



Substitution of retained canines with first maxillary premolars. Case report

Sustitución de caninos retenidos por primeros premolares maxilares. Reporte de un caso

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ABSTRACT

Introduction: Retained teeth are defined as non-erupted, well-formed, teeth that remain inside the jawbone. Third molars as well as upper canines are the most frequently retained teeth, although lower second premolars and supernumerary teeth are also prone to suffer retention. **Objectives:** To replace retained canines with first maxillary premolars by using the labial cuspid of the first maxillary premolars as canine guidance and class I molar relationship coupled to a suitable anterior guidance. **Case report:** A 16 year-old male patient with bilateral molar class III, primary maxillary canines and upper and lower anterior crowding: the radiographs show two supernumerary teeth between the lateral incisors and the first upper premolars and the impaction of the permanent maxillary canines over the upper central incisors roots, with resorption of a third of the upper right central incisor root and of the apical third of the lateral incisor in the same side, as well as the central and lateral in the opposite side. **Conclusions:** The replacement of the canines by premolars, excluding the orthodontic surgery, is a viable treatment with good functional, periodontal and esthetic results, as long as there is a good orthodontic management of the final position of the anterior teeth. Nevertheless, it's not a choice for all cases.

Key words: Retained teeth, first maxillary premolars.

Palabras clave: Dientes retenidos, primeros premolares maxilares.

RESUMEN

Introducción: Se conoce como dientes retenidos aquéllos que se han formado dentro del hueso pero que han fracasado en su proceso de erupción. Los dientes que presentan retenciones con más frecuencia son los terceros molares de ambas arcadas y los caninos superiores, seguidos por los segundos premolares inferiores y los dientes supernumerarios. **Objetivos:** Sustituir los caninos retenidos por los primeros premolares maxilares, obteniendo la guía canina con la cúspide vestibular de los primeros premolares maxilares y la relación molar clase I con una guía anterior adecuada. **Reporte del caso:** Paciente de sexo masculino de 16 años de edad. Presenta clase III molar bilateral, caninos primarios maxilares y apiñamiento anterior superior e inferior; radiográficamente, se observan dos dientes supernumerarios entre los incisivos laterales y primeros premolares superiores, y la impactación de los caninos maxilares permanentes sobre las raíces de los incisivos centrales superiores con reabsorción de un tercio de la raíz del incisivo central superior derecho y del tercio apical del incisivo lateral del mismo lado, así como del central y lateral del lado opuesto. **Conclusiones:** La sustitución de caninos por premolares eliminando la fase quirúrgica-ortodóncica, es un tratamiento viable con buenos resultados funcionales, periodontales y estéticos siempre y cuando se tenga un adecuado manejo ortodóncico en la posición final de los dientes anteriores, sin embargo no es una alternativa utilizable en todos los casos.

INTRODUCTION

Retained teeth are known as those that have formed within the bone but have failed in the process of eruption. The teeth with greater frequency of dental retention are maxillary and mandibular third molars, followed by the maxillary permanent canines with a prevalence of almost 20 times greater than the mandible. This high incidence in deviations and retentions is due to the fact that the permanent canine presents space problems in the dental arch since it is one of the last teeth to erupt, has the largest development time (11 to 13 years in the upper

arch and 10 to 11 years in the lower) and a long eruption path. Due to this factors, having reached their full development, they frequently remain trapped within the maxilla maintaining the integrity of the pericoronary sac.¹⁻⁹

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The most studied multidisciplinary problems in dentistry are the impaction of maxillary canines, however there is no strong etiological assumption. The most viable evidence is that of an isolated phenomenon or a polygenic multifactorial inheritance.¹⁰

Prevalence of the retained canines is 0.2-2.8%, and in most cases they present in an ectopic location. In a study by Ericson and Kurol in the year 2000, of 156 canines in ectopic location, it was found that in relation to the adjacent incisor roots, the crown of 21 per cent of the canines were in a buccal position; 18% were distobuccal; 27%, palatal; 23%, distopalatal; 5 per cent, apical and only 4 per cent in an apical position relative to the lateral incisor; 1% of them were in an apical position in relation to the central incisor and 6 per cent in apical position between the central and lateral incisors. Many authors have reported that there is a greater prevalence of retained canines in women than in men, two to three times, the prevalence reported by Ericson and Kurol is of 1.17% in women and 0.51% in men.^{2,9,10-13}

Several factors that contribute to canine retention have been mentioned in addition to the lack of space due to insufficient development of the jaw. These are: alterations in the eruption path, agenesis of the lateral incisor, genetic factors, ectopic location of the dental germ and the distance that it has to travel in order to erupt; bone tissue density, malposition of the adjacent teeth, extended retention of the deciduous tooth, presence of cysts, odontomas or supernumerary teeth, among others,^{3,4,9,14} other factors include: discrepancy between dental size and arc length, presence of an alveolar fissure, ankylosis, root dilaceration, iatrogeny, trauma, or idiopathic causes.

Among the risks associated with the presence of retained canines is root resorption of the adjacent

teeth. Up to 50% of the maxillary canines cause ectopic resorptions in neighboring teeth. Commonly, the resorption appears in the middle and apical third of the root of the adjacent incisors, being the maxillary lateral incisors the most affected with a percentage of 38% and the central incisors with a 9%. Ankylosis of the impacted tooth may also occur, as well as its partial or total root resorption.^{2,9,11,15}

MATERIALS AND METHODS

Case report

16-year-old male patient attends the Orthodontics Clinic of the University of Queretaro with a reason for consultation: «I want to straighten my teeth».

Clinical examination

The facial analysis shows a brachifacial patient with a straight profile. At the intraoral clinical exploration, he presents a bilateral molar class III, maxillary primary canines, square-shaped upper and lower arch, upper and lower anterior crowding, dentoalveolar protrusion and proclination of upper and lower incisors and an overjet of 1.5 mm and overbite of 1 mm (*Figures 1 and 2*).

Radiographical examination

In the panoramic radiograph two supernumerary teeth were observed between the lateral incisors and first premolars. The maxillary permanent canines were impacted over the roots of the upper central incisors. It was noted the resorption of one third of the root of the upper right central incisor and the apical thirds of



Figure 1.

Pre-treatment facial photographs.

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