

UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL
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DISSIPACÃO DA DISCREPÂNCIA DE MASSA DENTÁRIA CAUSADA POR UM
CONJUNTO DE ANOMALIAS DOS INCISIVOS INFERIORES

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CONJUNTO DE ANOMALIAS DOS INCISIVOS INFERIORES

Trabalho de Conclusão de Curso apresentado ao
Curso de Especialização em Ortodontia da
Faculdade de Odontologia da Universidade Federal
do Rio Grande do Sul, como requisito parcial para
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RESUMO

O objetivo do trabalho foi relatar o caso da paciente G.F.J., sexo feminino, 12,5 anos, que possuía suave retrognatia mandibular, anomalia de número, tamanho e posição dos incisivos inferiores, bem como relação Classe I dos molares e caninos. A paciente procurou tratamento ortodôntico na Faculdade de Odontologia da Universidade Federal do Rio Grande do Sul. Dentre as possibilidades de tratamento, optou-se por dissipar a discrepância de massa dentária, associada às anomalias dos incisivos, sem a realização de extrações ortodônticas ou reabilitação protética. Este protocolo preservou a relação molar inicial bem como as características iniciais do perfil tegumentar. A inclinação dos incisivos superiores e inferiores, o torque aplicado aos caninos, a reanatomização do incisivo anômalo e a redução do esmalte interproximal dos dentes ântero-superiores foram pontos-chave para o sucesso deste tratamento. Após 18 meses, os registros ortodônticos mostraram resultados estáveis, excelente oclusão estática e funcional, boa estética do sorriso e aparência facial, além de um alto grau de satisfação da paciente com os resultados alcançados. Sendo assim, pode-se concluir que o tratamento selecionado para a paciente pode ser uma alternativa viável para casos com características dento-esqueléticas similares.

Palavras-chave: Má Oclusão de Angle Classe I; Anormalidades Dentárias; Dente não Erupcionado; Oclusão Dentária.

ABSTRACT

The aim of this study was to report the case of a 12.5-year-old girl with retrognathic chin, number, size and position anomalies of the mandibular incisors and bilateral Class I molar and canine relationship. The patient sought orthodontic treatment in the Department of Orthodontics, School of Dentistry, Federal University of Rio Grande do Sul (UFRGS), Porto Alegre. Among the possibilities for the case, tooth-size ratio discrepancy was dissipated without extraction or prosthetic rehabilitation, and the initial molar relationship was maintained, as well as the straight soft tissue profile. This protocol preserve the initial molar relationship and the soft tissue characteristics. Maxillary and mandibular incisors tipping, crown torque of canines, restoration of anomalous incisor and maxillary interproximal enamel reduction were key points for this successful treatment. After 18 months, the orthodontic records showed stable results, excellent static and functional occlusion, good smile esthetics and facial appearance, besides a high degree of patient satisfaction with the achieved results. Thus, it was concluded that the selected treatment can be a viable alternative for cases with the same dento-alveolar characteristics.

Key words: Malocclusion, Angle Class I; Tooth Abnormalities; Tooth, Unerupted; Dental Occlusion.

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1 INTRODUÇÃO

As agenesias dentárias são fatores etiológicos de más oclusões e frequentemente requerem abordagem multidisciplinar para a normalização das relações oclusais (CAKAN; ULKUR; TANER, 2013). Essas ausências congênitas, quando originadas geneticamente, podem estar relacionadas a outras alterações intrabucais em tamanho, número, forma, estrutura e posição dentária (NIEMINEM, 2009; GARIB et al., 2010). Não apenas a falta de formação de um germe dentário permanente pode causar uma discrepância de massa dentária, mas as anomalias de tamanho e forma, bem como a formação de germes dentários excedentes podem também originar uma desproporção na massa dentária entre os dentes superiores e inferiores (AL-ABDALLAH, 2015). A análise de Bolton é uma das formas de avaliar a proporção de massa dentária entre os arcos (VELLINI, 2008; MOYERS, 1991).

Segundo Bolton (1958), para que exista um correto engrenamento entre os dentes superiores e inferiores é necessária uma proporção perfeita entre o somatório do maior diâmetro dos dentes do arco inferior e superior de primeiro molar ao outro (AKYALCIN, 2006). A desarmonia nesta proporção possui influência direta e indesejável na oclusão estática e funcional (BARROS et al., 2010). Caso haja um excesso de massa dentária superior ou uma falta de massa dentária inferior pode-se observar o surgimento de uma sobressaliência mais acentuada, bem como uma sobremordida mais profunda, apinhamento no arco superior, diastema no arco inferior, ou então, segmentos posteriores com oclusão anteroposterior inadequada (BOLTON, 1958). Ao contrário, o excesso de massa dentária inferior ou falta de massa dentária superior, pode levar a uma relação incisal de topo, redução da sobremordida, diastema entre os dentes superiores, apinhamento no arco inferior, ou então, uma relação anteroposterior incorreta dos segmentos posteriores (BOLTON, 1962).

Embora a prevalência de agenesia dos incisivos inferiores (0,17% a 0,25%) esteja frequentemente classificada abaixo daquela que ocorre no segundo pré-molar inferior (2,91% a 3,22%), incisivo lateral superior (1,55% a 1,78%) e segundo pré-molar superior (1,39% a 1,61%) (POLDER et al., 2004), algumas populações asiáticas mostraram prevalência de agenesia do incisivo inferior semelhante à prevalência de agenesia do incisivo lateral superior e segundo pré-molar (SHIMIZU; MAEDA, 2009; ENDO et al., 2006). Exceto nos casos de agenesia de incisivos inferior, em que o tratamento ortodôntico deve ser conduzido na

ausência deste dente, é incomum o relato de extração ortodôntica deste dente (JANSON; MARIA; BOMBONATTI, 2014).

Ao verificar a agenesia de um dente anterior, existem três opções mais comuns de tratamento: reduzir massa dentária no arco antagonista, manter o espaço da agenesia para reabilitação protética ou fechar o espaço por mesialização dos dentes posteriores (NEWMAN; NEWMAN, 1998). Como já relatado na literatura, em geral, os pacientes tendem a preferir o fechamento de espaço do que uma reabilitação protética (SCHNEIDER et al., 2016). Assim, o relato deste caso contempla justamente esta última alternativa de tratamento, ou seja, o fechamento do espaço da agenesia. Porém, o método utilizado para tal, difere da simples e tradicional mesialização dos dentes posteriores, fato que comprometeria a oclusão anteroposterior dos segmentos posteriores do arco (CANUT, 1996).

Da mesma forma como um caso de extração ântero-inferior, pode ocorrer o aumento da sobremordida e do overjet, relação oclusal anteroposterior deficiente, comprometimento da guia anterior e o surgimento de triângulos negros nas regiões interproximais, este protocolo de tratamento necessita de um correto diagnóstico para ser selecionado (DACRE, 1985; VALINOTI, 1994).

Este artigo relata o tratamento de um caso clínico de uma paciente com anomalias dos incisivos inferiores, que incluía tanto agenesia de um incisivo quanto a anomalia de forma e impacção de outro. O caso foi finalizado sem necessitar reabilitação protética e também sem extrações, através da dissipação da discrepância de massa dentária, mantendo inalterado o perfil mole e a relação de Classe I de Angle.

2 OBJETIVOS

Relatar o tratamento de um caso clínico realizado no curso de Especialização em Ortodontia da Faculdade de Odontologia da Universidade Federal do Rio Grande do Sul (FO-UFRGS).

Apresentar um protocolo de tratamento para a agenesia de incisivo inferior, bem como discutir o diagnóstico, os objetivos e as alternativas de tratamento, o progresso do tratamento e os resultados alcançados no pós-tratamento.

3 ARTIGO

Dissipating tooth-mass discrepancy caused by a set of mandibular incisor anomalies

Abstract

In general, dental anomalies are complicating factors of the orthodontic treatment, especially when one or more anterior teeth are affected. In this report, a 12.5-year-old girl with retrognathic chin, number, size and position anomalies of the mandibular incisors and bilateral Class I molar relationship sought orthodontic treatment. Tooth-size ratio discrepancy was dissipated without extraction or prosthetic rehabilitation, and the initial molar relationship was maintained, as well as the straight soft tissue profile. Maxillary and mandibular incisors tipping, crown torque of canines, restoration of anomalous incisor and maxillary interproximal enamel reduction were key points for this successful treatment. After 18 months, the orthodontic records showed stable results, excellent static and functional occlusion, good smile esthetics and facial appearance, besides a high degree of patient satisfaction with the achieved results.

