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Case Series

Double Mesiodens in Non-syndromic North-Indian Patients: A Case Series

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Abstract

Background: The presence of double mesiodens or mesiodentes, i.e., two supernumerary teeth in the maxillary midline, presents unique challenges in mixed dentition. Common clinical manifestations include delayed eruption, midline diastema, and occlusal disturbances, leading to complications such as root resorption, crowding, cyst formation, and malocclusion. Mesiodens can be associated with several syndromes, but its etiology continues to be idiopathic.

Clinical Description: Double mesiodens are relatively rare, so this clinical observation aimed to highlight seven such cases of double mesiodens in mixed dentition and one in permanent dentition in non-syndromic children and adolescents.

Conclusion and Clinical Significance: Clinicians should be able to identify indications of supernumerary teeth, specifically deviations in the eruption pattern. Appropriate investigations and timely intervention are essential to reduce complications that may arise in the developing dentition.

Key words: Diagnosis (medical subject heading), Malocclusion (medical subject heading), Mesiodens, Supernumerary (medical subject heading), Tooth abnormalities (medical subject heading)

INTRODUCTION

Supernumerary teeth are those in addition to the normal series of primary or permanent dentition. Hyperdontia resulting from one or more extra teeth can result in complications and deviations from normal dentition and development. The prevalence of supernumerary teeth in the general population is 0.1–3.8%. Supernumerary teeth can be of various types, depending on chronology, location (topography), morphology, and orientation. Mesiodens, supernumerary teeth occurring between the two central incisors, are the most common form of supernumerary teeth, accounting for 30% of incidence. Their appearance ranges from a simple conical shape to a crown structure with multiple tubercles. Mesiodens may occur as single, multiple, unilateral, or bilateral. The presence of multiple mesiodens teeth is rare and is called "mesiodentes."The etiology of mesiodens remains unclear; however, various theories such as the genetic basis, the dichotomy theory, the environmental factors, and the hyperactivity theory, among many, have been described, out of which the hyperactivity theory seems to be the most acceptable etiological factor. Some of the most commonly associated syndromes with supernumerary teeth includes cleidocranial dysplasia, familial adenomatous polyposis; trichorhinophalangeal syndrome, type I; Rubinstein–Taybi syndrome; Nance–Horan syndrome; Opitz BBB/G syndrome; oculofaciocardiodental syndrome; and autosomal dominant Robinow syndromes. A paucity of literature exists regarding double mesiodens or mesiodentes in non-syndromic patients. The presence of supernumerary teeth can lead to various pathological conditions.

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Commonly associated complications with supernumerary teeth include delayed or impaction of adjacent tooth/teeth, malposition or rotation of adjacent teeth, a diastema, and formation of dentigerous cysts.This article aims to report a case series of the rare occurrence of double mesiodens/mesiodentes in children and adolescents.

CASE SERIES

The following case series, prepared per the CARE Guidelines, is a clinical observation of children presenting to the Department of Paediatric and Preventive Dentistry, ITS Dental College, Hospital and Research Centre, Greater Noida, between 2020 and 2023.

Case 1

An 8-year-old Indian boy reported with the chief concern of rotated teeth in the upper front tooth region for a year. The clinical examination revealed a non-syndromic child with a complete complement set of teeth in the mixed dentition. Two mesiodens were present in the midline, resulting in the rotation of 11 and 21. The occlusion and arrangement of anterior teeth were disturbed secondary to the space deficiency created by the two central mesiodentes. Radiographic diagnosis included an orthopantomogram (OPG) and a maxillary occlusal intraoral radiograph. No other supernumerary teeth or abnormalities were observed in the OPG examination. The occlusal radiograph revealed two separate twin mesiodens, which were conical in shape. The root formation was incomplete in both teeth, and the periodontal ligament shadow around both teeth ruled out ankylosis. The treatment plan included the extraction of the mesiodentes followed by orthodontic alignment of the teeth. The extraction was performed under infiltration and nasopalatine nerve block with articaine, and hemostasis was achieved.

Case 2

An 11-year-old girl reported having maligned anterior teeth for 3 years, and upon a clinical examination, showed a palatally placed mesiodens with the buccal displacement of 21. An occlusal radiograph of the maxilla displayed an impacted mesiodens with respect to11. Under lignocaine nasopalatine block with infiltration of 11 and 21, a flap was raised to expose the impacted supernumerary tooth, and both the mesiodentes were extracted, followed by self-resorbable sutures. Two-by-four appliance therapy was done for the alignment of 21 and 11, followed by finishing with composite restoration wrt 21.

Case 3

A 6-year-old girl with albinism reported a triple row of teeth in the upper front region. A complete complement of teeth in the mixed dentition with two mesiodentes present palatal to the over-retained primary teeth, 51 and 61, which led to the labial displacement of both 11 and 21. The occlusion and arrangement of the maxillary anterior teeth were disturbed, and the esthetics and speech were compromised. After a radiographic analysis, extraction of the mesiodentes and the retained primary teeth was done, followed by a rigorous follow-up protocol for the self-correction of 11 and 21. The extractions were performed under infiltration and nasopalatine nerve block with lignocaine, and hemostasis was achieved.

