



Treatment of Closing Maxillary Central Diastema Caused by Mesiodens

A Literature Review

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ABSTRACT

Mesiodens in primary or mixed dentition periode cause many clinical anomalies, such as delayed eruption of permanent teeth, root resorption of successor permanent teeth, maxillary central diastema, etc. Many treatments for closing maxillary central diastema have published with their advantages and disadvantages. The aim of these study was to evaluate many treatments for closing maxillary central diastema caused by mesiodens. The success of the treatment depend on early diagnosis, the width of central diastema, early intervention of the treatment, and cooperative patient.

Keywords : maxillary central diastema, mesiodens, early treatment

INTRODUCTION

The supernumerary tooth that present in the midline of the maxilla between the two central incisors is called mesiodens.⁽¹⁻³⁾ Its prevalence has been estimated to be 0.15 to 2.2% of the population, and occurs frequently in boys than in girls.⁽⁴⁾ Mesiodens can occur singly or multiply, and it responsible for disturbances in the eruption of maxillary incisor teeth.^(4,5) Mesiodens is usually found fully erupted, and often in an ectopic eruption, inverted position, but also to be impacted.^(4,6)

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Treatment depends on the type and position of the mesiodens and on its effect or potential effect on adjacent teeth. The management of the mesiodens should form part of a comprehensive treatment plan.⁽⁷⁾ The aim of this study was to evaluate some treatments for closing maxillary central diastema caused by mesiodens

LITERATURE REVIEW

Case 1



Figure 1a

Figure 1b

A 6 years old male child had chief complaint of dental decay. The mesiodens was not completely erupted, 2-2.5 mm of crown of mesiodens was visible intraorally (figure 1a). This mesiodens caused deviation of permanent central incisor but was not extracted. Space between 11 and 21 may occurred if they erupted, so these condition was kept under observation until the eruption of permanent central incisor (figure 1b).^(7,8)

Case 3



Figure 3a

Figure 3b

Figure 3c

A 9-year-old male patient complaints of a funny-looking, the upper left lateral incisor was palatally placed and was in cross-bite. Minor crowding of the lower arch was also seen (figure 3a). This stage was mixed early dentition, with both primary canines and molars present. After extracted the mesiodens followed by orthodontic treatment for closing diastema and correction of cross-bite of lateral incisor (figure 3b). After completion of alignment of the incisors, continued to complete the orthodontic treatment (figure 3c).⁽⁹⁾

Case 2



Figure 2a

Figure 2b

A 6 years old male child was reported for dental check up. The mesiodens was seen on intraoral examination (figure 2a). Mesiodens was conical in shape with long root. To prevent non erupting of permanent central incisors, this intervention must be done (figure 2b). Patient was kept under observation till the successful eruption of permanent central incisors.⁽⁶⁾

Case 4



Figure 4a

Figure 4b

Figure 4c

Figure 4d

A 12-year-old boy presented seeking treatment for his multiple, irregularly arranged maxillary anterior teeth, which resulted an unesthetic smile. Intraoral examination revealed four mesiodens that were partially erupted in the oral cavity. They resulted in facial and distal displacement of the left central incisor and clinical absence of the right central incisor (figure 4a). The maxillary central incisors had apparently completed root development (figure 4b). Treatment planning included surgical removal of the mesiodens followed by exposure of the maxillary right central incisor and orthodontic correction of the distolabially displaced central incisors (figure 4c & 4d).⁽¹⁰⁾

DISCUSSION

Mesiodens is one of the developmental anomalies commonly seen in dental clinics and can cause esthetic or pathologic problems. The etiology of mesiodens is not well understood but several theories have been postulated regarding the causes of supernumerary teeth, including atavism, dichotomy of the tooth bud, and hyperactivity of the dental lamina, also sequential generations of family.⁽¹¹⁾ Mesiodens is usually found fully erupted, and often in an inverted position but also to be impacted.^(4,6)

In case 1, the available and position of mesiodens could be diagnosed by radiographic examinations using maxillary anterior periapical radiography and panoramic radiography, or maxillary occlusal radiography.⁽³⁾ It's the reason that the diagnosis of mesiodens should be made as early as possible.^(1,3,4,6,7)