Introduction

In general, dental anomalies represent an unpreventable malocclusion etiological factor because they frequently have a genetic background, which can produce single or multiple and linked deviations involving tooth size, number, form, structure and position.¹⁻⁵ Most dental anomalies may cause tooth-mass imbalance and moderate to severe intermaxillary tooth-size ratio disharmony (Bolton's discrepancy), which has a well-known and undesirable influence on static and functional occlusion.^{6,7} Although the prevalence of mandibular incisor agenesis (0.17% to 0.25%) is frequently ranked below mandibular second premolar (2.91% to 3.22%), maxillary lateral incisor (1.55% to 1.78%) and maxillary second premolar (1.39 to 1.61) agenesis,⁸ asian populations have shown agenesis prevalence of mandibular incisor similar to that of the maxillary lateral incisor and second premolar.⁹⁻¹²

It is known that mandibular incisor extraction is not frequently performed,¹³ and its indication requires a judicious diagnosis because less than ideal occlusal results such as increased overjet, overbite, poor anteroposterior occlusal relationship, compromised anterior guidance and black triangles are commonly attributed to this treatment protocol.^{7,14-19} It has been demonstrated that patients with agenesis of mandibular incisor may present greater retroclination of the mandibular alveolar bone and mandibular incisors.¹² This dentoalveolar feature associated with a tooth-size ratio disharmony contribute to development of an increased overjet and overbite,²⁰ requiring a well-planned orthodontic approach to normalize the occlusal relationships. In general, the patients tend to prefer agenesis space closure to prosthetic rehabilitation.²¹ Consequently, the occlusal results may become negatively affected after agenesis space closure if the clinical procedures are not customized according to the patient's dentoskeletal features.

In general, the treatment occlusal results of mild Class III malocclusion, Class I bimaxillary protrusion or malocclusions involving mild tooth-mass reduction of the maxillary incisors may be less affected by mandibular incisor agenesis because it may contribute to normalize the occlusal relationships, reestablishing occlusal and facial balance.^{15,22-25} However, in most orthodontic cases mandibular incisor agenesis is a complicating treatment factor, especially if other dental anomalies are present, increasing the tooth-size ratio discrepancy. The scientific literature has suggested three treatment modalities for mandibular incisor agenesis: 1- space opening for a fixed prosthesis or an implant; 2- Teeth extraction in the opposite arch to reduce the overjet by retracting the anterior teeth; 3- space closure by moving the mandibular canines and the posterior teeth forward.^{17,26} This article presents the orthodontic treatment of a patient with mandibular incisor anomalies that included both agenesis and an impacted smaller barrel-shaped incisor. This case was treated without prosthetic rehabilitation and with a non-extraction mechanics, able to dissipate the tooth-size ratio disharmony and maintain the initial Class I molar and canine relationships.

Diagnosis and etiology

A 12.5-year-old girl sought the University dental health services for orthodontic treatment. Her chief complaint was the labial maxillary canine displacement compromising the smile esthetics, besides the lingual ectopic eruption

of the mandibular right lateral incisor. She had a mesofacial appearance with retrognathic chin and straight lower facial contour. Besides, the patient presented passive lip seal with increased nasolabial angle, nasal prominence and lips retrusion. There was no functional mandibular shift, the temporomandibular joint was asymptomatic and the patient was non-syndromic (Table and Figs 1 and 2).

Intraorally, the patient had Class I molar relationship on both sides. Overjet and overbite were 4 mm and 5 mm, respectively. The right and left maxillary canines were mesially and labially displaced with prolonged retention of the right deciduous canine and impaction of its permanent successor. The maxillary dental midline was coincident with the midsagittal plane while the mandibular dental midline was deviated to the right. Due to agenesis of the mandibular left lateral incisor and ectopic eruption of the right lateral incisor, the intercanine width was drastically reduced. In addition, the ectopic mandibular incisor presented shape and size anomalies, which summed to the left lateral incisor agenesis produced an anterior tooth-size ratio discrepancy of 7 mm according to the Bolton analysis.²⁷ The maxillary dental crowding was moderate (5.5 mm), while the mandibular arch length discrepancy could be considered severe (10.5 mm) if prosthetic rehabilitation of the incisor agenesis and alignment and restoration of the ectopic mandibular incisor were planned (Figs 1 and 3).

The panoramic and periapical radiographs showed the ectopic position of the left maxillary third molar, right maxillary canine, right mandibular lateral incisor, and agenesis of the left mandibular lateral incisor (Fig 2). In addition, there was no caries lesion or previous restoration. The lateral cephalometric analysis indicated a skeletal Class II pattern (ANB, 4.8°) with slight mandibular retrusion and vertical growth pattern (SN-MP, 33.4°, Table). The maxillary incisors were lingually tipped (U1.NA, 14.9°) and two of the three mandibular incisors had a satisfactory position (L1.NB, 26.6°).

Treatment objectives

The treatment objectives included space opening for correct positioning of the maxillary canines, teeth alignment, overbite and overjet correction, maintenance of Class I molar relationship and dissipation of the tooth-size ratio disharmony associated with the mandibular incisor anomalies. Another challenging objective of treatment was to select an orthodontic mechanics able to maintain or improve patient soft tissue profile during malocclusion correction.

Although the patient had a moderate mandibular retrusion, there was a Class I dental relationship and the patient had no complaint of her soft tissue profile, discarding the indication of orthopedic approaches. In addition, menarche had already occurred, reducing expectations of a great potential for mandibular growth. Thus, the treatment objectives did not include skeletal relationship improvement.

Treatment alternatives

The primary concern was to seek the best treatment alternative to dissipate the tooth-size ratio disharmony produced by the mandibular incisor anomalies. Extraction of the anomalous mandibular lateral incisor would leave the mandibular canines in place of the missing mandibular incisors.²⁸ To reduce the great tooth-size ratio disharmony and overjet associated with the absence of two mandibular lateral

incisors, two maxillary premolars would be extracted, maintaining as much as possible the Class I molar relationship. Although extraction of a severely malpositioned mandibular incisor has been indicated even with a congenitally missing incisor,²⁸ this option could significantly increase the retrusive facial appearance of this patient, worsening the nasal prominence and nasolabial angle.

Prosthetic rehabilitation of the left lateral incisor agenesis and restoration of the small and ectopic mandibular right lateral incisor could eliminate the tooth-size ratio disharmony and correct the occlusal relationships without negatively influencing facial esthetics. However, this choice would require space opening of about 11 mm to align the ectopic incisor and replace the missing incisor. In addition, prosthetic rehabilitation would require preparation of the sound teeth adjacent to the missing incisor. Although an implant-prosthetic rehabilitation eliminates the need of preparing the healthy neighboring teeth, the patient's age prevented this approach.

Another treatment alternative was to move the mandibular posterior teeth forward, with or without extraction of the ectopic and anomalous mandibular right lateral incisor. However, the tooth-size ratio disharmony inherent to the absence of one or two mandibular incisors would produce an overjet that is not consistent with obtaining a well-balanced cusp-to-fossa occlusal relationship.²⁶ In addition, this protocol involves an extensive forward movement of all mandibular posterior teeth, requiring high degree of patient compliance to use Class II intermaxillary elastics or patient acceptance to use fixed functional appliances,²⁶ which involves some discomfort and functional limitation.²⁹ Thus, the treatment time and occlusal results could be negatively influenced by the unpredictable patient compliance and the great effort for posterior teeth mesialization.

