Clinical Insights on Mesiodens: A Case Series

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Abstract:

Supernumerary teeth, also known as hyperdontia, refer to the presence of additional teeth beyond the normal dental count in the arch. The prevalence of supernumerary teeth in the anterior region is 2.2%, with mesiodens accounting for 78.4% of these cases. Mesiodens, the most common type of supernumerary teeth, can cause several complications, including spacing, crowding, eruption issues, and esthetic concerns. These anomalies are particularly significant during the primary and early mixed dentition stages, as they can lead to various dental problems such as speech difficulties, resorption of adjacent tooth roots, delayed eruption of permanent incisors, and the potential development of dentigerous cysts. Early identification and management of mesiodens are crucial to avoid further complications in permanent dentition. The current paper focuses on seven cases of mesiodens identified during the primary, mixed and permanent dentition phase, along with their effective management strategies.

Keywords: Mesiodens, Supernumerary tooth, Pediatric dentistry, Case reports

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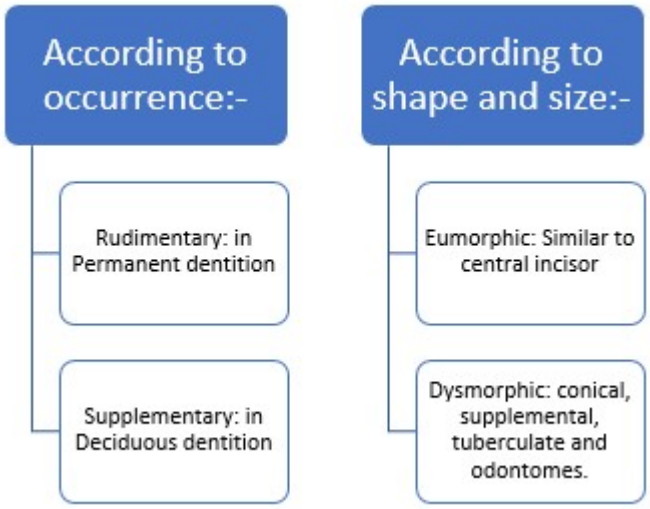
INTRODUCTION:

Supernumerary teeth are additional teeth that develop in the mouth and can affect the eruption and alignment of normal teeth.1 Mesiodens are the most common type of supernumerary teeth, typically found in the maxillary anterior region between the central incisors. The prevalence of supernumerary teeth is 0.15–1% in permanent dentition and 0.3–0.6% in the primary dentition with predilection of 2:1 for male sex.2 These teeth are often identified during routine dental examinations or as a result of complications such as delayed eruption, diastema, displacement of adjacent teeth, or root resorption.3 While mesiodens may remain asymptomatic, their presence near critical anatomical structures such as the nasal floor can pose diagnostic and surgical challenges. It can affect both maxilla and mandible; however, its occurrence in the mandible is rare.4 The most common type of supernumerary tooth as indicated by Alberti et al is mesiodens. Mesiodens may occur as single, multiple, unilateral or bilateral.5 The exact etiology of mesiodens tooth is not clearly known, though various theories have been suggested, including dichotomy of the tooth bud, hyperactivity of the dental lamina and combination of genetic-environmental factors. Single supernumerary teeth may be seen in association with conditions like cleft lip and/or palate, Downs syndromes, Cleidocranial dysplasia, etc.6 In some syndromes, mesiodens may present as a part of the

symptoms; however, this condition might be seen in normal individuals. It seems that positive family history is one of the predisposing factors.5

Classification of mesiodens. 7



Supernumerary teeth are typically extracted by 5-10 years of age to prevent complications in developing dentition and minimize need for orthodontic interventions, which are lengthy and bothersome usually. The mesiodens, typically located beside the maxillary central incisors, are the most prevalent type of supernumerary teeth. The treatment of choice for mesiodens is extraction as the first line of treatment. If it is impacted, a tran-alveolar dis-impaction through palatal approach is most preferred one.3

CASE 1:
A 12-year-old female patient reported to the Department of Paediatric and Preventive Dentistry, MIDSR, Latur with a chief complaint of speech problem. Her secondary complaints were centrally placed tooth and aesthetic problems concerns.

On the intraoral examination, it revealed the presence of a supernumerary tooth, which was diagnosed as a mesiodens. It was positioned between to central incisors (11-21), on the labial aspect. It was placed more mesially in first quadrant causing slight midline shift. Presence of mesiodens more mesially in first quadrant resulted in buccal eruption of canine (13) as well as distal rotation of central incisor (11). Presence of mesiodens did not cause any discrepancies in occlusion, it showed class I molar relation bilaterally due to placement of mesiodens more nasally. Figure 1.1 and 1.2 shows intraoral clinical photograph of mesiodens.

On radiographic examination it revealed that presence of conical shaped mesiodens placed near nasal septum and parallel to two central incisors pushing 11 distally. Figure 1.3 intraoral periapical radiograph.

After clinical and radiographic examination, the treatment was planned as extraction of mesiodens under local anaesthesia. Figure 3 shows extracted mesiodens.

