

A Mesiodens in an 8 year old girl –a case report

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Abstract

The purpose of this article is to study the importance of radiographic localization prior to surgical intervention, as it is observed that in some instances a labial surgical approach is preferred over the traditional palatal technique. The present case report describes a labially positioned maxillary mid-line mesiodens in an 8-year-old girl. The outcome of the present study indicate that a labial surgical approach can be useful as it allows for greater conservation of alveolar bone and improved access during removal of the mesiodens.

Keywords: Mesiodens, radiograph, surgery, labial approach

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Introduction

The term mesiodens refers to a supernumerary tooth present in the midline of the maxilla between the two central incisors. A mesiodens, has an overall prevalence of 0.15–1.9%. [1-4]. Mesiodens can occur singly or multiply, and is responsible for disturbances in the eruption of maxillary incisor teeth. Mesiodens is usually found to be impacted, with a conical crown and a single root, and often in an inverted position. It is diagnosed through clinical and radiographic examinations using maxillary anterior periapical and panoramic radiography. In many instances, mesiodens is associated with disturbances in tooth eruption, midline diastema or axial rotation or inclination of erupted permanent incisors, or complications such as resorption of adjacent teeth and development of dentigerous cysts [5-7].

Treatment Considerations

The first factor is the child's age. In the very young child the ability to tolerate a surgical procedure is of major concern. The benefit of early treatment must be weighed against the long-term effect that any unpleasant experience may have. Lastly, one must evaluate the relative position of the mesiodens within the premaxilla. Assessment of access to the supernumerary must be considered in relation to the amount of bone removal and potential damage to existing incisors. In children, eruption is infrequent, some mesiodens may erupt partially so that a more favorable surgical approach may be attained with time. Therefore, the accurate location of supernumerary teeth is critical in

determining the proper treatment approach. Clinical examination, including labial and palatal palpation, alongwith proper radiographs can be used with high accuracy to determine the mesiodens location in the premaxilla. Both vertical and horizontal shift radiographic techniques, using occlusal or periapical radiographs, are helpful in localizing midline mesiodens. Other useful radiographs include panoramic and lateral occlusal films.

This case involves an inverted conical-shaped rudimentary supernumerary tooth located in the premaxillary midline and is unusual in that a labial surgical approach was utilized. This allowed for improved access and greater visualization in removal of the tooth. The report describes the clinical and radiographic appearance, rationale for surgical intervention, and surgical approach used in treating an 8-year-old girl with a mesiodens.



Figure-1: The 8 year girl with general appearance

Case report

An 8-year-old girl of Modinagar, district Ghaziabad came to the Department of Paedodontics and Preventive Dentistry. She was a normal healthy child with a

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medical and dental history which were both noncontributory. The initial examination performed, revealed asymptomatic maxillary midline supernumerary teeth. A decision was made at that time to observe the tooth and assess its potential for spontaneous eruption into a more favorable position for removal. The mother was informed of the condition and instructed to return for re-evaluation in 6 months, or if symptoms developed. Seven months later the child returned for his routine recall appointment. His medical and dental history remained unchanged.

Oral examination

The intraoral soft tissues were healthy and she practiced good oral hygiene. She presented in the middle mixed dentition stage with a 60% overbite and an end-to-end molar relationship, primary canines relating as Class I. Maxillary anterior spacing was slightly excessive with a 1-2mm midline diastema present and lateral incisors flared and incompletely erupted. Previously placed sealants and restorations presented in good repair.



Figure-2: Photo depicting peg lateral in upper arch and congenitally missing lower permanent centrals.

No carious lesions were evident and no restorations were required. The maxillary permanent incisors presented with slight fluorosis, normal mobility, and were asymptomatic to percussion. Labial and palatal palpation was not helpful in locating the mesiodens. Radiographs then were taken in order to localize the supernumerary tooth and assess the potential surgical approach.



Figure-3: Intra oral periapical radiograph showing the location of mesiodens.

Radiographic examination

The iopa radiograph showed the presence of mesiodens at the middle of the central incisors. A panoramic radiograph was obtained at the initial examination. The panoramic radiograph gave the impression of a horizontal long axis of the mesiodens. While the periapical radiograph depicted a vertical long axis. The lateral occlusal film revealed a slight elevation of the alveolus labial to the apical one-third of the permanent central incisors (this radiograph was not reproducible with sufficient clarity for publication). The buccal object rule was utilized with two anterior occlusal films of differing horizontal angulations. Application

of this rule indicated a mesiodens, at least partially, positioned labially to the roots of the permanent central incisors. Root development of the maxillary permanent central incisors was noted to be nearing completion with the maxillary lateral incisor roots being moderately immature. Root development appeared normal with the mesiodens primarily affecting tooth position.