Thus, it was decided to maintain the initial Class I anteroposterior relationship and to align the ectopic mandibular right lateral incisor, at the expense of mandibular incisors protrusion and intercanine width increase. The anterior tooth-size ratio discrepancy would be dissipated by increasing the small size of the ectopic mandibular right lateral incisor and by reducing the interproximal enamel of the maxillary anterior teeth. In addition, compensatory mandibular incisors labial and maxillary incisors palatal tipping, besides customized maxillary canines lingual and mandibular canines labial torques, were planned to aid in Bolton's discrepancy dissipation, and anterior and lateral guidances establishment, respectively.^{30,31}

Treatment progress

The deciduous maxillary right canine was extracted to benefit redirection and spontaneous eruption of its permanent successor. Due to the excessive overbite, a temporary bite-raising was built by adding light-curing composite resin to the occlusal surfaces of the maxillary posterior teeth, which enabled simultaneous bonding of the maxillary and mandibular teeth. Full fixed preadjusted appliances with 0.022 X 0.028-inch slots were placed in both arches. Leveling and alignment began with 0.012 and 0.014-inch nickel-titanium archwires, which were followed by 0.016-, 0.018-, 0.020- and 0.019 X 0.025-inch stainless steel archwires. Deep overbite was corrected using stainless steel archwires with accentuated and reversed curves of Spee. The protrusive effect of this orthodontic mechanics contributed to obtain additional space for the maxillary canines and mandibular incisors. In the mandibular arch, where intercanine width was drastically reduced and there was no available

space for the ectopic right lateral incisor, an expanded archwire, with reversed curve of Spee and omega loops positioned mesial to the first molars was used along with an open-coil spring positioned between the right canine and the central incisor (Fig 4). Thus, intercanine width increase and incisor protrusion were progressively providing arch space for the ectopic right lateral incisor alignment and restoration at the expense of reversed curve of Spee, omega loop and open-coil spring activation. Afterwards, the small ectopic right lateral incisor was aligned and additional mesial and distal spaces for incisor crown width restoration were maintained with a closed coil spring fitted in the interbracket distance between the adjacent teeth. After mandibular arch alignment, interproximal stripping involving the maxillary incisors and canines was performed with a 0.1mm double-sided diamond disc. Interdental spaces were consecutively closed by using elastic chain in the maxillary arch, Class II intermaxillary elastics and 0.020-inch stainless steel archwires in both dental arches.

All these mechanical procedures sought to increase the mandibular intercanine width, reduce the maxillary intercanine width and maximize dentoalveolar compensation of the maxillary and mandibular incisors and its influence on arch length, overjet, overbite and molar relationship, contributing to maintain the initial Class I molar relationship and to obtain adequate incisor relationships.³⁰⁻³² For complete adjustment of the lateral guidances, a 0.019 X 0.025-inch stainless steel archwire was used in both arches to apply lingual and labial crown torques to the maxillary and mandibular canines, respectively (Fig 5).

When satisfactory static and functional occlusal parameters had already been achieved,³³ vertical triangular intermaxillary elastics were used during the finishing stage for about 4 weeks to refine dental intercuspsation. Then, the fixed appliances were removed, and a removable vacuum-formed retainer made from clear polycarbonate sheet of 1 mm in thickness was placed in the maxillary arch. The ectopic mandibular right lateral incisor was restored with composite resin to develop normal tooth size and shape. The mandibular arch was retained with a fixed canine-to-canine lingual retainer bonded to all 5 anterior teeth. The maxillary removable retainer was recommended to be used full time for 12 months, followed by permanent wear at night only, whereas the mandibular fixed lingual retainer would be maintained permanently to ensure intercanine width and mandibular anterior teeth alignment stability. The total treatment time was 31 months.

Treatment results

The treatment results showed that, in general, the objectives were satisfactorily met (Figs 6 to 8). Due to the non-extraction treatment protocol, the initial patient soft tissue profile was not significantly changed and the smile esthetics was notoriously improved (Figs 6, 7 and 9). The buccal corridor was reduced due to the transverse widening of the dental arch. Despite the anterior interproximal enamel reduction and the lingual crown torque in the maxillary canines, the initial intercanine distance (measured from the right deciduous to the left permanent canine) was slightly increased from 32.7 to 33.8 mm (Figs 1, 3, 6 and 8). In the maxillary arch, the distances between 4-4, 5-5 and 6-6 increased from 39.1; 45.6 and 49.7 mm to 42.6; 48.3 and 51.7 mm, respectively (Figs 1, 3, 6 and 8). In addition, although the space created by interproximal reduction was closed using a 0.020-inch round

archwire, the maxillary incisors tipped 6° labially due to the initial maxillary tooth size-arch length discrepancy (Table and Fig 9). These changes involving buccal corridor width and maxillary incisors tipping had a positive impact on smile esthetics.^{34,35}

The maxillary canines were satisfactorily aligned and the incisors inclination improved (Table, Figs 7 and 9). The tooth-size ratio discrepancy was dissipated by three different mechanisms: 1) interproximal enamel reduction and palatal tipping of the maxillary incisors during interproximal space closure with round stainless steel archwire; 2) restoration of the ectopic mandibular right lateral incisor to its average mesiodistal width; and 3) mandibular incisor protrusion during deep bite correction and anterior space opening, with round stainless steel archwire. This set of procedures along with the lingual and labial crown torque applied to the maxillary and mandibular canines, respectively, produced adequate overjet, overbite, anterior and lateral guidances, without changing the initial Class I anteroposterior relationship (Table and Figs 6 to 9).

Although the sagittal chin position and the maxillomandibular anteroposterior relationship were slightly improved, these changes seem to be more associated with the natural mandibular growth, which exceeds that of the maxilla resulting in straightening of the profile (Table, Figs 6, 7 and 9).³⁶ The vertical facial pattern was not significantly changed and a small increase in LAFH after orthodontic treatment should be expected regardless of extraction or non-extraction procedures.^{37,38} The lips were slightly protruded consequent to the incisors protrusion, benefiting facial esthetics, without compromising passive lip competence (Figs 6, 7 and 9).

Discussion

Besides agenesis, other dental anomalies including size reduction, shape deviation, ectopic eruption and tooth impaction were observed in this case report. Although it is difficult to establish a well-defined link between these clinical conditions, the existence of a relationship between them cannot be ruled out. This potential link between the different dental anomalies is clinically relevant, since the diagnosis of one should alert the clinician to possible risks for others.^{1,39-42} Thus, the clinicians should be prepared to diagnose and treat malocclusions with associated dental anomalies because they are not rare.

From the esthetic point of view, it has been demonstrated that when maxillary lateral incisors are developmentally absent there is better patient acceptance in closing the space instead of opening.^{21,43-45} Although mandibular incisors have less impact on facial and smile esthetics, other advantages associated with space closure could raise the patient's interest in this treatment option and should be taken into account during treatment planning. The cost of orthodontic space closure may be lower than prosthetic rehabilitation and its long-term maintenance. Another advantage of this choice is that orthodontic treatment can be early performed, and child patients will get the final result already as young teenagers. In addition, adaptive changes of the teeth and supporting structures that will take place after treatment will appear natural. Contrarily, the implant-prosthetic rehabilitation should be delayed until facial growth is completed. Finally, it has been demonstrated that patients with prosthetic rehabilitation have a greater tendency to accumulate plaque and develop gingivitis.^{43,44,46} However, orthodontic space closure in cases of incisor agenesis may require extensive and challenging mesial movement of all posterior

teeth or compensatory extraction in the opposite arch when the patient has an initial dental Class I anteroposterior relationship.⁴⁵ In general, posterior teeth mesialization involves more complex mechanics and treatment time is often longer and heavily dependent on patient compliance, especially if the aid of skeletal anchorage is not considered.⁴⁷ Compensatory extractions in the opposite arch are not always possible due to the patient's straight soft tissue profile, crowding absence, good incisor position or patient unacceptance.⁴⁸

