

DOUBLE TROUBLE IN THE MIDLINE: SURGICAL MANAGEMENT OF A CASE OF
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ABSTRACT

Introduction: Mesiodens are supernumerary teeth located in the maxillary midline, often associated with complications such as malalignment, delayed eruption, or crowding. Early diagnosis and appropriate management are essential to prevent aesthetic and functional disturbances. **Case Presentation:** A 25-year-old male reported with a complaint of malaligned anterior teeth. Cone Beam Computed Tomography (CBCT) revealed the presence of two impacted mesiodens. Under local anesthesia, a full-thickness flap was reflected, bone guttering was performed, and both mesiodens were surgically extracted. The postoperative period was uneventful, with satisfactory healing observed at one-week follow-up. **Conclusion:** This case highlights the importance of radiographic evaluation, especially CBCT, in accurately diagnosing and managing multiple impacted mesiodens. Early detection and precise surgical management are crucial to restore proper alignment and prevent future complications.

INTRODUCTION

Supernumerary teeth are defined as teeth that exceed the normal dental formula in both number and morphology (Primosch, 1981).^[1]

The most frequent supernumerary tooth is the mesiodens, found in the anterior maxilla between the two central incisors (Liu, 1995).^[2] Its reported prevalence varies between 0.15% and 1.9% in different populations.^[3] Mesiodens may occur singly or in multiples, unilaterally or bilaterally, and in both erupted and impacted forms.^[4]

Impacted mesiodens can cause several complications, including delayed eruption, ectopic eruption, malalignment, midline diastema, root resorption, and cyst formation (Hogstrom & Andersson, 1987).^[5] Radiographic imaging plays an essential role in diagnosis; among the available modalities, Cone-Beam Computed Tomography (CBCT) provides accurate localization and spatial relation of impacted teeth to adjacent structures.

The treatment of choice in symptomatic or malpositioned mesiodens is surgical extraction, which prevents or corrects functional and esthetic disturbances.

CASE REPORT

A 25-year-old male patient reported to the Department of Periodontology with the chief complaint of malaligned anterior teeth. He had been referred by the Department of Orthodontics after suspicion of impacted supernumerary teeth.

Clinical Examination

On intraoral examination, mild crowding was present in the maxillary anterior region. There was no history of systemic disease or trauma.

Radiographic Findings

A CBCT scan was advised, which revealed

- One impacted mesiodens located between the two maxillary central incisors.
- Another impacted mesiodens situated palatally, posterior to teeth 11 and 12.

Treatment Plan

Based on these findings, surgical extraction of both impacted mesiodens was planned.

Surgical Procedure

- Local anesthesia (2% lignocaine with 1:80,000

adrenaline) was administered.

- A full-thickness mucoperiosteal flap was elevated in the anterior maxilla.
- Bone guttering was carried out to expose the impacted teeth.
- Both mesiodens were carefully luxated and extracted.
- The surgical site was thoroughly irrigated, hemostasis achieved, and sutures placed with 3-0 silk.

Postoperative Management

- The patient was prescribed antibiotics and analgesics for 5 days.
- Postoperative instructions were given, including oral hygiene maintenance and soft diet.

Follow-up

The patient was recalled after 8 days for suture removal. Healing was uneventful, and the patient was referred back to the Department of Orthodontics for further alignment.