In case 2, to consider the presence of mesiodens will be responsible for non eruption of permanent central incisors, it was extracted as a precautionary measure. To prevent non erupting of permanent central incisors, early intervention must be done.⁽⁶⁾

One of clinical disturbance is maxillary central diastema, and the width of diastema can influenced the treatment. When maxillary central diastema (midline diastema) larger than 2 mm in the mixed dentition should be fully investigated due to its relation to some disturbances in tooth eruption.^(4,6)

In case 3, the complication of mesiodens is displacement of central permanent incisors.⁽⁷⁾ The treatment was aimed to extraction of mesiodens followed by extensive orthodontic treatment and the patient also had palatally placed upper left lateral incisor and inadequate arch length. This case needed early treatment to prevent or minimize severe complications. Treatment depends on the type and position of the mesiodens and its effect on the adjacent teeth.^(7,9)

In case 4, the patient reported late, and he had all permanent teeth with the incisor apices closed. Hence, removal of the multiple mesiodens must be done immediately, it usually results in spontaneous eruption of the impacted tooth. The central maxillary diastema was about 14 mm. The management of central maxillary diastema cause of mesiodens requires careful treatment and cooperation of the patient.^(7,10)

CONCLUSION

The success of the treatment of closing central maxillary diastema depend on early diagnosis, the width of central diastema, early intervention of the treatment, and cooperative patient.

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Abstract

Introduction: Mesiodens in primary or mixed dentition periode cause many clinical anomalies, such as delayed eruption of permanent teeth, root resorbtion of successor permanent teeth, maxillary central diastema, etc. **Literature Review:** Many treatments for closing maxillary central diastema have published with their advantages and disadvantages. The aim of these study was to evaluate many treatments for closing maxillary central diastema caused by mesiodens. **Conclusion:** The success of the treatment depend on early diagnosis, the width of central diastema, early intervention of the treatment, and cooperative patient.

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Introduction

The supernumerary tooth that present in the midline of the maxilla between the two central incisors is called mesiodens.^{1,2,3} Its prevalence has been estimated to be 0.15 to 2.2% of the population, and occurs frequently in boys than in girls.⁴ Mesiodens can occur singly or multiply, and it responsible for disturbances in the eruption of maxillary incisor teeth.^{4,5} Mesiodens is usually found fully erupted, and often in an ectopic eruption, inverted position, but also to be impacted.^{4,6}

Complications of mesiodens are disturbances in tooth eruption such as delayed eruption of the permanent incisors, maxillary central diastema (midline diastema) or axial rotation or inclination of erupted maxillary permanent incisors (interference with the alignment of the maxillary incisors), crowding, resorption of adjacent teeth and development of dentigerous cysts or dental impaction.^{4,7}

Treatment depends on the type and position of the mesiodens and on its effect or potential effect on adjacent teeth. The management of the mesiodens should form part of a comprehensive treatment plan.⁷ The aim of this study was to evaluate some treatments for closing maxillary central diastema caused by mesiodens.

Literature Reviews

Case 1

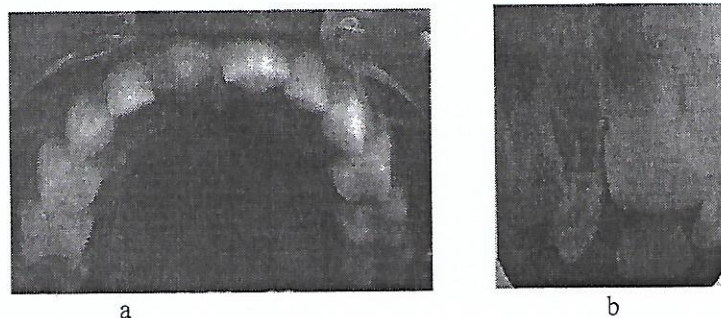


Figure 1

A 6 years old male child had chief complaint of dental decay. Intraoral examination showed missing right primary central incisor and presence of mesiodens erupting into the oral cavity in the same place (Figure 1a). The periapical radiograph showed 11 slightly deviation due to presence of mesiodens and overlapping of 11 over 12 was observed (Figure 1b). Right primary central incisor was exfoliated due to presence of mesiodens. The mesiodens was not completely erupted, 2–2.5 mm of crown of mesiodens was visible intraorally. This mesiodens caused deviation of permanent central incisor but was not extracted. Space between 11 and 21 may occurred if they erupted, so these condition was kept under observation untill the eruption of permanent central incisor.^{7,8}