In this report, the patient was a 12-year-old girl, with associated mandibular incisor anomalies (number, size and shape), Class I molar relationship, retruded lips and straight lower facial contour. This mix of patient features encouraged non-extraction orthodontic treatment, without prosthetic rehabilitation. However, to obtain ideal incisor relationships, anterior and lateral guidances without changing the Class I molar relationships, the total tooth-size ratio discrepancy (7 mm) associated with agenesis and anomalous mandibular lateral incisor should be dissipated between the maxillary and mandibular anterior teeth. Restoration of the smaller barrel-shaped mandibular incisor to its normal size reduced tooth-size ratio discrepancy by 1.5 mm. Interproximal enamel reduction of the maxillary anterior teeth contributed to decrease the remaining tooth-size ratio discrepancy by 3 mm. Thus, it would be still expected an overjet somewhat excessive due to the residual tooth-size ratio discrepancy of 2.5 mm. However, it has been demonstrated that compensatory incisors tipping has a significant impact on the overjet.³⁰ Mandibular incisors with significant proclination ($IMPA > 92^\circ$) and maxillary incisors with U1.PP smaller than or equal to 110° produced poor overjets, frequently smaller than 1 mm.³⁰ In this case report, labial tipping of the mandibular incisors was maximized during overbite correction and space opening with a round wire. In addition, the maxillary anterior tooth-mass reduction and space closure using a round wire, associated with intra and intermaxillary elastics allowed free palatal tipping of the maxillary incisors and some additional labial tipping of the mandibular incisors. Thus, at the end of treatment, the mandibular incisors were labially tipped 10.8° ($IMPA = 104.1^\circ$) and the U1.PP was smaller than 110° (Table). These compensatory incisor positionings, which could represent a problem for incisor relationships in a patient with balanced tooth-size ratio,³⁰ were crucial to compensate for the residual tooth-mass discrepancy (2.5 mm), allowing that adequate overjet and overbite were reached at the end of the treatment.⁴⁹ Thus, a planned incisors compensation could work as a mitigator for tooth-mass discrepancy, contributing to successfully treat mandibular incisor agenesis without prosthetic rehabilitation, maxillary extractions, excessive interproximal stripping and compromised molar or incisor relationships (Figs 6 and 8).^{30,31} Sometimes, the influence of maxillary and mandibular incisors tipping on the arch length, overjet, overbite and molar relationships is mistaken with tooth-mass discrepancy.³⁰ In fact, compensatory incisors tipping and tooth-mass discrepancy can produce similar effects on the occlusal relationships. However, these effects may be advantageous, as in this report, where a compensated incisors tipping mitigated a tooth-mass discrepancy caused by agenesis, or disadvantageous when the incisors compensation compromises the occlusal results of skeletal Class II camouflage or surgical mandibular advancement.^{30-32,50}

Following a similar reasoning, the maxillary and mandibular canines were also compensatorily positioned. Thus, the crown of the maxillary canines were palatally

torqued, whereas the crown of the mandibular canines were labially torqued in lingual order to produce a fine adjustment in the intercanine width, so that a canine-protected occlusion was precisely established (Figs 6 and 8).²³ Although this procedure contributes to the occlusal results success, it produces linear and angular changes in the position of the maxillary canines, which could affect the patient esthetics. However, it has been demonstrated that the posttreatment mediolateral position of the maxillary canines did not have a significant impact on the esthetic perceptions of frontal smiling photographs when the linear and angular mediolateral position ranged for about 14 mm and 25°, respectively.⁵¹ In addition, despite the palatal crown torque, the maxillary intercanine width was slightly increased at the end of treatment, improving the smile esthetics associated with the buccal corridor.³⁵ In this case, the smiling profile esthetics could also be affected by the palatal tipping of the maxillary incisors during space closure produced by interproximal stripping,³⁴ especially because the maxillary incisors were already palatally tipped at the beginning of treatment (Table). However, maxillary canine alignment produced significant proclination of the maxillary incisors, which was later reduced by stripping, reaching a slight palatal tipping that has been considered esthetically successful at the end of treatment.³⁴ The authors are convinced that the compensated incisor and canine positions, maxillary interproximal enamel reduction and anomalous mandibular incisor restoration were the main compensatory mechanisms that produced complete dissipation of the tooth-size ratio discrepancy caused by these associated incisor anomalies, allowing that good occlusal and esthetic results were reached (Figs 6 and 8). Based on this assumption, it can be speculated that the tooth-mass discrepancy caused by mandibular incisor agenesis can be satisfactorily dissipated by this protocol, provided that the maxillary incisors size, shape and structure are favorable for interproximal stripping,^{52,53} periodontal health as well as gingival tissue characteristics allow compensatory tipping of the maxillary and mandibular anterior teeth without sequelae,^{54,55} and only one mandibular incisor is affected by agenesis.

In general, mandibular intercanine width is slightly increased about 1 to 2 mm after orthodontic treatment without significantly compromising stability of mandibular incisor alignment.^{56,57} However, in this case, the increase in mandibular intercanine width was about 5 mm. Although one can imagine that this uncommon change in intercanine width represents a detrimental side-effect of this treatment protocol, one should consider that the intercanine width at the end of treatment was 23 mm, which is still 2 mm smaller than that of untreated patients with normal occlusion⁵⁸ (Figs 6 and 8). Another issue involving orthodontic treatment completed with a missing mandibular incisor is the assumption about poor stability of overbite correction.^{16,19} However, if the predisposing factors of the deep bite, such as overjet and anteroposterior occlusal relationship, were completely normalized in a patient with balanced facial pattern, one should not expect deterioration of the vertical incisor relationship over the posttreatment period only because a mandibular incisor is missing.⁵⁹ In this case, a satisfactory stability of the occlusal relationships, including overjet and overbite, was observed 18 months after orthodontic treatment, with a high degree of patient satisfaction with the achieved results (Table and Figs 10 and 11).

Conclusions

Associated anomalies of mandibular incisors in young teenager patients with similar anterior tooth-mass discrepancy and soft tissue contour may be successfully treated without extraction, prosthetic rehabilitation or posterior teeth mesialization, if some clinical procedures to achieve compensatory positioning of the maxillary and mandibular anterior teeth are taken into account:

- 1) Mandibular incisors proclination and intercanine width increase obtained during overbite correction and incisors alignment;
- 2) Restoration of mandibular incisors with reduced crown width at the expense of mandibular incisors proclination and intercanine width increase;
- 3) Interproximal enamel reduction of the maxillary anterior teeth;
- 4) Palatal tipping of the maxillary incisors during space closure produced by interproximal stripping;
- 5) Addition of lingual and labial crown torque to maxillary and mandibular canines, respectively.

References

1. Al-Abdallah M, AlHadidi A, Hammad M, Al-Ahmad H, Saleh R. Prevalence and distribution of dental anomalies: a comparison between maxillary and mandibular tooth agenesis. *Am J Orthod Dentofacial Orthop* 2015;148:793-8.
2. Cakan DG, Ulkur F, Taner T. The genetic basis of dental anomalies and its relation to orthodontics. *Eur J Dent* 2013;7:S143-7.
3. Nieminen P. Genetic basis of tooth agenesis. *J Exp Zool B Mol Dev Evol* 2009;312B:320-42.
4. Garib DG, Peck S, Gomes SC. Increased occurrence of dental anomalies associated with second-premolar agenesis. *Angle Orthod* 2009;79:436-41.
5. Garib DG, Alencar BM, Lauris JR, Baccetti T. Agensis of maxillary lateral incisors and associated dental anomalies. *Am J Orthod Dentofacial Orthop* 2010;137:732 e1-6; discussion -3.
6. Bolton WA. Disharmony In Tooth Size And Its Relation To The Analysis And Treatment Of Malocclusion. *The Angle Orthodontist* 1958;28:113-30.
7. Barros SE, Janson G, Torres FC, de Freitas MR, de Almeida RR. Class I malocclusion treatment: influence of a missing mandibular incisor on anterior guidance. *Am J Orthod Dentofacial Orthop* 2010;138:109-17.
8. Polder BJ, Van't Hof MA, Van der Linden FP, Kuijpers-Jagtman AM. A meta-analysis of the prevalence of dental agenesis of permanent teeth. *Community Dent Oral Epidemiol* 2004;32:217-26.
9. Shimizu T, Maeda T. Prevalence and genetic basis of tooth agenesis. *Japanese Dental Science Review* 2009;45:52-8.
10. Larmour CJ, Mossey PA, Thind BS, Forgie AH, Stirrups DR. Hypodontia--a retrospective review of prevalence and etiology. Part I. *Quintessence Int* 2005;36:263-70.
11. Endo T, Ozoe R, Kubota M, Akiyama M, Shimooka S. A survey of hypodontia in Japanese orthodontic patients. *Am J Orthod Dentofacial Orthop* 2006;129:29-35.
12. Endo T, Ozoe R, Kojima K, Shimooka S. Congenitally missing mandibular incisors and mandibular symphysis morphology. *Angle Orthod* 2007;77:1079-84.
13. Janson G, Maria FR, Bombonatti R. Frequency evaluation of different extraction protocols in orthodontic treatment during 35 years. *Prog Orthod* 2014;15:51.
14. Uribe F, Holliday B, Nanda R. Incidence of open gingival embrasures after mandibular incisor extractions: a clinical photographic evaluation. *Am J Orthod Dentofacial Orthop* 2011;139:49-54.
15. Canut JA. Mandibular incisor extraction: indications and long-term evaluation. *Eur J Orthod* 1996;18:485-9.
16. Dacre JT. The long term effects of one lower incisor extraction. *Eur J Orthod* 1985;7:136-44.
17. Newman GV, Newman RA. Report of four familial cases with congenitally missing mandibular incisors. *Am J Orthod Dentofacial Orthop* 1998;114:195-207.
18. Brandt S, Safirstein GR. Different extractions for different malocclusions. *Am J Orthod* 1975;68:15-41.