Fig 1.1 Intraoral frontal view

Fig 1.2 Intraoral clinical photograph of mesiodens

Fig 1.3 Intraoral periapical radiograph

CASE 2:

A 12-year-old female patient came to Department of Pediatric and preventive dentistry with a chief complaint of an extra tooth in upper front teeth region. The patient complained of irritation caused by this tooth. There was no associated trauma or pain and no sign of any syndrome were evident.

Intraoral examination revealed the presence of mesiodens which is conical in shape between teeth 11 and 21 (Fig. 2.1). A subsequent IOPA radiograph was taken to confirm the presence of mesiodens. Radiographically tooth appear as sharp conical in shape along with tapered root (Figure 2.2). Treatment was planned and executed to extract the mesiodens. Wound healing progressed normally and patient presented with no postoperative complications. (Fig 2.3)

Fig 2.1 Pre-op Intraoral Periapical radiograph

Fig 2.2 Pre-op Intraoral clinical photograph

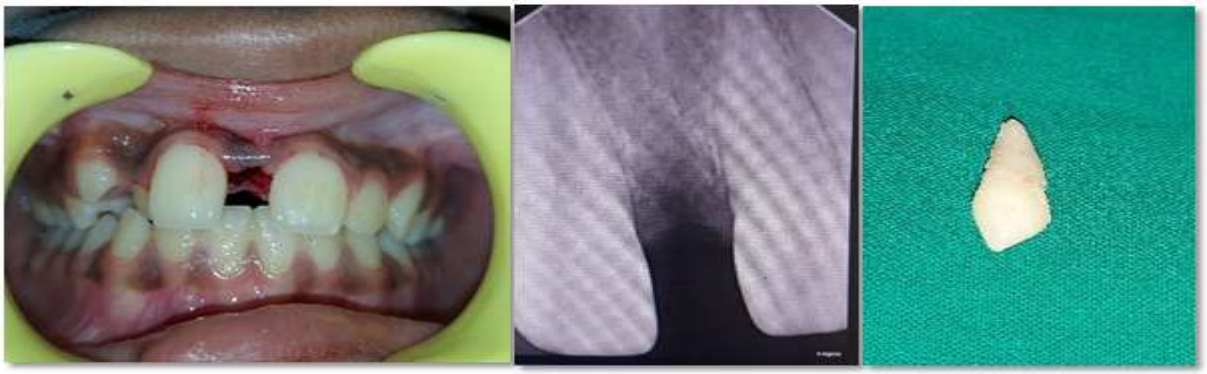


Fig 2.3 Post-op intraoral clinical photograph, periapical radiograph of mesiodens

CASE 3:

A 13-year-old patient reported to Department of Pediatric and Preventive Dentistry with chief complain of extra tooth in upper front region of jaw.

Patients medical and family history was noncontributory and no sign of any associated syndrome were evident.

Intraoral examination revealed a mesiodens in upper arch (Figure 3.1) Intraoral photographs are shown in Figure 3.2. the mesiodens had a conical long root. The treatment focused on improving patient's speech and aesthetics, which led to extraction of embedded supernumerary tooth. Figure 3.2 shows extraction socket and extracted mesiodens.

Fig 3.1 Intraoral clinical photographs of mesiod

Fig 3.2 Extraction socket and extracted

CASE 4:
A 13-year-old patient reported to Department of Pediatric and Preventive Dentistry with chief complaint of speech impairment and sensitivity in upper front teeth region of jaw. There was no relevant medical or family history.

Intraoral examination revealed permanent dentition with the presence of mesiodens deviating 21 labially (Fig 4.1). Radiographic examination showed presence of conical supernumerary wedged between upper two central incisors. Treatment involved extraction with mesiodens (Fig 4.2 and 4.3)

Fig 4.1 Intraoral clinical photographs of

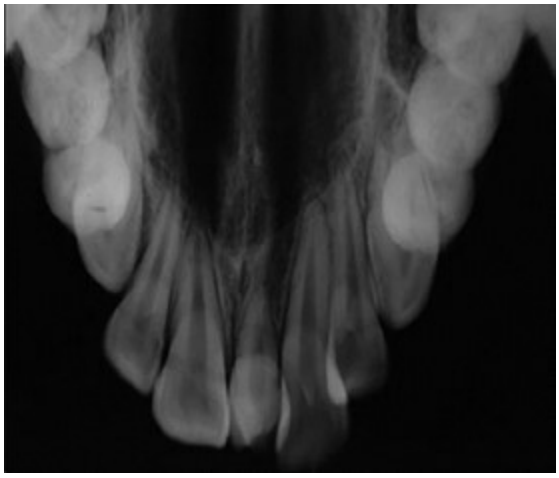


Fig 4.2 Radiograph of mesiodens

Fig 4.3 Extracted mesiodens

CASE 5:
A 9-year-old male patient presented to the Department of Paediatric and Preventive Dentistry with a chief complaint of pain on mastication and an extra tooth in the upper front tooth region of the jaw. The patient provided no history of trauma. The patient's medical history and family history are non-contributory.