Case 2

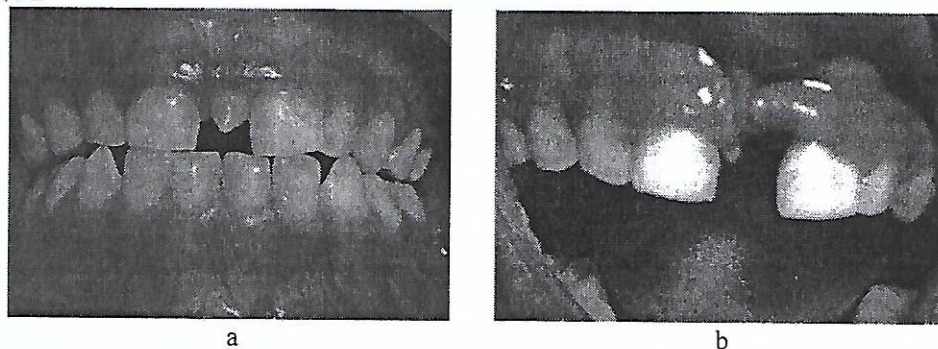


Figure 2

A 6 years old male child was reported for dental check up. The mesiodens was seen on intraoral examination (Figure 2a). The periapical radiograph showed that presence of mesiodens did not affect the position of permanent central incisors. Mesiodens was conical in shape with long root. Considering that the presence of mesiodens will be responsible for non eruption of permanent central incisors, it was extracted as a precautionary measure. (Figure 2b). To prevent non erupting of permanent central incisors, this intervention must be done. Patient was kept under observation till the successful eruption of permanent central incisors.⁸

Case 3

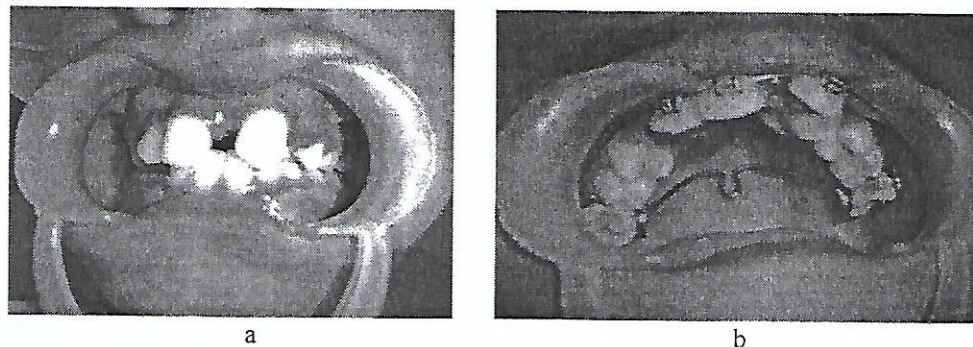


Figure 3

A 9-year-old male patient complaints of a funny-looking, small tooth between the upper two front teeth. On intraoral examination, a mesiodens was seen between the upper two

permanent central incisors. The upper left lateral incisor was palatally placed and was in cross-bite. Minor crowding of the lower arch was also seen (Figure 3a). This stage was mixed early dentition, with both primary canines and molars present. It was decided to extract the mesiodens, followed by orthodontic treatment for closing diastema and correction of cross-bite of lateral incisor. The upper permanent first molars were banded and edgewise brackets bonded on the upper incisors for alignment the upper arch. The transpalatal arch was also given to hold first permanent molars and to prevent space loss [Figure 3a]. After completion of alignment of the incisors, continued to complete the orthodontic treatment.⁹