19. Valinoti JR. Mandibular incisor extraction therapy. *Am J Orthod Dentofacial Orthop* 1994;105:107-16.
20. Akyalcin S, Dogan S, Dincer B, Erdinc AM, Oncag G. Bolton tooth size discrepancies in skeletal Class I individuals presenting with different dental angle classifications. *Angle Orthod* 2006;76:637-43.
21. Schneider U, Moser L, Fornasetti M, Piattella M, Siciliani G. Esthetic evaluation of implants vs canine substitution in patients with congenitally missing maxillary lateral incisors: Are there any new insights? *Am J Orthod Dentofacial Orthop* 2016;150:416-24.
22. Masoud MI. Bilateral missing lower permanent incisors: a case report. *Aust Orthod J* 2013;29:193-9.
23. Faerovig E, Zachrisson BU. Effects of mandibular incisor extraction on anterior occlusion in adults with Class III malocclusion and reduced overbite. *Am J Orthod Dentofacial Orthop* 1999;115:113-24.
24. Shah AH, Shah DH. Mandibular incisor extraction treatment in Angle's Class I malocclusion with peg-shaped maxillary lateral incisors. *J Orthod Sci* 2016;5:100-3.
25. Pujol A, Bardinat E, Bazert C, Darque KA. L'extraction d'une incisive mandibulaire. *Revue d'Orthopedie Dento Faciale* 2001;35:185-96.
26. Zhang R, Bai Y, Li S. Use of Forsus fatigue-resistant device in a patient with Class I malocclusion and mandibular incisor agenesis. *Am J Orthod Dentofacial Orthop* 2014;145:817-27.
27. Bolton WA. The clinical application of a tooth-size analysis. *Am J Orthodontics* 1962;48:504-29.
28. Riedel RA, Little RM, Bui TD. Mandibular incisor extraction--postretention evaluation of stability and relapse. *Angle Orthod* 1992;62:103-16.
29. Gandhi P, Goel M, Batra P. Relative comparison and assessment of patient's attitude and discomfort between two different types of fixed functional appliances: A comprehensive survey. *Journal of Orthodontic Research* 2013;1:83-8.
30. Sangcharearn Y, Ho C. Effect of Incisor Angulation on Overjet and Overbite in Class II Camouflage Treatment. A typodont study. *Angle Orthod* 2007;77:1011-8.
31. Sangcharearn Y, Ho C. Maxillary incisor angulation and its effect on molar relationships. *Angle Orthod* 2007;77:221-5.
32. O'Higgins EA, Kirschen RH, Lee RT. The influence of maxillary incisor inclination on arch length. *Br J Orthod* 1999;26:97-102.
33. McLaughlin RP, Bennett JC. Finishing with the preadjusted orthodontic appliance. *Semin Orthod* 2003;9:165-83.
34. Cao L, Zhang K, Bai D, Jing Y, Tian Y, Guo Y. Effect of maxillary incisor labiolingual inclination and anteroposterior position on smiling profile esthetics. *Angle Orthod* 2011;81:121-29.
35. Martin AJ, Buschang PH, Boley JC, Taylor RW, McKinney TW. The impact of buccal corridors on smile attractiveness. *Eur J Orthod* 2007;29:530-7.
36. Ochoa BK, Nanda RS. Comparison of maxillary and mandibular growth. *Am J Orthod Dentofacial Orthop* 2004;125:148-59.

37. Hayasaki SM, Castanha Henriques JF, Janson G, de Freitas MR. Influence of extraction and nonextraction orthodontic treatment in Japanese-Brazilians with class I and class II division 1 malocclusions. *Am J Orthod Dentofacial Orthop* 2005;127:30-6.
38. Yamaguchi K, Nanda RS. The effects of extraction and nonextraction treatment on the mandibular position. *Am J Orthod Dentofacial Orthop* 1991;100:443-52.
39. Marya CM, Sharma G, Parashar VP, Dahiya V, Gupta A. Mandibular midline supernumerary tooth associated with agenesis of permanent central incisors: a diagnostic conundrum. *Stomatologija* 2012;14:65-8.
40. Porumb A, Ignat Romanul I, Dalai C, Ciavoi G, Tig IA. A Rare Case of Bilateral Agenesis of Central Lower Incisors Associated With Upper Impacted Canine- A Case Report. *Iran J Public Health* 2016;45:381-6.
41. Malleshi SN, Basppa S, Negi S, Irshad A, Nair SK. The unusual peg shaped mandibular central incisor – report of two cases. *Journal of Research and Practice in Dentistry* 2014;2014:1-6.
42. Mercuri E, Cassetta M, Cavallini C, Vicari D, Leonardi R, Barbato E. Dental anomalies and clinical features in patients with maxillary canine impaction. *Angle Orthod* 2013;83:22-8.
43. Qadri S, Parkin NA, Benson PE. Space closing versus space opening for bilateral missing upper laterals - aesthetic judgments of laypeople: a web-based survey. *J Orthod* 2016;43:137-46.
44. Robertsson S, Mohlin B. The congenitally missing upper lateral incisor. A retrospective study of orthodontic space closure versus restorative treatment. *Eur J Orthod* 2000;22:697-710.
45. Silveira GS, de Almeida NV, Pereira DM, Mattos CT, Mucha JN. Prosthetic replacement vs space closure for maxillary lateral incisor agenesis: A systematic review. *Am J Orthod Dentofacial Orthop* 2016;150:228-37.
46. Zachrisson BU, Rosa M, Toreskog S. Congenitally missing maxillary lateral incisors: canine substitution. *Point. Am J Orthod Dentofacial Orthop* 2011;139:434, 6, 8 passim.
47. Ludwig B, Zachrisson BU, Rosa M. Non-compliance space closure in patients with missing lateral incisors. *J Clin Orthod* 2013;47:180-7.
48. Sabri R. Management of missing maxillary lateral incisors. *J Am Dent Assoc* 1999;130:80-4.
49. Kokich VG, Shapiro PA. Lower incisor extraction in orthodontic treatment. Four clinical reports. *Angle Orthod* 1984;54:139-53.
50. Hanna A, Ellis E, 3rd. Tooth-Size Discrepancies in Patients Requiring Mandibular Advancement Surgery. *J Oral Maxillofac Surg* 2016;74:2481-6.
51. Katsis Iii J, Behrents RG, Araujo EA, Oliver DR, Kim KB. Posttreatment evaluation of maxillary canine positions in 15-year-old subjects. *Am J Orthod Dentofacial Orthop* 2016;149:481-90.
52. Pindoria J, Fleming PS, Sharma PK. Inter-proximal enamel reduction in contemporary orthodontics. *Br Dent J* 2016;221:757-63.
53. Lapenaite E, Lopatiene K. Interproximal enamel reduction as a part of orthodontic treatment. *Stomatologija* 2014;16:19-24.

