Revista Mexicana de Ortodoncia

Vol. 5, No. 1 • January-March 2017
pp e55–e59

CASE REPORT

Relapse treatment in a patient with previous first premolar extractions for referral to restorative dentistry

Tratamiento de la recidiva en un paciente con extracciones previas de primeros premolares, para su remisión a odontología restauradora

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ABSTRACT

Relapse is an unavoidable challenge for the specialist; in orthodontic practice several recommendations have been stated to prevent it: maintain the original arch form, particularly the lower; do not modify inter-canine width, do not modify the bucco-lingual incisor inclination, achieve a good intercuspation, perform circumferential supracrestal fiberotomy and overcorrect rotated teeth. A case report is hereby presented. The patient was 25-year-old and had had a previous orthodontic treatment with four first premolar extractions. He presented moderate upper and lower crowding, gingivitis, no temporomandibular joint symptoms, and dental anatomy abnormalities in teeth 3.4 and 4.4. **Objectives:** Preparation for referral to restorative dentistry, obtain a normal overbite and overjet, maintain arch form, match dental midlines, achieve good intercuspation, root parallelism and improve periodontal health. **Methods:** Non-extraction case treated with fixed appliances: In-Ovation® 0.022" x 0.028" Roth Thermo-activated Palatal Expander® to obtain space on the upper arch. **Results:** All the objectives were achieved despite the dental anatomy abnormalities, except for root parallelism due to anomalies in root form. **Conclusions:** The case was treated following the established orthodontic recommendations to prevent a second episode of relapse and at the same time obtain a good prognosis for referral to restorative dentistry.

RESUMEN

La recidiva es un escenario ineludible para el especialista; en la práctica ortodóncica varias recomendaciones han sido establecidas para prevenirla, mencionando entre éstas: mantener la forma de arco original, de manera particular la forma de arco inferior, no modificar la distancia intercanina, no modificar la inclinación buco-lingual de los incisivos, obtener un buen engranaje oclusal, realizar fibrotomía circunferencial supracrestal y sobrecorregir dientes rotados. El presente caso clínico corresponde al de una paciente de 25 años de edad, tratamiento ortodóncico previo con extracción de cuatro primeros premolares, moderado apiñamiento superior, moderado apiñamiento inferior, gingivitis, ningún síntoma de trastorno temporomandibular y anormalidades anatómicas en órganos dentales 3.4 y 4.4. **Objetivos:** Preparar el caso clínico para remisión a odontología restauradora, establecer una correcta sobremordida horizontal y vertical, no modificar la forma de arco original, coincidir líneas medias, obtener un correcto ajuste oclusal, conseguir paralelismo radicular y mejorar salud periodontal. **Métodos:** Tratamiento a realizar sin extracciones, aparatología fija Roth In-Ovation® 0.022" x 0.028", uso de expansor Palatino Termo Activado® para obtención de espacio en la arcada superior. **Resultados:** Todos los objetivos fueron conseguidos a pesar de las anormalidades anatómicas dentales, salvo el paralelismo radicular en todas las piezas por anormalidades de forma también en la porción radicular. **Conclusiones:** El caso clínico se llevó de acuerdo con las recomendaciones ortodóncicas para evitar un segundo episodio de recidiva y al mismo tiempo obtener un buen pronóstico para su remisión al departamento de odontología restauradora.

Key words: Relapse, retreatment, extraction case, dental anatomy abnormalities.
Palabras clave: Recidiva, retratamiento, caso con extracciones, anormalidades anatómicas dentales.

INTRODUCTION

Relapse in orthodontics is presented as an unavoidable scenario for the specialist.[1] It is frequent to find patients who require a new treatment for presenting current signs of crowding, mainly in those cases where teeth were rotated quickly and in a considerable amount of degrees.[2] It is the responsibility of the professional to base his or her practice on evidence-based recommendations to minimize the possibility of inconveniences.

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See related content at doi: http://dx.doi.org/10.1016/j.rmo.2017.03.027

Some of these recommendations are:

- Do not modify the original arch shape, particularly the shape of the lower jaw and intercanine distance.[3-6] The initial position of the teeth has developed between the muscular strength of the tongue in its inner part and the muscular resistance that the cheeks and the orbicular muscle in the external part offer.[4]
- All dental inclination tends to be unstable so if proclination is part of the final objectives, indefinite retention must be considered.[1]
- A correct occlusal intercuspation prevents transverse relapse.[6]
- Overcorrect teeth that are severely rotated.[2,7,8]
- Perform circumferential supracrestal fiberotomy.[8,9]
- Alignment and root parallelism; must be taken into consideration in cases of incisors outside the archline with individual torque to bring the root into the basal bone and with an adequate amount of bone between neighboring roots.[6]
- Interproximal wear from canine to canine to create a contact area instead of a contact point.[1,9]
- Elimination of harmful habits.[10]

Long-term stability is possible with a correct diagnosis and clear objectives; however, the patient must assimilate the possibility of change that occurs with growth and development, understanding the difference between relapse and natural changes of the age.

METHODS

The present article presents the case of a female patient of 25 years and 2 months of age, with a prior orthodontic treatment, in which the extraction of 4 first premolars was performed *(Figure 1).*

Clinical setting at the beginning of treatment: no symptoms of temporomandibular joint disorder, gingivitis associated with plaque, crossbite of upper left lateral incisor, moderate upper and lower crowding, caries between 2.5 and 2.6, no dental mobility, no endodontic treatments, anatomic abnormalities in the size and shape of second lower premolars *(Figures 2A-2E)*.

Objectives

Prepare the case for referral to restorative dentistry.
Establish a correct overjet and overbite.
Do not modify the original arch shape.
Match dental midlines.
Obtain a correct occlusal relationship.
Achieve root parallelism.
Improve periodontal health.

Treatment plan:

Placement of In-Ovation® 0.022" x 0.028", Roth prescription appliances.

Thermo-active Palatal Expander® for obtaining space in the upper arch *(Figure 3)*.

Phase I:

0.014" CuNiTi for a minimum of 3 months, maximum 6 months.

0.016" Nitinol, correction of dental midlines.

0.018" Nitinol assessment of leveling, alignment and molar class.

Phase II: Space closure (elastomeric chains and cinched closing archwires).

0.018" S.S.

0.019" x 0.025" S.S.

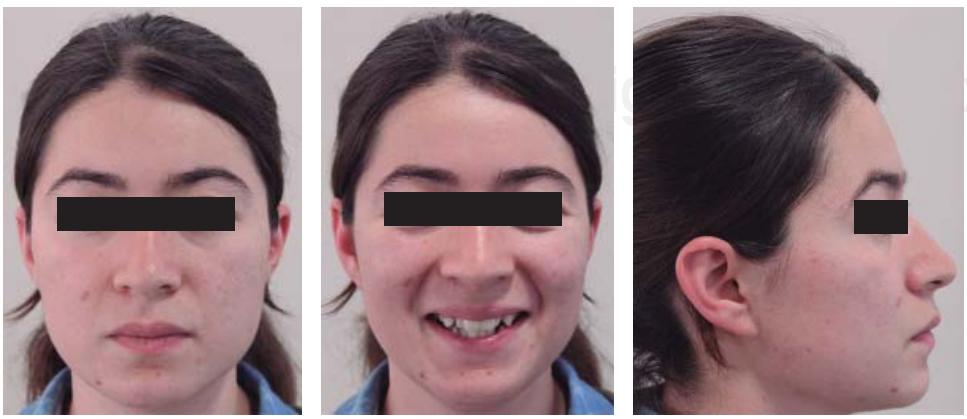

Figure 1.

Initial facial photographs.