

Comprehensive Orthodontic Management of Erupted Mesiodens in an Adult Patient: A Case Report

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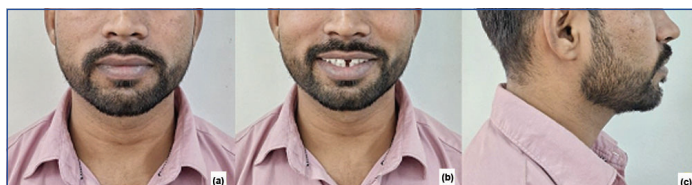
ABSTRACT

Supernumerary teeth are relatively rare anomalies, with mesiodens being the most common type. They are often detected in childhood, but when left undiagnosed, can persist into adulthood and interfere with occlusion and aesthetics. Timely identification and management are therefore essential to prevent long-term complications. The presence of a mesiodens in adult patients, although rare, often leads to complications including midline deviation, localised spacing, and aesthetic concerns. This case report presents the comprehensive orthodontic management of a 25-year-old male with an erupted mesiodens positioned between the maxillary central incisors. The patient exhibited localised spacing in both arches with a skeletal and dentoalveolar Class I malocclusion. Following the extraction of the mesiodens under local anaesthesia, fixed appliance therapy with pre-adjusted MBT 0.022" brackets was initiated. Alignment and levelling were achieved with 0.016" NiTi wires progressing to 0.019×0.025" stainless steel wires. Space closure was accomplished using continuous light forces through elastomeric chains, with careful anchorage management to achieve midline correction and preserve molar and canine relationships. The total treatment duration was 12 months. Post-treatment assessment revealed successful space closure, corrected midline, and improved smile aesthetics. Bonded lingual retainers were placed to ensure long-term stability. This case highlights the importance of early identification and management of mesiodens to achieve optimal orthodontic and aesthetic outcomes. Detection of mesiodens in adulthood can still be regarded as early because it precedes the onset of secondary complications such as cyst formation, root resorption, or complex malocclusion. Additionally, orthodontic correction is more efficient and stable at this stage when compared to later decades of life. Controlled biomechanics and diligent retention protocols are crucial in achieving predictable and stable results in adult patients. The novelty of this case lies in managing space closure and midline correction following the extraction of an erupted mesiodens in an adult patient, which is rare compared to routine cases.

Keywords: Additional tooth, Corrective therapy, Dental midline, Impacted

CASE REPORT

A 25-year-old male reported to the department of orthodontics with a chief complaint of spacing between his teeth and the presence of an abnormal tooth positioned between his upper front teeth, leading to a poor aesthetic smile. The patient's medical and dental history were non-contributory. After obtaining consent from the patient, an examination was performed. On extraoral examination, the patient presented with a bilaterally symmetrical face, a mesoprosopic facial form, a mesocephalic head form, and a straight profile, with orthognathic facial divergence, an average nasolabial angle, and a well-defined mentolabial sulcus. The smile is consonant, accompanied by a negative lip step, with competent lips at rest [Table/Fig-1].

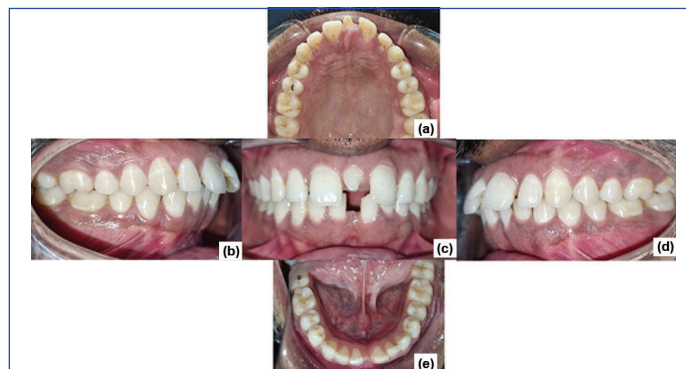


[Table/Fig-1]: Extraoral pre-treatment photographs: a) Frontal; b) Smiling; c) Profile.