Intraoral clinical examination revealed the presence of a supernumerary tooth, which was diagnosed as mesiodens and positioned between maxillary right and left central incisors on the palatal aspect. Figure 5.1 depicts an intraoral clinical photograph of the maxillary anterior region, showing mesiodens.
An intraoral periapical radiograph was recommended to locate the exact position of

mesiodens in the maxillary anterior region. Figure 5.2 shows an intraoral periapical radiograph of the maxillary anterior region.
Based on all the clinical findings and examinations, an extraction of mesiodens was planned. Figure 5.3 shows extracted mesiodens.

Fig 5.1 Clinical photograph of maxillary anterior region, showing mesiodens

Fig 5.2 Intraoral periapical radiograph of the maxillary anterior region

Fig 5.3 Extracted mesiodens

CASE 6:
A 8-year-old male patient came to Department of Pediatric and Preventive Dentistry with a chief complaint of persistent, dull, throbbing pain localized to right temporomandibular joint and radiating behind right ear. Patient denied any associated symptoms such as swelling, fever or discharge. He reported that mastication of hard food exacerbated the pain.

An intraoral clinical examination revealed the presence of a supernumerary tooth, which was diagnosed as a mesiodens, and it was positioned between upper central incisors on the palatal aspect. Due to the presence of the mesiodens, there was premature contact between teeth, which results in an imbalance occlusion. (Fig 6.1)

An intraoral occlusal radiograph was recommended to locate the exact position of the mesiodens in the maxillary anterior region and diagnosis of supernumerary teeth was made as mesiodens (Fig 6.2). Based on all the clinical findings and examinations, an extraction of mesiodens was

planned. There was no postoperative complications present after extraction.(Fig 6.3 and 6.4)

Fig 6.1 Pre-op Intraoral clinical photograph

Fig 6.2 Pre-op Intraoral Periapical radiograph

Fig 6.3 Extracted mesiodens

Fig 6.4 Post-op intraoral clinical photograph

CASE 7:

A 9-year-old patient reported to Department of Pediatric and Preventive Dentistry with chief complain of extra teeth in upper front region of jaw. Patients medical and family history was noncontributory.

Intraoral examination revealed a mesiodens in upper arch, intraoral photographs are shown in Figure 7.1. the mesiodens had a conical long root. The treatment was focused on improving patient's speech and aesthetics. Complete extraction of embedded supernumerary tooth was done under local anesthesia. Figure 7.2 show extracted mesiodens.

Fig 7.1 Pre-op Intraoral

Fig 7.2 Extracted mesiodens

DISCUSSION

Impacted mesiodens can lead to significant complications, such as displacement of adjacent teeth, midline diastema, delayed eruption of permanent teeth, and root resorption. The literature emphasizes the importance of timely intervention, as seen in similar cases where delayed management exacerbated orthodontic complications. Surgical extraction remains the treatment of choice, particularly when the mesiodens interferes with normal occlusion or causes aesthetic concerns.

Detection of these supernumerary teeth is best achieved by clinical and radiographic examination. An anterior occlusal radiograph is useful in locating a mesiodens. In some of our cases like case 1,2,3,4,6 IOPA radiograph revelled presence of mesiodens in the midline of maxillary arch which was embedded in parallel direction. Intraorally anterior presence of embedded mesiodens gave unesthetic appearance to the patient and also would have interfered with the eruption of permanent teeth, hence it was extracted. While in two cases like case 5 and 7 it was located on palatal aspect. The presence of palatally placed mesiodens results in disturbance in occlusion causing TMJ pain. Thus the treatment was aimed at addressing the patient's need for alleviate TMJ pain as well as improved speech, mastication and aesthetics.

Most of the time, supernumerary teeth are asymptomatic but as always problems may appear that include periodontitis, dilacerations, dentigerous cyst formation, root resorption of adjacent teeth, occlusive disturbance and no aesthetic appearance.9

In each case we took 14-day follow-up, it was observed that the patient had no pain and had no more difficulty with mastication as well as in the closure of the mouth. After the follow up when patients' concerns were eliminated and satisfactory healing seen with extraction socket, patients were referred to department of orthodontics for midline diastema and malocclusion.

This case underscores the need for a multidisciplinary approach, combining radiographic evaluation and clinical expertise, to ensure accurate diagnosis and successful treatment. In this instance, the mesiodens was surgically extracted without complications, and the patient will be monitored for orthodontic correction to address any residual malocclusion. Previous studies have highlighted the importance of follow-up care to ensure optimal alignment of the dentition and to prevent recurrence of functional or aesthetic issues.

CONCLUSION

Whenever supernumerary teeth are diagnosed, single or multiple, treatment options should be reviewed carefully. Therapy of supernumerary/supplementary teeth is usually the extraction as seen in all cases. But also, an excess tooth in the dentition can be left as a replacement tooth in some cases, due to a previously lost permanent tooth from the dentition, if its biological value and potential is sufficient to complete the dentition both functionally and aesthetically.

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