DOI: 10.7860/JCDR/2026/88554.24379

Unmasking Hidden Pathology of Odontoma, Supernumerary Teeth and Cyst through the Lens of CBCT in a Young Child with Delayed Eruption: A Clinical Image

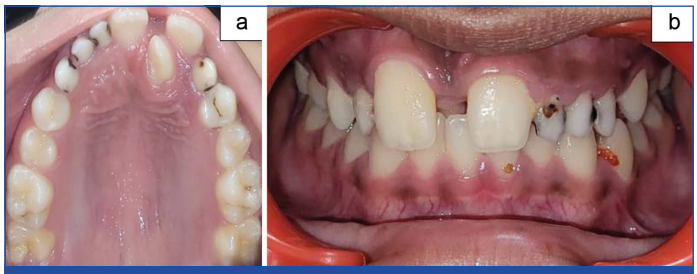
UMAPATHY THIMMEGOWDA[1], NIDHI S SHETTY[2], SANVEED SUNIL MARATHE[3]

BY-NC-ND

Keywords: Cone beam computed tomography, Deciduous tooth, Mixed dentition, Tooth impaction

An 11-year-old boy reported to the Department of Paediatric and Preventive Dentistry with a chief complaint of crooked upper front teeth and delayed eruption of teeth in the upper jaw for approximately one year. The parents had noticed progressive irregular alignment and spacing in the maxillary anterior region during eruption of permanent teeth. There was no history of pain, swelling, discharge, trauma, or previous dental treatment. Medical and family histories were non contributory.

Clinical examination revealed retained primary maxillary left central and lateral incisors (61 and 62) with mobility. The permanent maxillary left lateral incisor (22) was clinically absent, while the permanent maxillary right lateral incisor (12) was palatally displaced and in anterior crossbite. Spacing was present in the maxillary anterior region with a midline diastema between teeth 11 and 21 [Table/Fig-1a,b].

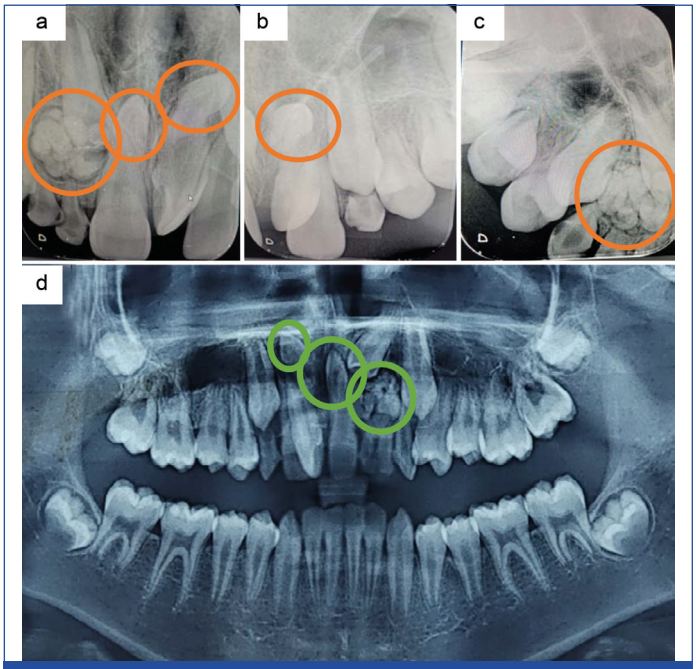


[Table/Fig-1]: a) Intraoral picture of maxillary arch showing all the teeth present; b) Occlusal photograph showing midline diastema, retained primary and anterior crossbite in relation to tooth 12.