Intraoral examination showed an average arch form with mild anterior malalignment and localised spacing in both the maxillary and mandibular arches. A supernumerary tooth, identified as mesiodens, was erupted and located between the maxillary central incisors. The presented case exhibited a bilateral Class I molar and canine relationship [Table/Fig-2].

On radiographic assessment, Orthopantomogram (OPG) confirmed the supernumerary tooth presence as mesiodens and showed

no other abnormalities. Cephalometric evaluation is indicative of a Skeletal Class I relationship with average SNA, SNB and ANB values alongside a normal horizontal growth pattern [Table/Fig-3].



[Table/Fig-2]: Intraoral pretreatment photographs: a) Maxillary arch; b) Right buccal region; c) Frontal; d) Left buccal region; e) Mandibular arch.



[Table/Fig-3]: Pre-treatment: a) Lateral cephalogram; b) OPG.

The diagnosis is suggested as Skeletal Class I malocclusion with dentoalveolar Class I malocclusion with localised anterior spacing, and mesiodens between central incisors.

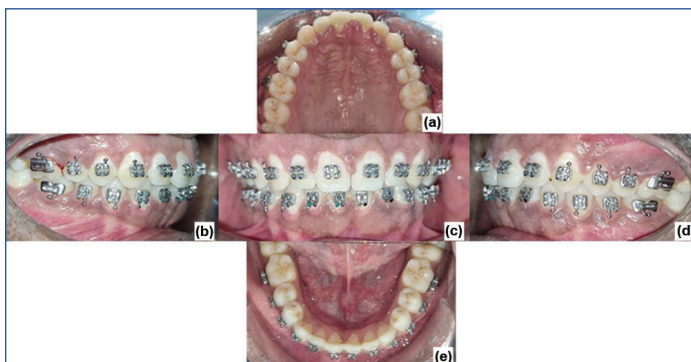
Treatment objectives: The primary objective of the treatment was the extraction of the erupted mesiodens to facilitate the proper space closure, to achieve closure of localised spacing in both arches, simultaneously maintaining the Class I molar and canine relationship, and improving the patient's smile aesthetic and arch form. Long-term stability of the results through appropriate retention is also a significant objective.

Treatment plan and progress: The treatment plan in the case involved the extraction of the erupted mesiodens under local anaesthesia to eliminate the obstruction and all the symmetrical space closure (6 mm). Fixed appliance therapy was employed, utilising the pre-adjusted edgewise MBT 0.022" {JJ Orthodontics (Orthox)} slot bracket was initiated. The alignment and levelling phase commenced with the 0.016" NiTi arch wires, progressing to the 0.019×0.025 Stainless Steel (SS) arch wires to establish proper arch coordination.

Following the alignment, space closure was carried out with the help of power chains, which provided continuous light forces to achieve the bodily movement and prevent the unwanted tipping. Special attention was given to the anchorage control throughout the space closure phase to ensure the midline correction and maintain the molar Class I canine and molar relationship [Table/Fig-4,5]. After the space closure, OPG and a lateral cephalogram were taken to evaluate the root parallelism and inclination [Table/Fig-6].



[Table/Fig-4]: Photographs post space closure: a) Frontal; b) Smiling; c) Profile.



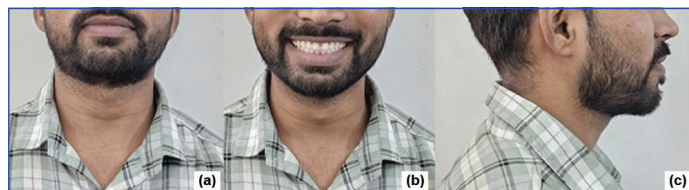
[Table/Fig-5]: Intraoral photographs post space closure: a) Maxillary arch; b) Right buccal region; c) Frontal; d) Left buccal region; e) Mandibular arch.



