



**MANAGEMENT OF A CASE OF LOST PRIMARY INCISOR DUE TO MESIODENS:
ONE-YEAR FOLLOW-UP**

**MEZİODENSE BAĞLI OLARAK KAYBEDİLEN BİR SÜT ORTA KESER DİŞTE
TEDAVİ YAKLAŞIMI: OLGU SUNUMU**

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ABSTRACT

Supernumerary teeth are frequently observed in the permanent dentition but they are rare in the primary dentition. Mesiodens is a very rare supernumerary tooth between central incisors which can be associated with syndromes such as Gardner syndrome, cleidocranial dysostosis, Nance-Horan syndrome, trichorhinophalangeal syndrome and other rarer syndromes. Boys are twice as much affected than girls with a ratio of 2: 1. Several theories such as the atavistic theory, the dichotomy theory, dental lamina theory and the unified etiologic explanation have been proposed but an exact etiology is still obscure. Mesiodens can cause cysts, malocclusion, resorption of the adjacent teeth. Generally the treatment of mesiodens is extraction, however sometimes follow-up may be an appropriate approach. This case report describes the esthetic management of a primary central incisor loss due to the underlying mesiodens resorbing its root using the natural crown of the patient.

Key words: Supernumerary, mesiodens, esthetic management, pediatric dentistry

ÖZET

Süpernumere dişler; daimi dişlenme döneminde sık görülebilen, süt dişlenme döneminde ise nadiren görülen artı dişlerdir. Meziodens; Gardner Sendromu Cleidocranial Dizostozis, Nance Horan Sendromu, Trichorhinophalangeal Sendromu ve diğer bazı nadir görülen sendromlar ile ilişkili olabilen, orta keser dişler arasında görülen süpernumere bir diştir. Erkeklerde kızlara göre 2:1 oranında daha fazla rastlanır. Bu konu ile ilgili olarak atavistik teori, dikotom teorisi, dental lamina teorisi ve birleştirilmiş etyolojik açıklama gibi birkaç teori öne sürülmüştür ancak etyolojisi halen tam anlamıyla belirlenememiştir. Meziodensler kistlere, malokluzyona ve komşu dişlerin rezorpsiyonuna yol açabilirler. Meziodenslerin tedavisi genellikle çekim olsa da, bazı durumlarda takip edilebilirler. Bu vaka raporunda süt orta keser dişin kökünü rezorbe eden gömülü bir meziodensin ağız içerisine sürdürülerek, çekilen süt dişinin kronuyla restore edilip, takip edilmesi sunulmuştur.

Key words: Süpernumere, meziodens, estetik tedavi, çocuk diş hekimliği

INTRODUCTION

Supernumerary teeth are frequently seen in the permanent dentition but they are rare in the primary dentition¹. Mesiodens is a midline anomaly seen between the central incisors. They can be related to syndromes such as Gardner syndrome, cleidocranial

dysostosis, Nance-Horan syndrome, trichorhinophalangeal syndrome and other rarer syndromes^{2,3}. Several theories; such as the atavistic theory, the dichotomy theory, dental lamina theory and the unified etiologic explanation were put forward to elucidate their etiology but the exact reason is still obscure³. Its incidence is between 0.15 to 3.8% in

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the permanent and 0 to 1.9% in the primary dentition⁴. They are seen twice as much in boys than in girls^{4,6}. Mesiodens can be horizontal, vertical or inverted in the alveolus⁷. The crown of the mesiodentes may resemble a natural tooth, or a rudimentary form^{5,6,8}. The complications mesiodens can cause are as follows; resorption and retention of the adjacent teeth, cystic formations, malocclusion, infections, crowding or spacing in the anterior region^{2,9}.

The treatment modalities for mesiodens are known as extraction procedures. If extraction is to be performed, early extraction is considered to be more favorable. Regular radiographic follow-up, however is indicated in some cases².

CASE REPORT

A 4 year-old girl was referred to Karadeniz Technical University, Paediatric Dentistry Clinic, Trabzon. The parents' chief complaint was the untimely mobility of one of the central primary incisors. The child's family or medical history was noncontributory. Extraoral and intraoral examinations revealed no other abnormalities. The clinical findings of the patient revealed that she had an extruded left primary central incisor tooth with early mobility (Figure 1).



Figure 1. Four year old girl presenting with a mobile left primary central incisor.

The periapical radiograph also showed that two mesiodentes were neighbouring to both the primary and permanent central incisors in a primary dentition (Figure 2). The upper right mesiodens was detected in an inverted position. No complications were found regarding with the adjacent teeth, thus it was left just in place and followed-up. The left one had caused the resorption the root of the left primary central incisor.

The left central primary incisor was extracted at the first appointment (Figure 3). After the extraction, the crown of the tooth was sectioned from the root and stored in sterile saline solution at 4°C for a month for further procedures. The eruption pathway of the conical shape mesiodens was normal so it was allowed to erupt into the oral cavity. After three months the mesiodens erupted into a desirable position at the level of the gingival margin and it was planned to be restored. The coronal dentine inside the crown of the central incisor was removed with diamond burs (Figure 4). It was observed with the radiograph that the mesiodens had sufficient root length after having erupted into the oral cavity and was decided to be utilized as a space maintainer until the permanent tooth erupt (Figure 5). Meanwhile, erupted conical shaped mesiodens was prepared like a post core formation with Filtek Supreme XT Flow (3M ESPE, St Paul, MN, USA) to eliminate discrepancies between the crown and the mesiodens (Figure 6). The margins of the crown were slightly adapted conformingly to the mesiodens and bonded with RelyX™ ARC (3M ESPE, Seefeld, Germany) and extruded cement was removed from the area and light cured with Light Emitting Diode (Elipar FreeLight™, 3M ESPE, Seefeld, Germany) (Figure 7). The restoration margins were finished and further polished with Sof-Lex Extra thin discs (3M ESPE, St Paul, MN, USA). The regular follow-up procedures of the patient was performed. There were no esthetic and phonetic complications reported by the patient or parents in one year follow-up (Figure 8).



