the periodontal tissue. The results obtained were a correction of the open bite, as well as an increase in the thickness and height of the compromised bone cortices.

Key words: gingival tissue graft, open bite and tongue habit.

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Introducción

Se define como mordida abierta aquella oclusión en la cual se presenta máxima intercuspidación, y que entre los bordes incisales de los órganos dentales se observa una dimensión vertical abierta. Refiriéndonos específicamente al segmento anterior, lo podríamos definir como condición en la cual el borde incisal de los incisivos superiores no sobrepasa el tercio incisal de los incisivos inferiores.[1] Los hábitos orales se desarrollan como reflejo el sistema neuromuscular y suelen constituir un factor principal en la etiología de la mal oclusión. Su presencia nos habla que el paciente puede estar cursando por situaciones de estrés y ansiedad. [2]

Hablamos de deglución atípica cuando se observa persistencia de la deglución infantil, en la cual se coloca la lengua entre los rebordes alveolares maxilares y mandibulares. Algunas de las alteraciones presentes en pacientes con deglución atípica son: proincliación de incisivos inferiores y superiores, lengua suele observarse rebasando la boca, labio inferior hipotónico con proyección anterior, alteraciones del habla, acumulación de saliva en los cantos de la boca, entre otras.[3] El hábito de empuje lingual representa un factor de riesgo adquirido para la resorción radicular. A su vez se puede observar proclinación de dientes ante-riores. Se debe mantener especial cuidado en pacientes con periodonto delgado ya que dichos movimientos pueden causar una resorción gingival y pérdida de inserción de tejido periodontal.[4,5]

Entre los factores etiológicos podemos encontrar defectos en la erupción dental y el crecimiento alveolar, funciones neuromusculares anormales como lo serían el hábito de succión digital y disfunciones linguales, como la deglución atípica. [6] En el tratamiento de ortodoncia en adultos, es vital conocer la situación periodontal del paciente, de esta manera diagnosticamos factores de riesgo que puedan interferir en los movientes ortodónticos y comprometan las estructuras periodontales. Se ha observado en previos estudios que la combinación de movimientos ortodónticos, corticotomías alveolares e injertos de tejido óseo, dan como resultado una mejor estabilidad a largo