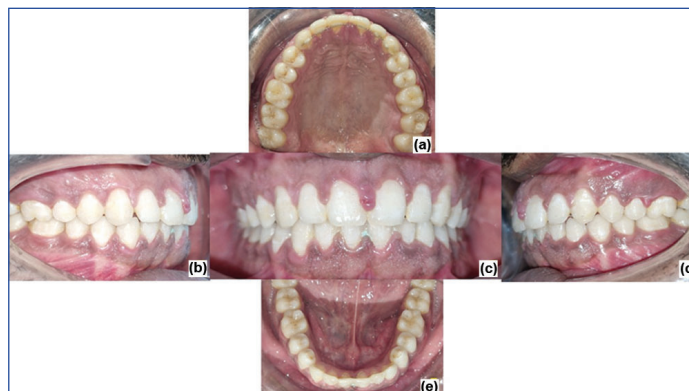
[Table/Fig-6]: Radiographs post space closure: a) Lateral cephalogram; b) OPG.

The total duration of the treatment was 12 months. After debonding, fixed bonded lingual retainers were placed in both arches to maintain the archived results [Table/Fig-7,8]. The treatment objectives were remarkably achieved within the planned duration. Complete closure of space was achieved in the upper and lower arches, and the dental midline was corrected. The molar and canine relationship was maintained as Class I bilaterally throughout the treatment. The patient's smile aesthetics improves significantly with enhanced arch form, corrected midline and harmonious anterior contacts. At

the six-month follow-up, the patient remained in bonded lingual retention with stable results and expressed satisfaction with both aesthetic and functional outcomes; the gingiva showed stable gingival health.



[Table/Fig-7]: Post-treatment photographs: a) Frontal; b) Smiling; c) Profile.



[Table/Fig-8]: Intraoral post-treatment photographs: a) Maxillary arch; b) Right buccal region; c) Frontal; d) Left buccal region; e) Mandibular arch. Intraoral examination also revealed gingival prolapse in the maxillary anterior region, as evident in the clinical photographs, contributing to the tissue remodelling following the space closure and the orthodontic tooth movement. Periodontal prolapse managed by stabilising the tissue through root planning and scaling.

DISCUSSION

This case illustrates the clinical management of localised spacing in an adult patient complicated by the presence of an erupted mesiodens. While skeletal and dentolavioar Class I relationship is typically suggestive of a favourable prognosis, aesthetic and functional discrepancies such as spacing demand comprehensive management. Mesiodens can contribute to space anomalies, midline deviation, and compromised smile aesthetics, necessitating removal before orthodontic intervention [1]. Early identification of such anomalies can help achieve better and predictable orthodontic mechanics to improve the overall symmetry [2].

The choice of fixed appliance therapy, using light continuous forces through the elastomeric chains, was critical in ensuring controlled space closure without adverse effect on the periodontal health [3]. Anchorage management ensures stability of molar and canine relationships while achieving the anterior space closure and midline corrections [4,5].

Similar findings in the literature describe multiple mesiodens affecting occlusion and alignment. Roy R et al., presented a case of a 14-year-old female who presented with three mesiodens in the maxillary anterior region, causing spacing between the central incisors, a 45° distopalatal rotation of tooth 11, and scissor bite. The treatment involved the extraction of mesiodens followed by fixed orthodontic therapy. Tooth 11 was gradually engaged into the archwire, with the wire progression up to 0.018" in both arches. The scissor bite was corrected with BluBite resin, and treatment was successfully completed within a few months [6]. Phase A et al., reported a case of a 15-year-old male with anterior crowding and buccal displacement of the left canine due to two mesiodens. Extraction of both mesiodens was performed, followed by diastema closure with elastomeric chains and a fixed appliance. A transpalatal arch provided anchorage during alignment. The outcome was successful correction of alignment and function [7]. Ghislanzoni LH et al., reported a case of a 14-year-old female with severe upper dental crowding and midline shift caused by the palatal positioned mesiodens underwent extraction of all four first bicusps and

orthodontic alignment using miniscrew anchorage. After space was created and the midline was corrected, the mesiodens was surgically removed. This approach allowed for both safer extraction and improved aesthetics. Results were stable after a two-year follow-up [8].

