



**PRESERVATION OF PRIMARY SECOND MOLAR WITH CONGENITALLY MISSING
SECOND PREMOLAR: A CASE REPORT**

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ABSTRACT

The mandibular second premolar is the most frequently absent tooth after third molars with a reported prevalence of 2.4 to 4.3 percent in different populations. Primary second molars without a permanent successor remain in place beyond the time of normal exfoliation. Such teeth preserve the space and prevent resorption of the alveolar bone; thus, they can serve as a long term temporary solution until prosthetic rehabilitation. This paper reports a case of non-syndromic bilaterally congenitally missing second premolars in the mandibular region and its management.

KEY WORDS: Succadaneous missing teeth, congenital absence, second premolar, root canal treatment, gutta percha.

INTRODUCTION

Congenital absence of teeth can be found in almost any region of the dental arch and more commonly seen in permanent dentition than primary dentition.^[1] The second premolar and maxillary lateral incisor have the highest incidence of congenital absence after the third molars.^[2] Females are more often affected as compared to males with a predominance of 1.4:1.^[3]

Multifactorial etiology may be associated with the absence of these teeth. Genetic mutations of MSX-1, PAX-9, EDA and AXIN-2 have been found to be associated with tooth agenesis.^[4] Other environmental factors and dental anomalies may also be associated with absence of teeth.^[1] Various treatment approaches to resolve this problem available are: Orthodontic approach which involves extraction of deciduous second molar and closure of the space. Another approach involves serial extraction in the early mixed dentition stage if the arch is crowded.^[2,5] Restorative approach by prosthetic replacement of second premolar. If the second deciduous molar is sound, non ankylosed, has non resorbing roots and no malocclusion the tooth can be retained.^[6]

These primary teeth with succadaneous missing permanent tooth can be treated endodontically and obturated with materials like gutta percha, calcium

silicate cements like mineral trioxide aggregate and biodentine to preserve these teeth for as long as possible.^[7]

The aim of the present article is to present a case report of congenitally missing bilateral mandibular second premolars in an adolescent patient and describe its endodontic management.

CASE REPORT

A 16 year old female was referred to the department with a chief complaint of pain in the lower right back tooth region. No significant medical history was reported by the patient and this was patient's first dental visit. Intra oral examination revealed the presence of retained right and left primary second molar (75 and 85) and bilaterally missing second premolar (35 and 45). Right primary second molar (85) was carious and tender on percussion with no mobility.

An orthopantomograph and intraoral periapical radiograph was then taken (Fig. I). It revealed the agenesis of the mandibular second premolars (35 and 45). Radiographic examination indicated pulpal involvement and radiolucency at furcation area in relation to right primary second molar (85).

Root canal treatment was conducted in 2 visits. Carious tissue was removed and access cavity opening was prepared under local anesthetic. The inflamed and necrotic tissue of the pulp was then removed and routine chemo-mechanical preparation of root canal was being done using K type endodontic files. Working length was measured by periapical radiographs. Root canals were then irrigated with 5.25% sodium hypochlorite and saline and dried using fine paper points according to the canal's master file size. A cotton pellet was then placed in to the pulp chamber covered with reinforced ZOE as temporary filling. This tooth was then obturated in the second visit using Gutta percha and ZOE sealer through the lateral condensation technique followed by placement of stainless steel crown (Figure II).

Patient was then called for the 1st check up in one month. A 6 month recall was performed in which the root canal treated tooth underwent a careful clinical and radiographic evaluation by two pediatric dentists (Figure III) Patient had reported no complaint and treated tooth represented no clinical sign at 6 month review. Radiographic evaluation revealed improvement with no furcal radiolucency.

DISCUSSION

Root canal treatment in primary teeth with missing successor is important to enable its preservation for a longer period. The treatment of congenitally missing mandibular premolars pose a challenge for the pediatric dentist as a lot of options are available. Selection of the right treatment plan is of utmost importance for long term results. In this case, the arch was not crowded so the restorative approach was considered. The physiologic resorption of the deciduous molars without the second premolar occurs at an average age of 22 years, 10 years later than normal exfoliation time estimate. This is considered, therefore as the best time for an implant replacement.^[8] Sabri considers the deciduous molar to be the best means of maintaining the space and bone volume.^[9]

Ansari et al has documented the success of using gutta percha with zinc oxide eugenol sealer in primary teeth with missing succedaneous second premolar.^[10]

Ulusoy et al, on the basis of an 18 moth follow up case series, has demonstrated the potential of regenerative endodontic procedures in the treatment of necrotic primary molars with missing premolars and periradicular involvement.^[11]

Jha et al has documented hemisection of the second primary molar with congenitally missing second premolars which successfully removed obstacles that could compromise the occlusion.^[2]

Using gutta percha with Zinc oxide eugenol sealer in this case has shown good results and it is cost effective as well. Also, gutta-percha was used as it was desired that

the deciduous molars should be retained at least till the time of completion of the patient's alveolar growth The use of newly developed materials including Mineral Trioxide Aggregate (MTA) and a more recently developed material called Calcium Enriched Mixture (CEM) in primary teeth are yet to be proved by well designed and followed clinical research.

FIGURES:



Figure I: Pre operative Intra oral Peri Apical Radiograph.

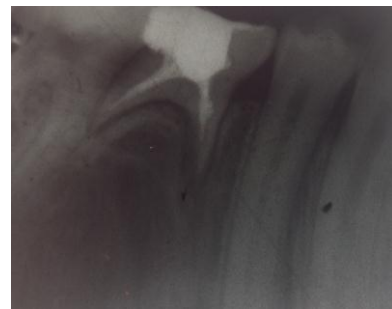


Figure II: Immediate Post operative Intra oral Peri Apical Radiograph.



Figure III: Postoperative IOPAR at 6 month follow up.

CONCLUSION

It seems that the use of Gutta Percha point along with the ZOE mixture would enhance the roots of primary molars with missing successors to remain healthy and intact. Further long term and comparative studies are suggested to more clarify this suggestion.

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