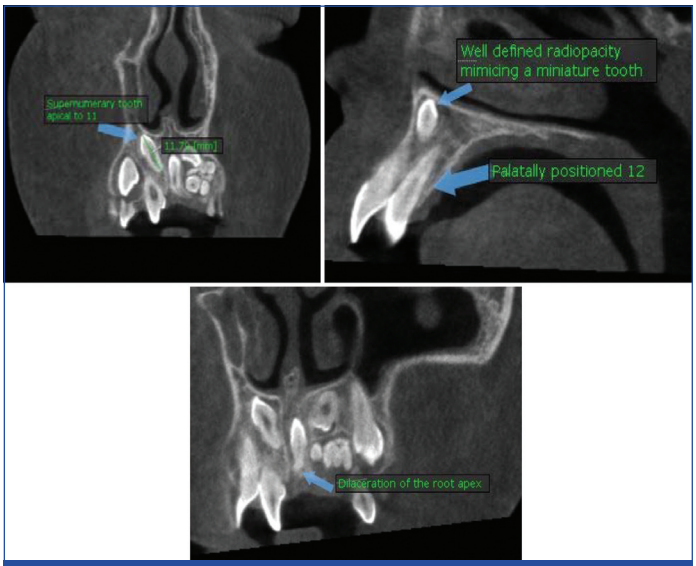
Initial radiographic evaluation using intraoral periapical radiographs and orthopantomogram demonstrated multiple radiopaque tooth-like structures surrounded by a radiolucent rim in the anterior maxilla, suggestive of a compound odontoma. Two impacted inverted supernumerary teeth were also observed in the same region, contributing to the eruption disturbance of adjacent permanent teeth [Table/Fig-2].

To determine the exact location and extent of the lesions, Cone Beam Computed Tomography (CBCT) was performed. CBCT revealed multiple radiopaque denticles measuring approximately 11.95×10.91 mm in the periapical region of tooth 21, causing thinning of both labial and palatal cortical plates [Table/Fig-3].

According to the 2022 World Health Organisation (WHO) Classification of Odontogenic Lesions, odontomas are considered developmental odontogenic hamartomas rather than true neoplasms [1]. They are among the most common odontogenic lesions encountered during the mixed dentition period and frequently present with delayed eruption or impaction of permanent teeth [2-4]. In the present case, CBCT revealed multiple radiopaque denticle-like structures in the anterior maxilla. Three of these denticles resembled miniature teeth with identifiable enamel and dentin components, while the



[Table/Fig-2]: a-c) Intraoral periapical radiographs demonstrating a compound odontoma and impacted supernumerary teeth in the anterior maxilla (orange circles); d) Orthopantomogram revealing two impacted supernumerary teeth and a compound odontoma associated with delayed eruption of the permanent maxillary incisors (green circles).



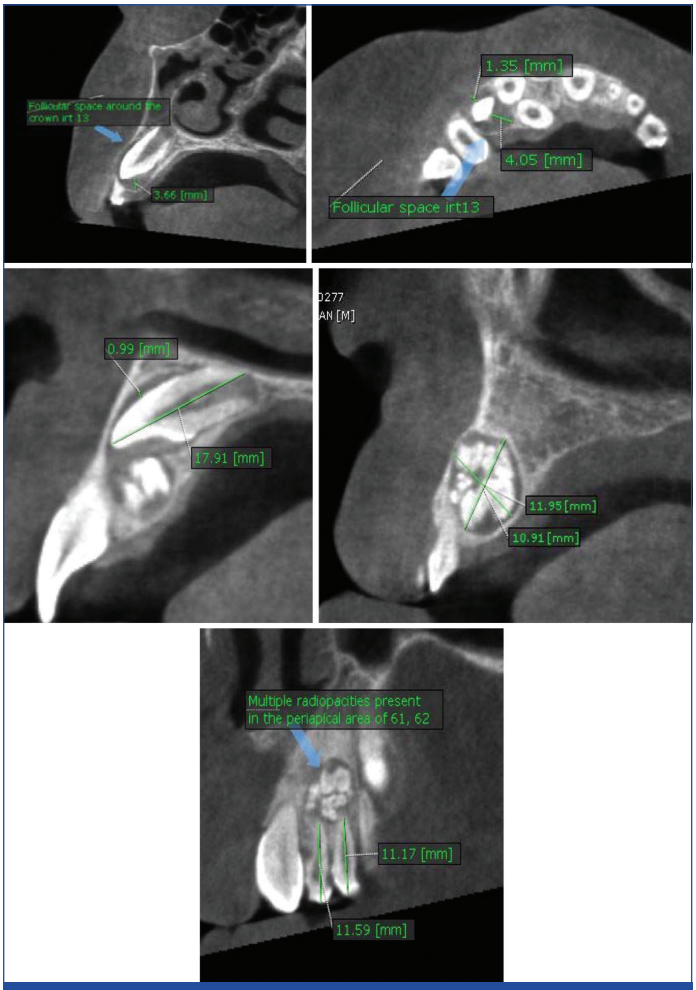
[Table/Fig-3]: CBCT images revealing the presence of two supernumerary teeth and palatally positioned 12.