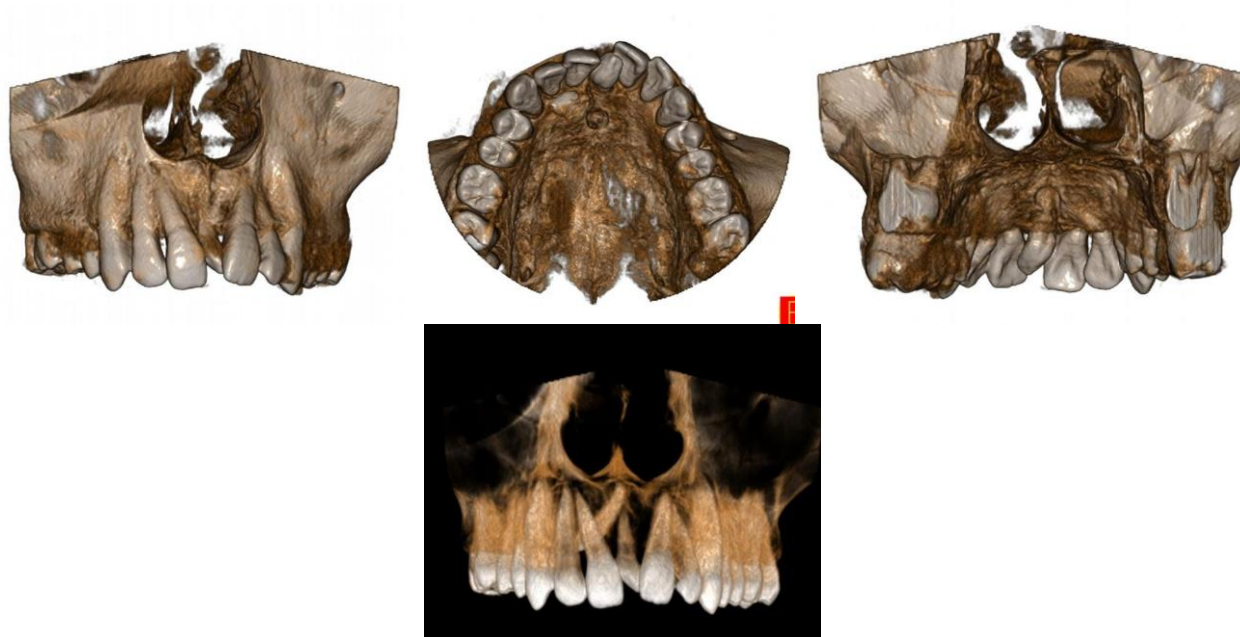


Fig 1. CBCT images.



Fig 2. Pre operative photograph.



Fig 3. Flap reflection.



Fig 4. Extracted Supernumerary teeth.



Fig 5. Suturing.



Fig 6. One month follow up.

DISCUSSION

Mesiodens accounts for nearly 80% of all supernumerary teeth, making it the most common anomaly of tooth number (Hattab et al., 1994).^[6] Although most cases are diagnosed in childhood due to eruption disturbances, some remain undetected until adulthood, as in the present case.

Classification of Supernumerary Teeth

1. Based on Morphology (Primosch, 1981).^[4]

- **Conical** – Small peg-shaped tooth (most common form of mesiodens).
- **Tuberculate** – Barrel-shaped with multiple cusps/tubercles, often causing delayed eruption.
- **Supplemental** – Resembles a normal tooth, usually an incisor or premolar.
- **Odontome** – Irregular mass of dental tissue.

2. Based on Position (Howard, 1967).^[7]

- **Mesiodens** – Located in the midline between central incisors.
- **Paramolar** – Buccal/lingual to molars.
- **Distomolar** – Distal to third molars.
- **Parapremolar** – Adjacent to premolars.

Classification of Impaction

1. Based on Angulation (Garvey et al., 1999)

- **Vertical** – Long axis parallel to adjacent teeth.
- **Inverted** – Upside-down orientation (common for mesiodens).
- **Transverse/Horizontal** – Long axis at right angle to normal eruption path.
- **Ectopic** – Located away from normal eruption site.

2. Based on Depth/Relation to Adjacent Teeth (Winter's classification adapted)

- **Superficial** (close to alveolar crest)
- **Intermediate** (within alveolar bone, near roots)
- **Deep** (close to nasal floor or palatal vault).

The etiology of mesiodens is not fully understood. Theories include hyperactivity of the dental lamina, genetic factors, and dichotomy of the tooth bud. A hereditary component has also been suggested, with possible autosomal dominant inheritance.^[8]

Etiology of Supernumerary Teeth

The exact cause is uncertain, but several theories exist

1. **Dental Lamina Hyperactivity Theory** – Suggests local, independent hyperactivity of the dental lamina (Brook, 1974).^[9]
2. **Dichotomy Theory** – Splitting of a developing tooth bud may produce an additional tooth (Luten, 1967).^[10]
3. **Genetic Factors** – Familial tendencies and possible autosomal dominant inheritance have been reported (Marya & Kumar, 1998).^[8]
4. **Syndromic Association** – Conditions such as Cleidocranial dysplasia, Gardner's syndrome, and Cleft lip/palate often present with supernumerary teeth (Rajab & Hamdan, 2002).^[3]

Clinical complications of mesiodens include midline diastema, crowding, delayed eruption of permanent incisors, and displacement of adjacent teeth.

More severe effects, such as cystic changes and root resorption, have also been reported. In this case, the patient presented with malalignment of the maxillary anterior teeth, prompting orthodontic referral and radiographic diagnosis.

CBCT has revolutionized the diagnosis of impacted mesiodens by providing three-dimensional information on position, morphology, and relation to adjacent structures. It is particularly useful in cases with multiple or palatally impacted mesiodens.

Where conventional radiographs may not be sufficient.

Management depends on patient age, symptoms, and orthodontic needs. Early extraction is recommended in growing patients to avoid interference with eruption.^[11]

In adults, removal is indicated if the mesiodens causes esthetic or functional problems, as seen in this case.

The surgical procedure, when performed with proper flap design and bone removal, is associated with minimal complications. Postoperative healing is usually uneventful, provided infection is prevented and oral hygiene is maintained.

After removal, fixed or removable orthodontic

appliances are used for traction and alignment of impacted permanent incisors. Light and well-directed forces are essential to guide impacted incisors into occlusion without damaging developing roots.

Thus, interdisciplinary coordination between orthodontics, periodontics, and oral surgery is crucial for timely diagnosis and comprehensive management.

CONCLUSION

Mesiodens is the most common type of supernumerary tooth and can significantly affect occlusion, esthetics, and function if not managed early. CBCT serves as a reliable diagnostic tool for precise localization and treatment planning of impacted mesiodens.

Surgical removal remains the treatment of choice, with predictable outcomes and minimal complications when executed carefully.

This case highlights the importance of early detection and interdisciplinary collaboration between orthodontics and periodontics in managing supernumerary teeth.

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