Literature consistently emphasises the importance of meticulous biomechanics in adult cases, particularly when addressing generalised spacing [9]. Furthermore, retention protocols in spacing cases are vital due to increased relapse potentials attributed to the soft tissue pressures and reduced interproximal contacts post-treatment [10,11]. The use of bonded lingual retainers remains the reliable and widely accepted method for maintaining long-term stability in such cases [12].

The current literature supports the success of orthodontic treatment in managing generalised spacing and anomalies like mesiodens through systematic planning and retention strategies [13]. This case reinforces the understanding that even in adult patients, predictable and stable outcomes are attainable with precise intervention and adherence to fundamental orthodontic principles.

CONCLUSION(S)

Orthodontic management of localised spacing in adults, particularly in the presence of supernumerary teeth such as mesiodens, can achieve excellent aesthetics and functional results when approached systematically. Fixed appliance therapy, combined with proper biomechanical control and diligent retention protocols, offers a reliable solution for addressing spacing concerns without resorting to prosthetic measures. This case demonstrates that early interventions, careful diagnosis and controlled orthodontic mechanics can yield predictable, stable, and satisfactory outcomes in adult patients.

REFERENCES

- [1] Meighani G, Pakdaman A. Diagnosis and management of supernumerary (mesiodens): A review of the literature. *J Dent (Tehran)*. 2010;7(1):41-49.
- [2] Obiedat Q. Mesiodens: Diagnosis & management. *Smile Dent J*. 2023;18(1):8-10.
- [3] Sarver DM. Orthodontics & esthetic dentistry: Mission possible! A broader approach to interdisciplinary esthetic treatment. *J Cosmet Dent*. 2016;31(4):14-26.
- [4] Roychoudhary A, Gupta Y, Parkash H. Mesiodens: A retrospective study of fifty teeth. *J Indian Soc Pedod Prev Dent*. 2000;18(4):144-46.
- [5] Alaçam A, Bani M. Mesiodens as a risk factor in treatment of trauma cases. *Dent Traumatol*. 2009;25(2):e25-e31.
- [6] Roy R, Khan S, Jabeen S, Navit S. Orthodontic management of midline diastema caused by mesiodens: A case series. *Asian J Oral Health Allied Sci*. 2024;14:1.
- [7] Phase A, Ahmed ARY, Ganiger C, Pawar R, Paphse S, Mane P. Orthodontic correction of malocclusion caused by rare mesiodentes anomaly- A case report. *Int J Sci Res*. 2018;7(8):216.
- [8] Ghislanzoni LH, Berardinelli F, Tagliatesta C, Lucchese A. Management of complicated crowding and upper midline shift associated with an impacted mesiodens: A case report with 2 years follow-up. *Iran J Orthod*. 2017;12(2):e8076.
- [9] Varghese AB, Shettigar P. Interdisciplinary management of mesiodens for aesthetic correction. *Int J Appl Dent Sci*. 2025;11(1):244-46.
- [10] Göransson E, Sonesson M, Akbar NA, Dimberg L. Malocclusions and quality of life among adolescents: A systematic review and meta-analysis. *Eur J Orthod*. 2023;45(3):295-307.
- [11] Mukhopadhyay S. Mesiodens: A clinical and radiographic study in children. *J Indian Soc Pedod Prev Dent*. 2011;29(1):34-38. Doi: 10.4103/0970-4388.79928.
- [12] Russell KA, Folwaczna MA. Mesiodens- diagnosis and management of a common supernumerary tooth. *J Can Dent Assoc*. 2003;69(6):362-66. Available from: <https://pubmed.ncbi.nlm.nih.gov/12787472/>.
- [13] Gupta T, Sadana G, Rai HK. Effect of esthetic defects in anterior teeth on the emotional and social well-being of children: A survey. *Int J Clin Pediatr Dent*. 2019;12(3):229-33. Doi: 10.5005/JIP-journals-10005-1628.

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