54. Joss-Vassalli I, Grebenstein C, Topouzelis N, Sculean A, Katsaros C. Orthodontic therapy and gingival recession: a systematic review. *Orthod Craniofac Res* 2010;13:127-41.
55. Aziz T, Flores-Mir C. A systematic review of the association between appliance-induced labial movement of mandibular incisors and gingival recession. *Aust Orthod J* 2011;27:33-9.
56. Burke SP, Silveira AM, Goldsmith LJ, Yancey JM, Van Stewart A, Scarfe WC. A meta-analysis of mandibular intercanine width in treatment and postretention. *Angle Orthod* 1998;68:53-60.
57. Fudalej P, Bollen AM, Hujuel IA. Relapse of mandibular incisor alignment is not associated with the total posttreatment mandibular rotation. *Am J Orthod Dentofacial Orthop* 2010;138:392 e1- e7.
58. Uysal T, Memili B, Usumez S, Sari Z. Dental and alveolar arch widths in normal occlusion, class II division 1 and class II division 2. *Angle Orthod* 2005;75:941-7.
59. Al-Buraiki H, Sadowsky C, Schneider B. The effectiveness and long-term stability of overbite correction with incisor intrusion mechanics. *Am J Orthod Dentofacial Orthop* 2005;127:47-55.

Legend to the figures

Figure 1 – Pretreatment facial and intraoral photographs.

Figure 2 – Pretreatment radiographs: A, lateral cephalogram; B, panoramic radiograph; C, periapical radiograph of the mandibular incisors.

Figure 3 – Pretreatment dental casts.

Figure 4 – Progress intraoral photographs: space opening, incisor protrusion and intercanine width increase.

Figure 5 – Progress intraoral photographs: lingual and labial crown torque applied to the maxillary and mandibular canines, respectively.

Figure 6 – Posttreatment facial and intraoral photographs.

Figure 7 – Posttreatment radiographs: A, lateral cephalogram; B, panoramic radiograph; C, periapical radiograph of the mandibular incisors.

Figure 8 – Posttreatment dental casts.

Figure 9 - Cephalometric superimposition showing dentoskeletal and soft tissue profile changes. Blue, pretreatment; red, posttreatment.

Figure 10 – Eighteen months follow-up facial and intraoral photographs.

Figure 11 – Eighteen months follow-up radiographs: A, lateral cephalogram; B, panoramic radiograph; C, periapical radiograph of the mandibular incisors.

Table – Cephalometric measurements.

Variables	Norm	Initial	Final	Follow-up 18 months
SNA(°)	82.0	81.2	80.8	81.1
Co-A (mm)	87.0	84.1	85.0	84.7
SNB(°)	80.0	76.4	77.0	76.9
Co-Gn (mm)	110.0	103.7	106.8	107.7
ANB(°)	2.0	4.8	4.2	4.2
Wits (mm)	0.0	2.7	1.0	0.7
SN-MP (°)	32.0	33.4	34.5	35.5
FH-MP (°)	25.0	26.1	26.4	25.3
LAFH	62	63.5	65.0	64.6
U1-NA (°)	22.0	14.9	20.9	20.5
U1-PP (°)	112.0	104.0	109.0	108.6
L1-NB (°)	25.0	26.6	36.4	35.2
IMPA (°)	90.0	93.3	104.1	103.4
Overjet (mm)	2 - 3	4	2.5	2.8
Overbite (mm)	1 - 3	5	1.7	2.1
Nasolabial angle (°)	110	114.1	109.0	110.3
Upper lip to S Line (mm)	0	-3.4	-3.0	-3.1
Lower lip to S Line (mm)	0	-3.1	-2.3	-2.0