Figure 2. The radiograph presenting one inverted (right) and one erupting (left) mesiodens.



Figure 3. The tooth was extracted. The root was resorbed nearly completely.



Figure 4. The central incisor prepared like a jacket crown.



Figure 5. The radiograph presenting one inverted (right) and one erupting (left) mesiodens.



Figure 6. The photograph presenting the mesiodens prepared like a post-core.



Figure 7. The photograph after having completed the restoration with natural crown.



Figure 8. The photograph presenting one year follow-up.

HASTA İÇİN AYDINLATILMIŞ ONAM FORMU

Sizin çocuğunuza Karadeniz Teknik Üniversitesi Diş Hekimliği Fakültesi Pedodonti Anabilim Dalında tedavi işlemleri yapılacaktır. Bölümümüzdeki tedaviniz süresince çocuğunuzun öncelikli olarak dişlerindeki tüm tedavi işlemleri tamamlanacaktır.

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Katılımcı

Adı soyadı, unvanı:

Adres:

Tel.

İmza

Görüşme Tanığı :

Adı soyadı, unvanı:

Adres:

Tel.

İmza

Katılımcı ile görüşen hekim:

Adı soyadı, unvanı:

Adres:

Tel.

İmza

DISCUSSION

Mesiodens comprises 45-67% of all supernumerary teeth¹⁰. The prevalence of mesiodens in primary and permanent dentitions is reported to be 0 to 1.9% and 0.15 to 3.8%, respectively⁴. Mesiodens is more common in boys than in girls with a ratio of (2:1)^{5,6} but there is no sex predilection in the primary dentition⁴. By the way, the referred patient was a female person. Mesiodens may be eumorphic; mimicking a natural tooth or dysmorphic; conical, tuberculate, molari- and infundibular form³. In this case report we also detected a conical shaped mesiodentes as previously mentioned. Generally they remain impacted in the alveolus and only 25% may erupt into the oral cavity⁸. Several complications can occur such as resorption of the adjacent teeth, diastema or crowding in the anterior region, cyst formation, retention of adjacent teeth^{3,7,8}. Furthermore different treatment modalities have been reported for eliminating the complications. The mostly preferred treatment alternative is extraction of mesiodens, however in some cases, the mesiodens may be left in the region and followed up if no problem is detected associated with it^{2,11,12}. In this case, the upper right mesiodens which was in close relationship with the permanent central incisor was remained in this area to avoid from the possible complications related with the adjacent follicle of the permanent central incisor and decided to be followed-up.

Moreover the resorbed left primary central incisor tooth of the patient was considered to have a poor prognosis and to be problematic and the extraction was considered to be an appropriate approach for this patient. It was also reported in the literature that early loss of primary central incisor teeth due to trauma, caries or congenital absence might cause several problems related with the patients' complaints^{13,14}. Additionally, these problems frequently can be solved with utilizing space maintainers in the primary dentition¹⁴. However, several problems still remain such as; cooperation problems, gingival tissue inflammations and renewal of the maintainers during the developing dentition^{15,16}. Also, fixed appliances were reported to be more successful than the removable appliances regarding with the early loss of anterior teeth in growing patients and can be better

tolerated^{16, 17}. Moreover, it should be taken into account for avoiding possible adverse effects on maxillary growth in these age groups^{13,16,17}. Furthermore, it was decided to perform a different treatment regime to maintain more favourable esthetic and phonetic condition by utilizing cemented crown of the patient to the mesiodens prepared in a post-core fashion by eliminating such restriction factors for removable and fixed appliances.

Generally acrylic teeth are utilized when fabricating these space maintainers¹⁶⁻¹⁸. Acrylic teeth have some disadvantages such as lacking esthetics compared with natural tooth crowns. Also, they absorb water with time and change color in the oral environment. From the literature, it can be also seen that using own natural teeth; if it still exists in the mouth; has proved to be more esthetic than the acrylic ones when the early loss of anterior teeth has occurred^{13,14}. In this case, resorbed left primary central incisor allowed us to use patient's own crown as mentioned in the previous reports.

Additionally, the remained roots after the trauma or caries could have a potential advantage for restoring the partially or completely primary anterior dental crown loss with the patient's own crown fragments or the crowns which were stored in tooth bank^{19,20}. This method also provides better esthetic and functional success to the patient as a temporary management of this problem. Moreover, the availability of natural crowns or roots would allow the use of biologic restorations to preserve the integrity of patient's natural dentition²¹. In this case report, biological benefits were provided both for using the root of mesiodens and the natural crown of the resorbed primary anterior teeth.

Nevertheless, this type of restoration, though is a temporary approach until the age of 7 years when the permanent central incisors erupt. However, this restoration procedure was able to provide the esthetic appearance of the child patient and prevent oral habits with her own tissue during the growing period. Finally, the importance of regular radiographic and clinical follow-up can not be overemphasized.



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