

Treatment Plan in a Patient with Hypodontia

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Abstract: *Developmental absence of anterior teeth is not uncommon in orthodontic patients. Treatment depends on a number of factors, including type of malocclusion, the shape and colour of the canines. Management can be broadly divided into space closure, space opening or redistribution, and prosthetic replacement. The purpose of this article was to report the treatment plan of a patient with hypodontia.*

Keywords: Hypodontia, Oligodontia, Impaction, Space redistribution, Prosthesis

1. Introduction

Hypodontia, also known as selective tooth agenesis or congenital tooth absence. It is the developmental absence of at least one permanent tooth and is a common dental anomaly.¹ Hypodontia may occur either as part of a syndrome or as a non-syndromic form.² The permanent dentition is much more affected than the primary dentition.³ Oligodontia is defined as the congenital absence of six or more teeth, excluding third molars. Anodontia is the most severe form of hypodontia and involves absence of the entire permanent or primary dentition. The incidence of missing maxillary lateral incisors is 1% to 2% in white populations.⁴ The etiology of hypodontia can be genetically determined and arises as a familial condition. The condition is more common bilaterally than unilaterally and can be associated with impacted maxillary canines. This condition causes several problems, including unsightly spacing between the anterior teeth, and drifting and rotation of the central incisors and the canines.⁵ The management of missing maxillary lateral incisors often needs a multidisciplinary approach and can be broadly divided into space closure, space opening, and space redistribution. A number of factors should be considered in the management of such patients.⁶ These include patient factors: age, medical history, motivation, and attitude towards orthodontic treatment.

2. Case Report

A 15 years old female patient reported with a chief complaint of spacing in upper and lower anterior region. Intra-oral examination revealed absence of 12, 17, 22, 31, 32, 41, 42. The permanent mandibular left canine was missing with the over-retained deciduous canine. Anorthopantomograph revealed the absence of the crypts of the missing teeth which further concluded that they were congenitally missing. The permanent left mandibular canine was found impacted with its crown crossing the mid line. Complete absence of numerous teeth suggested it to be a case of hypodontia. The objective of the treatment was to bring the crown of the impacted canine to the occlusal plane and create space for the prosthesis of the missing maxillary lateral incisors.

The teeth available in both the arches were strapped up. A passive open-coil spring was placed between the brackets of the permanent mandibular left 1st premolar and right canine to maintain the space. An active open coil spring was placed between the brackets of left maxillary central incisor and canine for the correction of mid-line. After initial leveling and alignment, surgical exposure was done for the retrieval of the impacted tooth.



Figure 1: Pre-treatment intra-oral photographs

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The active open coil spring was changed to a passive one for the maintenance of the space for the maxillary lateral incisors following correction of the mid-line. After the canine was being retrieved, further leveling and alignment

was done. The retained deciduous canine will be extracted. Settling will be done and the brackets will be debonded. The patient will be sent to a prosthodontist for the prosthesis.

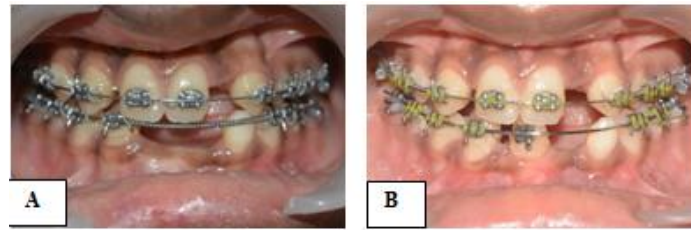


Figure 2: A. Space maintenance with passive open coil spring. B. Impacted canine after retrieval

3. Discussion

Hypodontia is one of the most common dental anomalies in the permanent dentition.⁷ The reported hypodontia rates range from 3.7% in an American population⁸ to 10.1% in a Norwegian population.⁹ Almost all studies have reported higher occurrences in females than in males.⁷ The most commonly congenitally missing tooth is the mandibular second premolar, followed by either the maxillary lateral incisor or the maxillary second premolar.¹⁰ The rate of incidence of hypodontia in Japanese populations reportedly ranges from 7.4% to 8.5%¹¹, and the mandibular lateral incisor is more commonly missing in Japanese than in any other ethnic groups.⁷

Oligodontia is defined as the congenital absence of six or more teeth, excluding third molars. In this case orthopantomograph confirmed the absence of the crypts of 12, 17, 22, 31, 32, 41, 42. So, this is a case of oligodontia.

Mandibular canine impaction is less frequent than maxillary canine impaction. Prevalence of impacted maxillary canines is 0.9-2.2% and of impacted mandibular canines is 0.05–0.4%.^{12, 13} Most of the impacted mandibular canines are unilateral and located on the labial aspect of the dental arch. Aydin et al¹⁴ reported a ratio of 1 male to 1.22 females in impacted mandibular canines but did not report a ratio between right and left side occurrences in impacted mandibular canines.

Space opening in the maxillary arch and replacement of the maxillary lateral incisors were planned. As the maxillary lateral incisors along with mandibular central and lateral incisors were developmentally absent, space closure with canine replacement wasn't planned in the maxillary arch. Moreover, the color and morphology of the maxillary canines were not encouraging to use them as lateral incisors.

4. Conclusion

Congenital absence of permanent teeth has direct clinical implications. Early evaluation of the number of missing teeth and consideration of the size and the number of teeth remaining in both arches help the clinician in planning and managing treatment. The type of malocclusion, degree of crowding and facial profile is of prime concern in determining the final treatment plan.

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