Figures



Fig 1

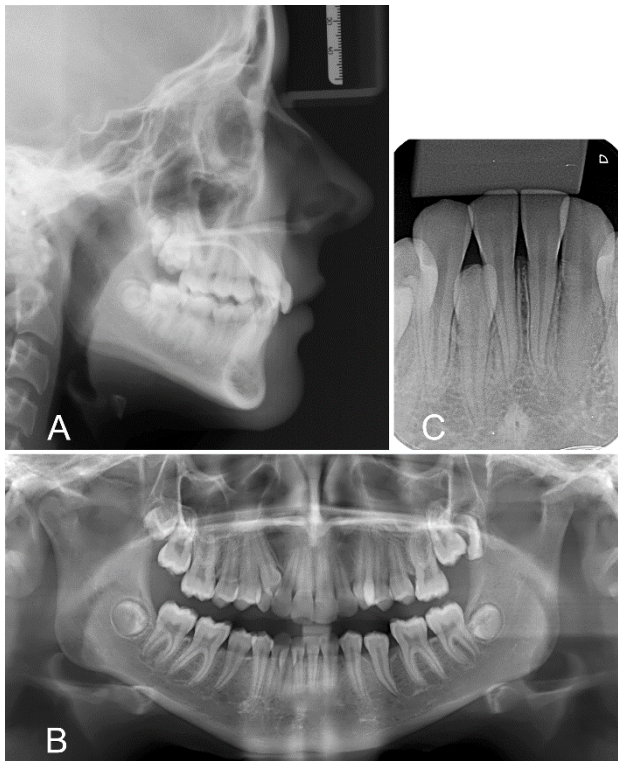


Fig 2



Fig 3



Fig 4



Fig 5



Fig 6

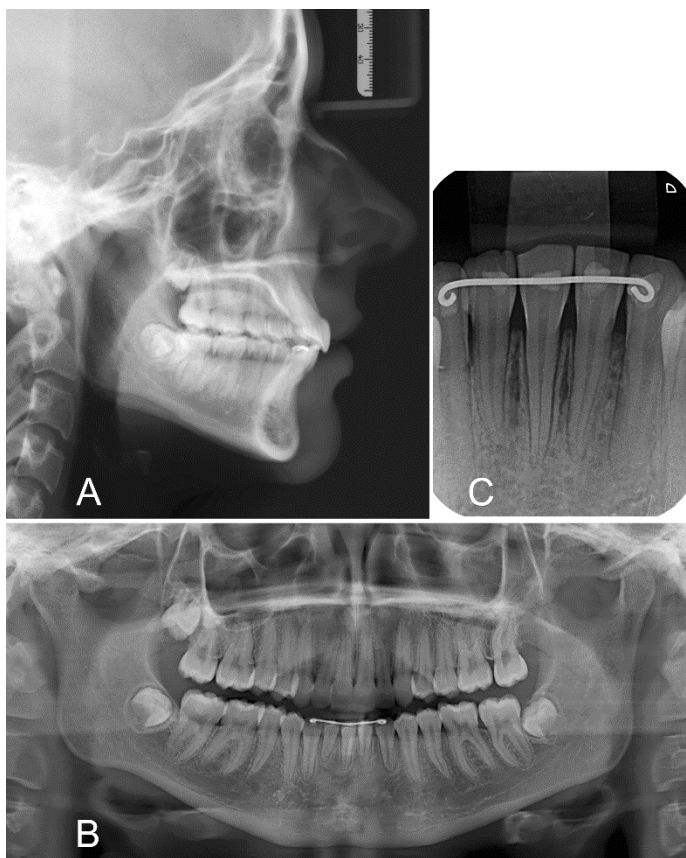


Fig 7

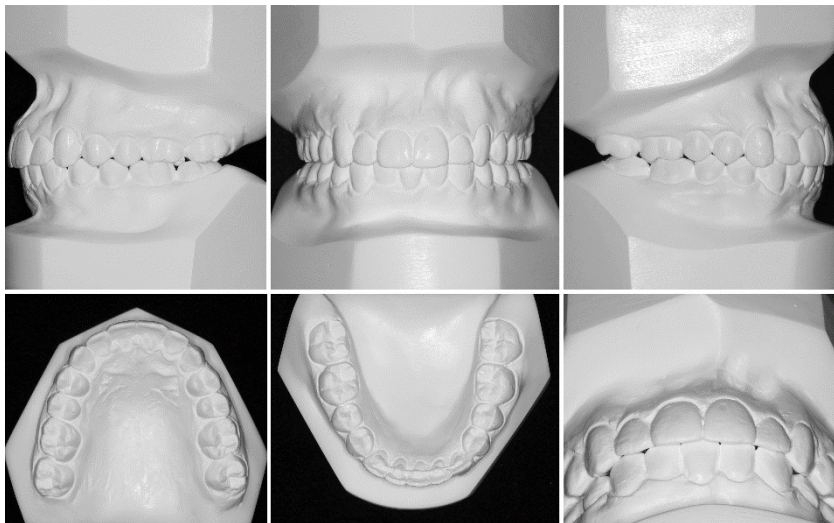


Fig 8

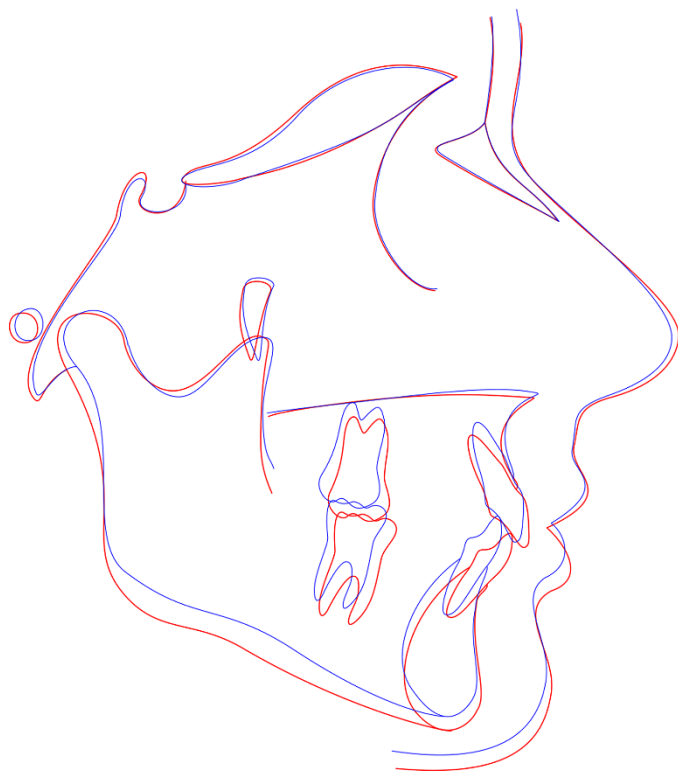


Fig 9



Fig 10

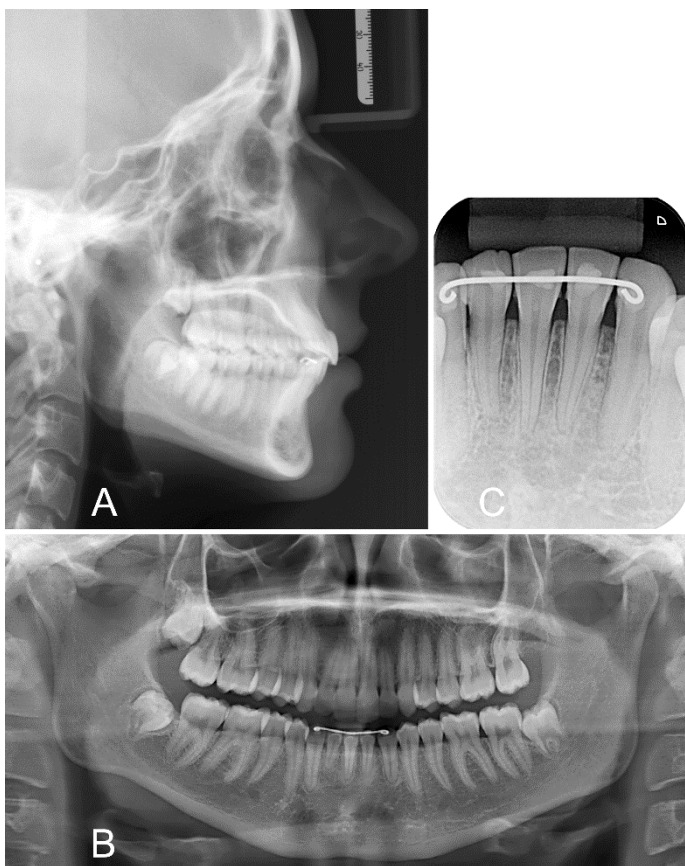


Fig 11

4 CONSIDERAÇÕES FINAIS

Este trabalho abordou o caso clínico de uma paciente tratada no curso de Especialização em Ortodontia da Faculdade de Odontologia da Universidade Federal do Rio Grande do Sul (FO-UFRGS) em que a discrepância de massa dentária causada pela agenesia de um incisivo inferior foi dissipada por um protocolo específico.

Os autores consideram que a total dissipação da discrepância de massa dentária se deu pela posição compensatória dos incisivos em suas bases ósseas, pela redução do esmalte na região interproximal dos incisivos superiores e pela reanatomização do incisivo inferior de tamanho reduzido. Além disso, o posicionamento compensatório dos caninos, obtido com o auxílio de um torque individualizado, também contribuiu para alcançar uma oclusão satisfatória do ponto de vista estático e funcional ao final do tratamento.

As vantagens deste protocolo aplicado a este caso clínico específico incluem a preservação da estética facial, a manutenção da relação anteroposterior de Classe I dos molares e caninos, a normalização da relação dos incisivos (overjet e overbite), a ausência de extrações ortodônticas no arco antagonista e a ausência de reabilitação protética. Como consequência obteve-se também um alto grau de satisfação da paciente ao final do tratamento.

Assim, a abordagem terapêutica sugerida pelo artigo pode ter ampla aplicabilidade clínica em casos que tenham semelhanças no diagnóstico.

REFERÊNCIAS

Akyalcin S, Dogan S, Dincer B, Erdinc AM, Oncag G. Bolton tooth size discrepancies in skeletal Class I individuals presenting with different dental angle classifications. *Angle Orthod* 2006;76:637-43.

Al-Abdallah M, AlHadidi A, Hammad M, Al-Ahmad H, Saleh R. Prevalence and distribution of dental anomalies: a comparison between maxillary and mandibular tooth agenesis. *Am J Orthod Dentofacial Orthop* 2015;148:793-8.

Barros SE, Janson G, Torres FC, de Freitas MR, de Almeida RR. Class I malocclusion treatment: influence of a missing mandibular incisor on anterior guidance. *Am J Orthod Dentofacial Orthop* 2010;138:109-17.

Bolton WA. Disharmony In Tooth Size And Its Relation To The Analysis And Treatment Of Malocclusion. *The Angle Orthodontist* 1958;28:113-30.

Bolton WA. The clinical application of a tooth-size analysis. *Am J Orthodontics* 1962;48:504-29.

Cakan DG, Ulkur F, Taner T. The genetic basis of dental anomalies and its relation to orthodontics. *Eur J Dent* 2013;7:S143-7.

Canut JA. Mandibular incisor extraction: indications and long-term evaluation. *Eur J Orthod* 1996;18:485-9.

Dacre JT. The long term effects of one lower incisor extraction. *Eur J Orthod* 1985;7:136-44.

Endo T, Ozoe R, Kubota M, Akiyama M, Shimooka S. A survey of hypodontia in Japanese orthodontic patients. *Am J Orthod Dentofacial Orthop* 2006;129:29-35.

Garib DG, Alencar BM, Lauris JR, Baccetti T. Agenesis of maxillary lateral incisors and associated dental anomalies. *Am J Orthod Dentofacial Orthop* 2010;137:732 e1-6; discussion -3.

Janson G, Maria FR, Bombonatti R. Frequency evaluation of different extraction protocols in orthodontic treatment during 35 years. *Prog Orthod* 2014;15:51.

Moyers R. *Ortodontia*, 4^aed, Buenos Aires: Guanabara Koogan, 1991.

Newman GV, Newman RA. Report of four familial cases with congenitally missing mandibular incisors. *Am J Orthod Dentofacial Orthop* 1998;114:195-207.

Nieminen P. Genetic basis of tooth agenesis. *J Exp Zool B Mol Dev Evol* 2009;312B:320-42.

Polder BJ, Van't Hof MA, Van der Linden FP, Kuijpers-Jagtman AM. A meta-analysis of the prevalence of dental agenesis of permanent teeth. *Community Dent Oral Epidemiol* 2004;32:217-26.

Schneider U, Moser L, Fornasetti M, Piattella M, Siciliani G. Esthetic evaluation of implants vs canine substitution in patients with congenitally missing maxillary lateral incisors: Are there any new insights? *Am J Orthod Dentofacial Orthop* 2016;150:416-24.