Figure-4: OPG of the child showing the presence of mesiodens between the two central incisors.

No significant change in the supernumerary tooth's position had occurred during the observation period. From the radiographic survey it was determined that the mesiodens was likely inverted with the long axis oriented vertically. The tooth was definitely not palatally positioned and at least part of the tooth was expected to be labial to the roots of the permanent incisors. With parental approval, the decision was made to remove the mesiodens surgically in the dental clinic. A labial surgical approach was planned.

Treatment

The surgical procedure was performed in the outpatient dental clinic. Initially the patient was mildly apprehensive. He was given

permission to stop treatment by raising his right hand if any discomfort was experienced. Local anesthetic, 3.6 cc 2% lidocaine with 1/100,000 epinephrine, was administered slowly via labial & palatal infiltration with a 30-gauge needle. After anesthesia was accomplished the patient seemed much more relaxed. Using a 15 blade (Bard Parker' Rutherford, NJ) an elliptical incision was made from the distal aspect of the maxillary right lateral incisor to the distal aspect of the maxillary left lateral incisor.

A full thickness flap then was reflected with a periosteal elevator. A slight elevation in the alveolus was evident midway between the root apices of the apices of the permanent central incisors. With palpation it was determined that this was the anterior limit of the mesiodens. A sterile 8 round bur was used with slow speed to remove the buccal plate of bone which allowed the tooth to be seen. With liberal saline irrigation a circular window was made surrounding the tooth.



Figure-5: Post operative result

Care was taken to avoid excessive bone removal or damage to roots of the adjacent permanent was in a more horizontal position with the root apex labially positioned and the crown positioned palatally. The tooth was then luxated with an elevator. Although mobile, the larger contour of the crown

impeded final removal. Following additional circumferential expansion of the bony window, delivery of the supernumerary was accomplished. The mesiodens measured 12mm in length. After 3-4 weeks the wound had healed completely. Still there was a gap between the upper central incisors three months prior surgical removal of mesiodens. The diastema caused was not corrected as it will be self corrected by the “ugly duckling stage” (Broadbent in 1937) at 10th year of child growth.

Discussion

The shape of mesiodens may vary from a simple conical form to a larger, more complicated crown shape with a number of tubercles. Conical mesiodens is more common, and is more likely to erupt between the central incisors as a diminutive but fully developed tooth. In contrast, tuberculate mesiodens tends to develop later and shows incompletely developed roots. In the present study, the shape observed was mainly conical (72.9%), which corresponds well with the literature.

Most mesiodentes remain impacted, but in approximately 25% of cases eruption occurs. In this series, 21.1% of the mesiodentes were partially or fully erupted, which is within range of percentages reported earlier. The radiographic series described located the mesiodens in a labial position. Accurate localization is important in order to reduce the risk of damage to the permanent teeth and blood supply during surgery.

Clark's rule refers to the use of multiple radiographs with differing horizontal angulations to determine the buccolingual

position of a tooth on a 2-dimensional radiograph. However, others feel it is best to observe badly impacted and inverted supernumeraries until 8-10 years of age [8]. The rationale for observation is to allow for complete root development of the permanent incisors in order to decrease the chance of root damage, disruption of the blood supply, as well as to reduce the chance of devitalization. Clearly, there are indications both for the early surgical removal of supernumeraries as well as for their supervised observation. The case presented depicts a mesiodens that did not change position in a reasonable period of time. It was positioned such that a diastema was created between the central incisors. Its effect also altered the eruption path of the permanent lateral incisors.

In the present case, one would not expect significant improvement in the mesiodens position and its surgical removal was indicated. In the present study, the most common complication found was delayed eruption of permanent incisors. This percentage was higher than in previous studies. However, cyst formation, root anomaly and intraoral infection were not found in any of the cases. In contrast, other studies have reported cyst formation; mesiodens root anomaly, intraoral infection and mesiodens pulpitis.

Conclusion

Surgery involving a palatal flap is most typical for impacted maxillary supernumerary teeth. In this case, a labial surgical approach was utilized which allowed increased visualization of the mesiodens and greater ease of removal. The background and rationale for this

approach is presented & should be considered in selected cases, particularly for older children with inverted mesiodens.

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