Case 4

An 8-year-old boy reported spacing between his upper front teeth for the past 2 years. The clinical examination revealed a midline diastema with a labially positioned 11 and a rotated 21 with an extra tooth between the two from the frontal view. Two mesiodentes present palatally were observed, which resulted in the labial displacement of both 11 and 21. Radiographic diagnosis included an OPG. The treatment rendered was extractions under infiltration and nasopalatine nerve block with lignocaine, followed by initiation of two-by-four appliance therapy.

Case 5

A 9-year-old boy reported a disturbance behind his upper front teeth for 3 years. The clinical examination revealed a midline diastema with a labially displaced and proclined 21 with an extra tooth between the two. Two mesiodentes present palatally with respect to 11 and 21 were observed. Radiographic diagnosis included an intraoral periapical (IOPA), which revealed two mesiodentes with no evidence of ankylosis. Extraction of the mesiodentes followed by two-by-four therapy was planned. The extractions were performed under lignocaine infiltration and nasopalatine nerve block, and hemostasis was achieved.

Case 6

A 16-year-old boy reported with the chief concern of a disturbance behind his upper teeth for 6 years. The clinical examination revealed two extra teeth on the palatal aspect of 11 and 21. Radiographic diagnosis included an IOPA, which revealed two separate mesiodentes with no evidence of ankylosis. Extraction of the mesiodentes under lignocaine infiltration and nasopalatine nerve block was done, and hemostasis was achieved.

Case 7

A 9-year-old girl reported with the chief concern of protruding upper front teeth with spacing, which did not resolve by itself. The clinical examination revealed a midline diastema with labially displaced and proclined 21 and 11 with mesiodentes palatally. OPG and an IOPA revealed two mesiodentes with no evidence of ankylosis.

Extraction of the mesiodentes under lignocaine infiltration and nasopalatine nerve block, followed by two-by-four therapy, was done.

DISCUSSION

Although mesiodens are frequently encountered as an incidental discovery, the occurrence of double mesiodens remains an uncommon finding and can often evade detection due to a lack of awareness, resulting in the adoption of inappropriate imaging techniques and treatment approaches. It can, however, lead to various complications and should be addressed to ensure proper oral health, occlusion, and esthetics. The treatment of double mesiodens typically involves either retention with observation or extraction of the supernumerary teeth. The timing of intervention may vary depending on the specific case, root formation of the adjacent teeth, and the patient's age. In all the cases discussed above, except Case 6, mesiodentes disturbed the occlusal harmony and were progressively discomforting to the patients, thus leading to the treatment plan for immediate extraction followed by orthodontic therapy, except in Case 3. Therefore, it is often observed that patients display symptomatic attendance, so early intervention is not always possible, increasing the likelihood of complications. Case 6 highlights this further since the palatally present mesiodentes did not pose a problem in the function or esthetics of the patient in the mixed dentition stage; it led to the late reporting of the patient due to unawareness.

Out of the various heterogeneous morphological forms, the conical type is cited as the most prevalent type. In our clinical observation, the most common morphological combination was a combination of the conical and tuberculate types in a single patient with mesiodentes. The conical type was, however, the most prevalent type of mesiodens, followed by the tuberculate type [Table 1]. The literature reports that mesiodens are more prevalent in men when compared to women, with a ratio of 2:1 when it comes to non-syndromic occurrences, and a similar finding was observed in our clinical observation, where 4 out of 7 cases were males.

Mesiodentes interfere with the eruption of permanent central incisors and may result in their impaction. Furthermore, mesiodentes may erupt into the oral cavity or remain impacted. Delayed eruption of associated teeth has been reported to occur in 28−60% of Caucasians with supernumerary teeth. In our clinical observation, all the central incisors and the mesiodentes pairs had erupted into the oral cavity, and the time of reporting by the parents was symptomatic, and only when they noticed significant orthodontic or esthetic changes.

Table 1: Morphology of mesiodentes in cases 1–7

Case	Shape of mesiodens wrt 11	Shape of Mesiodens wrt 21	Sex
1	Conical	Conical	Male
2	Tuberculate	Supplemental	Female
3	Conical	Tuberculate	Female
4	Tuberculate	Conical	Male
5	Conical	Conical	Male
6	Supplemental	Supplemental	Male
7	Conical	Tuberculate	Female

There have been a few studies citing the occurrence of mesiodentes. Still, to the best of our knowledge, this is the first one highlighting seven cases of double mesiodens, especially in mixed dentition, thus providing evidence for further understanding of this rare phenomenon.

CONCLUSION

The key takeaways from the case series are as follows:

- Insufficient knowledge and management skills can present a diagnostic challenge when dealing with double mesiodens/mesiodentes
- The clinical observation showed a more prevalent occurrence in males and of the conical and tuberculate morphological types
- The timing of the intervention should depend on a holistic care plan, taking into account the root development of the adjacent teeth and the associated complications.

Clinical Significance

Pediatric dentists frequently serve as the initial healthcare providers for children and adolescents when it comes to addressing oral health concerns. Among these concerns, malocclusion and esthetic considerations have gained increasing prominence. Therefore, it is imperative to acquire a comprehensive understanding of these relatively uncommon phenomena and possess substantiating evidence for treatment approaches. The objective of this clinical observation is to contribute to this knowledge by shedding light on the infrequent incidence of double mesiodentes.

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