Shimizu T, Maeda T. Prevalence and genetic basis of tooth agenesis. *Japanese Dental Science Review* 2009;45:52-8.

Valinoti JR. Mandibular incisor extraction therapy. *Am J Orthod Dentofacial Orthop* 1994;105:107-16.

Vellini F.F. *Ortodontia Diagnóstico e Planejamento Clínico*, 7^a ed, Artes Médicas, 2008.

ANEXO A – Termo de consentimento informado Ortodontia UFRGS

TERMO DE CONSENTIMENTO INFORMADO

Ao iniciarmos o tratamento ortodôntico, que se submeterá Gabrielli Johann, no Curso de Especialização em Ortodontia da Faculdade de Odontologia da UFRGS, estamos cientes e assumimos o compromisso referente a conduta e as informações prestadas pelos Professores e Cirurgiões-dentistas.

Temos conhecimento que o sucesso do presente tratamento depende, completa e totalmente, da colaboração do paciente.

Esta colaboração requer a observação dos seguintes itens durante o tratamento:

- Escovação cuidadosa e freqüente e uso do fio dental;
- Evitar alimentos duros, pegajosos e açucarados (balas carameladas, chicletes e outros). Alguns alimentos deverão ser cortados antes da ingestão;
- Usar elásticos, aparelhos de contenção e outros aparelhos indicados;
- Ser assíduo e pontual nas consultas. O não comparecimento às consultas poderá ocasionar o desligamento do tratamento;
- Visitar seu dentista clínico a cada 06 meses;
- Participação ativa dos pais ou responsáveis na supervisão da higiene bucal, do uso dos aparelhos e da alimentação adequada;
- Após o período de tratamento ativo, o paciente deverá usar um aparelho removível de contenção superior, por aproximadamente 02 anos ou mais, e uma contenção fixa inferior por tempo indeterminado, com o objetivo de manter os dentes nas posições que foram conseguidas.

Em algumas situações, poderá haver necessidade de extrações dentárias, durante o tratamento, sendo os custos, a definição do local e do profissional que realizará o procedimento, de responsabilidade do paciente.

Ciente: 

Duração do tratamento

O tempo do tratamento pode variar pelo grau de dificuldade do caso e, é influenciada, pela quebra de aparelhos, faltos freqüentes às consultas, não colaboração no uso dos aparelhos, alterações do crescimento que não atenderam a expectativa inicial quando da realização do plano de tratamento, entre outros. O surgimento de situações ou elementos novos pode levar a procedimentos adicionais ou diferentes daqueles previamente programados.

Riscos do tratamento ortodôntico

Poderão ocorrer descalcificações nos dentes, manchas permanentes, cáries, inflamação gengival, se o paciente não seguir as orientações de seu ortodontista quanto à higiene bucal.

Durante o tratamento ortodôntico, ocorrendo problemas de descalcificação, cárie, inflamação gengival, pode-se julgar necessária a retirada dos aparelhos e/ou a interrupção do tratamento para evitar danos irreparáveis, mesmo nos casos em que foi necessário extrair dentes.

Os dentes "tortos" têm a tendência de retornar às suas posições originais, por isso, é imprescindível a fase de contenção para evitar a recidiva.

Durante o tratamento ortodôntico poderão ocorrer reabsorções radiculares em graus variados (encurtamento de raiz). Geralmente, como resposta à movimentação, ocorre um arredondamento das pontas das raízes. Em casos raros, o organismo pode responder aos diferentes tipos de movimentos com uma reabsorção exagerada de um ou mais dentes, podendo ser necessária a interrupção do tratamento ortodôntico, temporária ou definitivamente.

O movimento dentário associado às condições prévias da polpa (nervo) pode, excepcionalmente, levar à uma necrose pulpar (morte do nervo); sendo necessário o tratamento endodôntico (de canal).

Ciente: _____



Desistência do tratamento ou transferência

No caso de haver desistência definitiva do tratamento, o responsável deverá assinar um termo de desistência, com a finalidade de resguardar o interesse de ambas as partes, caso contrário, o profissional fica automaticamente isento de qualquer responsabilidade advinda da suspensão do tratamento sem seu prévio consentimento. O mesmo aplicar-se-á em caso de transferência do paciente para outro profissional.

O profissional ficará isento de qualquer responsabilidade caso o paciente procure outro profissional, permitindo que esse manuseie o aparelho sem prévio consentimento.

Ocorrendo 03 (três) meses de não comparecimento às consultas, com ou sem justificativa, será estimado abandono de tratamento.

Uso de Imagens

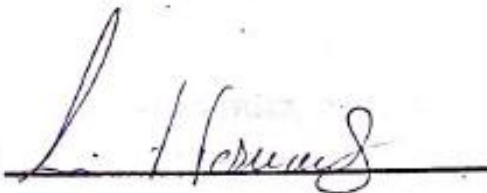
Autorizo o uso da documentação ortodôntica (fotografias, radiografias, modelos, análises) realizada no início, durante e após o tratamento, pois constitui meio de diagnóstico, planejamento e acompanhamento dos casos. Este material poderá ser utilizado para estudo, material didático, discussão de casos em eventos científicos e afins. Nesses casos, será preservada a identificação do paciente em questão.

Resultados do tratamento

O ortodontista usará todos os meios técnicos e científicos que estão à sua disposição, visando atingir o melhor resultado possível para cada caso.

Sendo a odontologia uma ciência, fica impossível prever um resultado exato, razão pela qual, não podem ser dadas garantias de resultados ou tempo de permanência dos resultados obtidos.

Ciente: _____



Estes esclarecimentos constam de 03(três) folhas assinadas em duas vias, sendo uma para o profissional e outra para o paciente ou responsável.

Declaro estar ciente e de acordo com o plano de tratamento, as instruções e informações que a mim foram apresentadas.

Porto Alegre, 3 / 6 / 2014.

Paciente

 _____

Responsável

 _____

Cirurgião-Dentista


ANEXO B – Photo Release AJO-DO – Preenchido e assinado

Photo Release

Must be signed by the patient and/or the parent.

I consent to the taking of records, including photographs, and x-rays, before, during, and after treatment, and to the use of the records by my doctor in scientific papers, demonstrations, and all forms and media.

Patient's name Gabrielli Fernandes Johann

Signature : 

Parent's name Marcelo Fagundes Johan

Signature : 

Doctor's name Sergio Estelita Barros

Signature : 

Date: Porto Alegre, January 21th, 2019

Return to:

American Journal of Orthodontics and Dentofacial Orthopedics
 Orthodontics, School of Dentistry
 D-569, Health Sciences Box 357446
 Seattle, WA 98195
 206-221-5413, phone


Permission to use photos
 11/16/09

ANEXO C – Carta de aceitação do Periódico AJO-DO

← Voltar ↶ ↷ ➡

Arquivar Mover Apagar Spam ...

• Your Submission AJODO-D-19-00275R2 Yahoo/Entrada ★

 American Journal of Orthodontics <eesserver@eesmail.elsevier.com>
Para: sergioestelita@yahoo.com.br 18 de jun. de 2019 às 16:17

Ms. Ref. No.: AJODO-D-19-00275R2
Title: Dissipating tooth-mass discrepancy caused by a set of mandibular incisor anomalies
American Journal of Orthodontics & Dentofacial Orthopedics

Dear Dr. Barros,

Thank you for your patience while we had your case report reviewed for publication in the American Journal of Orthodontics & Dentofacial Orthopedics. The case report editor has given the submission high marks, and I am pleased to accept it for publication. It will make a fine addition to the orthodontic literature.

We have several case reports in line for publication ahead of yours. When we approach the publication date, we will forward yours to the production department where it will be readied for printing. The production department will send you an email when the proof is ready for your approval. I look forward to seeing your case report in print and online.

With kind regards,

Rolf Behrents
Editor-in-Chief
American Journal of Orthodontics and Dentofacial Orthopedics
Manuscript submission: www.ees.elsevier.com/ajodo
Journal website: www.ajodo.org

Comments from the Editors and Reviewers:

↶ ↷ ➡ ...