Case 4

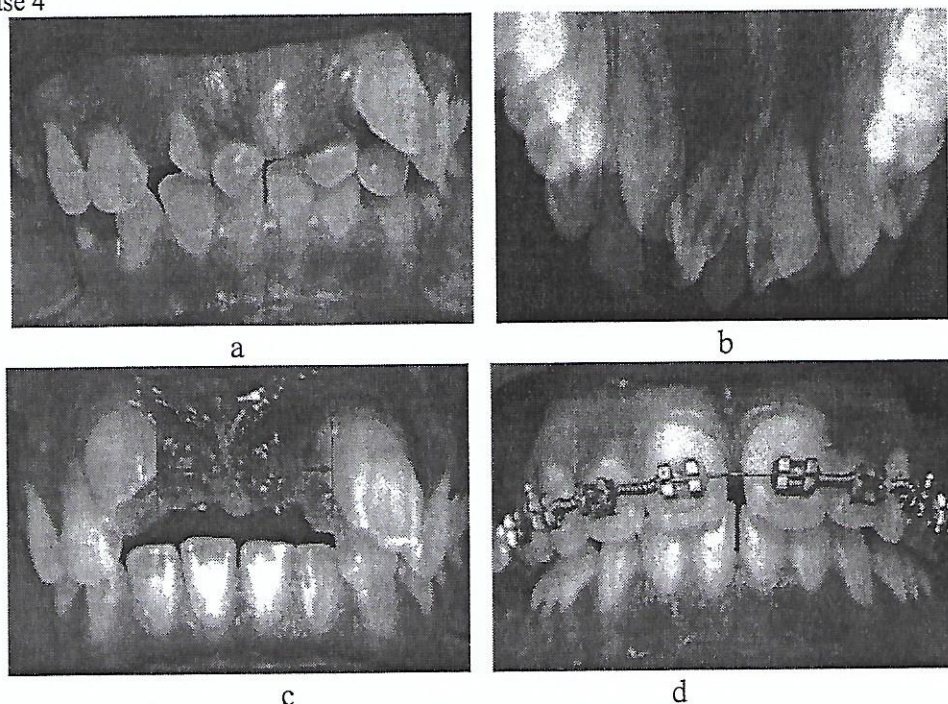


Figure 4

A 12-year-old boy presented seeking treatment for his multiple, irregularly arranged maxillary anterior teeth, which resulted an unesthetic smile. Intraoral examination revealed four mesiodens that were partially erupted in the oral cavity. They resulted in facial and distal displacement of the left central incisor and clinical absence of the right central incisor (Figure 4a). The patient had permanent dentition with Angle Class I molar and canine relationship. Radiographic examination revealed the presence of an impacted maxillary right central incisor and four mesiodens between the central incisors (Figure 4b). The maxillary central incisors had apparently completed root development. Treatment planning included surgical removal of the mesiodens followed by exposure of the maxillary right central incisor and orthodontic correction of the distolabially displaced central incisors (Figure 4c & 4d).¹⁰

Discussion

Mesiodens is one of the developmental anomalies commonly seen in dental clinics and can cause esthetic or pathologic problems. The etiology of mesiodens is not well understood

but several theories have been postulated regarding the causes of supernumerary teeth, including atavism, dichotomy of the tooth bud, and hyperactivity of the dental lamina, also sequential generations of family.¹¹

Mesiodens is usually found fully erupted, and often in an inverted position but also to be impacted. (4,6). In case 1, the available and position of mesiodens could be diagnosed by radiographic examinations using maxillary anterior periapical radiography and panoramic radiography, or maxillary occlusal radiography.³ It's the reason that the diagnosis of mesiodens should be made as early as possible.^{1,3,4,6,7}

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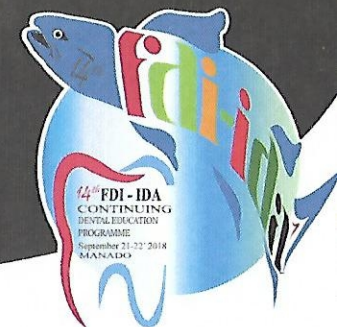
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"Advancing Dentistry with Innovative Sciences and Technology"

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