



Orthodontic management of a patient with canine displacement associated with an unusual impaction of central incisor. Case report

Manejo ortodóncico de paciente con desplazamiento de canino asociado a una inusual impactación del incisivo superior. Reporte de caso

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ABSTRACT

This case report describes the treatment of a nine-year-old female patient with a history of dental trauma at age five in the incisors area. She had an early mixed dentition, class I molar relationships and moderate crowding. The maxillary central incisor had not erupted, so we determined radiographically that it was impacted in a horizontal position toward the midline, the lateral incisor was inclined and the canine mesially displaced with an impaction tendency against the lateral incisor. Orthodontic treatment consisted of the placement of initial 4 x 2 orthodontic fixed appliances and space opening. The periodontal surgery was performed in two stages. In the first stage the central incisor was surgically exposed. Subsequently in the second stage, the maxillary right deciduous canine was extracted, then periodontal surgery was performed to expose the impacted permanent canine. Finally, we tractioned each tooth into its proper position.

Key words: Displacement, canine, incisor, impaction.

Palabras clave: Desplazamiento, canino, incisivo, impactación.

INTRODUCTION

Dental impaction in spite of the fact that it might be considered as a type of ectopic eruption, its main feature is the absence of eruption of one or more teeth in the oral cavity.¹ In most cases a larger or smaller infraosseous path of the impacted tooth can be seen, but without making its appearance in the oral cavity; there is no alveolar emergency or clinical emergency.^{1,2} It may be observed in the deciduous dentition, although in this case it can be the result of re-impactions of usually traumatic etiology.^{1,2} Much more frequently, impacted teeth are observed in permanent dentition;

RESUMEN

Este reporte de caso describe el tratamiento de una paciente femenina de nueve años de edad con antecedente de trauma dental a los cinco años de edad en el sector anterior. Clase I esquelética y perfil convexo. A la exploración intraoral se observó dentición mixta, clase I molar y apiñamiento moderado en la arcada superior e inferior. El incisivo central superior derecho sin erupcionar y con pérdida de espacio por la migración mesial del incisivo lateral; se determinó radiográficamente que el incisivo central superior derecho estaba impactado en una posición horizontal hacia la línea media, el incisivo lateral inclinado y el canino con desplazamiento hacia mesial, perdiendo la guía de erupción del canino temporal y con tendencia a la impactación contra el incisivo lateral. El tratamiento ortodóncico consistió en la colocación de aparatología ortodóncica fija de 4 x 2 (Edgewise slot 0.022 x 0.025) inicial y apertura de espacio. La cirugía periodontal se realizó en dos tiempos: en la primera fase se realizó la exposición quirúrgica del incisivo central para la colocación de un botón para la tracción ortodóncica. En la segunda fase, se extrajo el canino temporal superior derecho, seguido de la cirugía de exposición del canino permanente impactado. Finalmente se traccionó cada uno al arco en su adecuada posición.

the most affected are the third molar and the upper canine, which, because of their significance and clinical importance deserve special attention.¹ However, it is

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imperative to formulate a proper definition in the overall context of the eruption alterations responsible for the development of malocclusal situations, whether in isolation or in combination with other factors.^{1,3}

Although the upper canine tooth is the most frequently impacted, the impaction of the upper central incisor represents a problem at an early age that is detected when the tooth fails to erupt.¹⁻³ This tooth erupts before the canine, so its lack of eruption is easily detected by parents.¹

The etiology of central incisors impaction are supernumerary teeth, odontomas and trauma,¹⁻³ and the causes for the alteration and displacement in the eruption of the upper canines has been of interest to researchers for many years.^{1,2}

In the radiographic analysis it has been observed in many patients that if there is movement towards mesial of a great portion of the lateral incisor, it may have a secondary influence on the canine's eruption pattern.^{1,3}

The diagnosis of impaction of the incisors and their influence on the movement of the canine's eruption path is determined by the background referred by the parents, in addition to the clinical and radiographic examination.^{1,2}

Despite the fact that a chronological pause of approximately four years separates the eruption between the canine and the lateral incisor, its anatomical proximity gives us reason to establish a causal association between the migration of the lateral incisor due to an impaction of a central incisor and canine displacement associated with an unusual upper incisor impaction.

MATERIALS AND METHODS

Case presentation

Female patient of nine years of age comes for treatment to the Division of Postgraduate Studies and

Research at the Faculty of Dentistry of the National University of Mexico (UNAM). The chief complaint concerned the lack of eruption of an upper tooth. She was physically healthy and had a history of dental trauma at five years of age in the anterior oral region.

Diagnosis

At extraoral exploration, it was observed a dolichofacial pattern, symmetrical oval facial form, convex profile, facial and dental midlines do not match, lower third slightly increased, medium lips and lip competence (*Figure 1*).

Intraoral examination showed mixed dentition, molar class I and canine class I in primary dentition. The upper right central incisor was found not erupted and with loss of space due to the mesial migration of the lateral incisor (*Figure 2*).

In the panoramic radiograph a mixed dentition is observed. It was determined that the upper right central incisor was impacted in a horizontal position, the lateral incisor was inclined and the canine was displaced mesially and had lost the eruption guide of the primary canine and had a tendency for impaction against the lateral incisor.

Root length was 2:1 in the majority of teeth with no apex formation; asymmetrical maxillary sinuses, mandibular condyles and ramus, without pathologies (*Figure 3*).

The results of the cephalometric analysis revealed a skeletal class I with horizontal growth tendency. Upper and lower incisors were in a correct position according to their basal bone (*Figure 4 and Table I*).

Objectives

The following objectives were established at the start of the treatment: 1) traction of the impacted upper



Figure 1. Initial extraoral photographs.

Extraoral clinical inspection: **A)** frontal photograph, **B)** smile photograph, **C)** lateral photograph. A moderate facial asymmetry and a slightly convex profile is observed in the photographs.

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