remaining calcified structures exhibited irregular morphology. These characteristic radiographic features confirmed the diagnosis of a

compound odontoma. Compound odontomas typically occur in the anterior maxilla and are characterised by the presence of multiple tooth-like structures arranged in an organised pattern [2,3].

Further CBCT assessment demonstrated two inverted impacted supernumerary teeth positioned palatal to teeth 12 and 21. One supernumerary tooth measured approximately 11.79 mm and was located superior to the apex of tooth 11 with its crown directed towards the nasal floor. The second supernumerary tooth measured approximately 13.81 mm and exhibited apical root dilaceration directed towards the midline.

An additional significant finding on CBCT was a well-defined unilocular radiolucency surrounding the crown of the unerupted maxillary right canine (13). The follicular space measured approximately 5.40 mm, suggestive of a dentigerous cyst [Table/Fig-4]. This lesion was not clearly appreciable on conventional two-dimensional radiographs and became evident only after three-dimensional evaluation.



[Table/Fig-4]: CBCT images revealing follicular space around 13 indicative of dentigerous cyst. Also, the retention of 61, 62; presence of odontoma, causing hindrance for eruption of tooth 22.

The differential diagnosis included compound odontoma, complex odontoma, multiple supernumerary teeth, calcifying odontogenic cyst, and adenomatoid odontogenic tumour. The presence of multiple miniature tooth-like denticles with organised dental hard-tissue structures and characteristic radiographic appearance favoured a diagnosis of compound odontoma. The associated impacted supernumerary teeth and cystic enlargement of the follicular space surrounding tooth 13 established the final diagnosis of compound odontoma associated with two impacted supernumerary teeth and a dentigerous cyst.

The simultaneous occurrence of a compound odontoma, multiple impacted supernumerary teeth, and a dentigerous cyst in a single patient is uncommon. Although odontomas and supernumerary teeth are individually recognised causes of eruption disturbances, the simultaneous presence of multiple pathologies contributing to delayed eruption may increase diagnostic complexity and influence treatment planning. Such cases present a diagnostic challenge because conventional radiographs may reveal only the obvious calcified structures while overlooking associated cystic pathology. Furthermore, the presence of multiple lesions can alter the eruption path of adjacent teeth, increase treatment complexity, and influence the timing and nature of surgical and orthodontic interventions. In the present case, CBCT not only confirmed the odontoma and impacted supernumerary teeth but also revealed an associated dentigerous cyst that was not clearly evident on routine two-dimensional imaging. This additional finding significantly influenced treatment planning and highlights the value of three-dimensional imaging in the comprehensive evaluation of delayed tooth eruption in children.

The CBCT played a decisive role in the present case by accurately demonstrating the morphology of the odontoma, localisation of the supernumerary teeth, cortical plate involvement, and the associated dentigerous cyst. Previously published data have demonstrated the usefulness of CBCT in the assessment of impacted teeth and associated odontogenic lesions by providing accurate three-dimensional localisation and detailed evaluation of their relationship with adjacent structures, thereby facilitating treatment planning [5].

