



Esthetic Rehabilitation of Bilaterally Missing Maxillary Permanent Canines – An interdisciplinary Approach

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ABSTRACT

Missing anterior teeth compromising facial esthetics have always been a challenge to orthodontist. Congenitally missing teeth are among the most common known dental anomaly. Exclusive agenesis of both maxillary canines is an extremely rare occurrence and only few cases have been reported. The condition requires careful treatment planning on the part of orthodontist to consider either space closure or space creation for prosthetic replacement, keeping in mind optimum facial esthetics and occlusal stability. This article presents a case report where orthodontic treatment followed by prosthetic rehabilitation has been done for congenitally missing upper canines.

KEYWORDS : congenitally missing teeth, orthodontic treatment, prosthetic rehabilitation

INTRODUCTION

Congenital absence of permanent canines has been reported as a rare occurrence, though several studies have reported hypodontia affecting maxillary canine.¹ It may occur as part of a syndrome or as a non-syndromic form.² The congenital absence of a tooth (hypodontia) results from a disturbance during the early stages of tooth development. Among individuals with missing teeth, those who most frequently request treatment are those with missing maxillary anterior teeth, especially with agenesis of the permanent maxillary lateral incisors.^{3,4}

Missing anterior teeth pose an esthetic problem for which the patient seeks treatment. Anterior teeth may be missing due to agenesis or due to trauma at a young age. The condition requires careful treatment planning on the part of orthodontist and consideration of the options and outcomes following either space closure or space creation for prosthetic replacement. Treatment planning dilemmas exist that are best overcome via an interdisciplinary approach that establishes not only an optimal aesthetic result but also conforms to principles of a functional and stable occlusion.

CASE REPORT

A 35 years old female patient reported with the chief complaint of spacing between her teeth and an unpleasant smile. (Figure 1,2&3)

Clinical Examination: Intraoral examination showed Angle's class I molar relation on left side. She had retained upper right deciduous canine. Upper laterals were rotated and peg-shaped. Generalised spacing was present in upper and lower arch and missing lower right first molar. (Figure 4,5&6)

Radiographic examination: Panoramic radiograph showed missing maxillary canines bilaterally and lower right first molar. (Figure 7)

Treatment objectives

To close the spaces in both the arches, keeping adequate and proportionate spaces for prosthetic replacement of maxillary canines bilaterally.

To derotate upper peg laterals and their esthetic composite build up in accordance with *golden proportion*.

To extract the retained upper right deciduous canine and replace maxillary canines bilaterally with suitable prosthesis.

Initially Implant Supported Prosthesis was planned. But due to patient's temporary financial constraints, we decided to go for removable prosthesis till patient can manage to go for implant placement in the future.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7

Treatment Progress

Orthodontic treatment was started with a 0.022" MBT Pre-adjusted Edgewise appliance. The sequence of arch wires started initially with 0.016" Nickel Titanium arch wires sequentially upto 0.019 x 0.025" Stainless Steel arch wires. Restorative build up of malformed lateral incisors was done after the alignment phase (Figure 8,9&10).

Spaces were closed and removable prosthesis was made as per patient's demand after removal of the fixed orthodontic appliance. Fixed braided SS retainer was bonded on palatal surfaces of upper centrals and laterals. (Figure 11&12)



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

Treatment Result

After a total 9 months of orthodontic treatment, the arches were well aligned, the overbite and overjet were normal, and Class I molar and canine relationships had been achieved (Figure 12). After orthodontic and prosthodontic correction, lateral incisors appeared to be in golden proportion with central incisors and so were canines. Adequate root positioning were done to ensure the possibility of implant placement in the maxillary canine region.(Figure 13)

All upper and lower teeth appeared pleasant. There was also a notable improvement in smile of the patient that will likely enhance her quality of life. The patient was greatly enthused by the final esthetics and function.(Figure 14)



Figure 13



Figure 14

DISCUSSION

Missing maxillary anterior teeth lead to an obvious asymmetry in patient's smile, shift in dental midline. Preprosthetic orthodontic measures are often an integral part of comprehensive oral rehabilitation. The individual aspects of treatment are aimed at optimizing dento-facial esthetics and at improving function and hygiene potential of prosthetic restorations. Over last several decades, dentistry has focussed on various treatment modalities for replacement of missing teeth. Treatment alternatives include removable partial dentures, conventional fixed bridges, resin bonded bridges, auto-transplantation, orthodontic repositioning of teeth to close edentulous space and single tooth implant.

Selecting appropriate treatment option depends on the malocclusion, anterior relationship, specific space requirement and condition of adjacent teeth. The ideal treatment is the most conservative option that satisfies individual esthetics and functional requirement.⁵ Treatment options may include timely extraction of the primary predecessors to facilitate spontaneous space closure with or without further orthodontic alignment, followed by lateral incisor and first premolar coronoplasty, or to keep the primary canines and replace them with a suitable restoration when they are lost. An advantage of retaining the primary predecessor is that, with the growing use of implants, alveolar resorption may be avoided until the late teens, providing the maximum potential for implant placement without the need for bone grafting. Each patient has to be assessed individually to decide the most suitable treatment plan. Referral to an orthodontist and prosthodontist for definitive treatment will be needed for most cases.^{6,7}

Congenitally missing maxillary permanent canines pose a particular challenge in treatment planning. Factors to be considered include—the condition of the primary predecessor, the number of missing teeth, the overall alignment and occlusion, and most importantly, the patient's and/or parents' preferences.⁸

CONCLUSION

Missing anterior teeth presents a challenging treatment dilemma for orthodontist as they are usually associated with other malocclusions. For successful outcome and patient satisfaction, a co-ordinated orthodontic, prosthodontic, periodontal and restorative treatment approach with careful concern towards patient expectations and requests are critical. Awareness and lifestyles have increased the demands for adult orthodontic treatment and interdisciplinary dental therapy has proven better management of the more complicated and unique requirements of adult patient population thus increasing the quality of care and treatment prognosis.

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