An interdisciplinary treatment plan involving paediatric dentistry, oral and maxillofacial surgery, and orthodontics was formulated. Surgical enucleation of the odontoma and dentigerous cyst along with extraction of the impacted supernumerary teeth and retained primary teeth was planned. Surgical removal of odontomas and supernumerary teeth is generally recommended to eliminate eruption obstruction and promote normal eruption of impacted teeth [6,7]. Subsequent orthodontic treatment was proposed to facilitate eruption, alignment, and establishment of functional occlusion. Combined surgical and orthodontic management has been reported to provide predictable functional and aesthetic outcomes in cases involving eruption disturbances caused by odontomas and supernumerary teeth [6-9].

This case highlights the importance of CBCT in identifying hidden associated pathologies in children presenting with delayed eruption of anterior teeth. The coexistence of a compound odontoma, two impacted supernumerary teeth, and a dentigerous cyst created a complex diagnostic scenario that could not be completely appreciated on conventional radiographs alone. Three-dimensional imaging enabled accurate diagnosis, localisation of the lesions, assessment of their relationship with adjacent structures, and formulation of a comprehensive interdisciplinary treatment plan.

REFERENCES

[1] Soluk-Tekkeşin M, Wright JM. The World Health Organization Classification of Odontogenic Lesions: A Summary of the Changes of the 2022 (5th) Edition. Turk Patoloji Derg. 2022;38(2):168-84.
[2] Prabhu N, Issrani R, Patil S, Srinivasan A, Alam MK. Odontoma-an unfolding enigma. J Int Oral Health. 2019;11(6):334-39.
[3] Boffano P, Cavarra F, Brucoli M. Epidemiology and management of odontomas. Oral Maxillofac Surg. 2023;27(3):479-87.
[4] Maden EA, Altun C, Sencimen M. A case report of compound odontoma associated with an unerupted maxillary central incisor. Arch Clin Exp Surg. 2014;3(1):47-51.
[5] Yordanova-Kostova GR, Gurgurova GD. Compound odontoma in canine region and its impact on tooth eruption and orthodontic treatment: Clinical cases and literature review. The Open Dentistry Journal. 2023;17:e187421062308311.
[6] Muczkowska N, Czochrowska E, Masłowska K, Wojtowicz A, Popowski W. Combined surgical and orthodontic treatment of complex odontoma in growing patients: Presentation of two cases. Dent J (Basel). 2025;13(2):82.
[7] Faniati R, Sejati BP, Arindra PK. Golden time of odontoma removal related to tooth movement disturbance in orthodontic patients: A series of five cases. Int J Surg Case Rep. 2025;129:111287.

[8] Seehra J, Mortaja K, Wazwaz F, Papageorgiou SN, Newton JT, Cobourne MT. Interventions to facilitate the successful eruption of impacted maxillary incisor teeth due to the presence of a supernumerary: A systematic review and meta-analysis. Am J Orthod Dentofacial Orthop. 2023;163(5):594-608.

[9] Baldawa RS, Khante KC, Kalburge JV, Kasat VO. Orthodontic management of impacted maxillary incisor due to odontoma. Contemp Clin Dent. 2011;2(1):37-40.

PARTICULARS OF CONTRIBUTORS:
1. Professor, Department of Paediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India.
2. Postgraduate Student, Department of Paediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India.
3. Postgraduate Student, Department of Paediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Umapathy Thimmegowda,
No. 14, Ramohalli Cross, Mysore Road, Kumbalgodu,
Bengaluru-560074, Karnataka, India.
E-mail: umapathygowda@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Mar 12, 2026
- Manual Googling: Jul 05, 2026
- iThenticate Software: Jul 07, 2026 (1%)

ETYMOLOGY: Author Origin

EMENDATIONS: 8

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Feb 25, 2026**
Date of Peer Review: **May 19, 2026**
Date of Acceptance: **Jul 09, 2026**
Date of Publishing: **Sep 01, 2026**