Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Unusual Complex Maxillary Odontoma: A Case Report and Literature Review

O. Ettachfini[1*], C. Chbichib[1], Y. Bouktib[1], A. El Hajjami[1], B. Boutakioute[1], M. Ouali Idrissi[1], N. Cherif Idrissi Gannouni[1]

[1]Radiology Department, ARRAZI Hospital, Mohammed VI University Hospital, FMPM, Cadi Ayad University, Marrakech, Morocco

DOI: https://doi.org/10.36347/sjmcr.2026.v14i05.087 | **Received:** 13.04.2026 | **Accepted:** 20.05.2026 | **Published:** 25.05.2026

***Corresponding author:** O. Ettachfini
Radiology Department, ARRAZI Hospital, Mohammed VI University Hospital, FMPM, Cadi Ayad University, Marrakech, Morocco

Abstract **Case Report**

Odontomas are the most common benign odontogenic tumors and are currently considered developmental hamartomatous lesions composed of enamel, dentin, cementum, and pulp tissue. Although generally asymptomatic, they are frequently associated with disturbances in tooth eruption and may occasionally attain large dimensions responsible for cortical expansion and facial asymmetry. We report the case of an 18-year-old patient presenting with a firm, non-inflammatory left maxillary swelling associated with impacted retained teeth and carious deciduous teeth. Panoramic radiography and facial computed tomography demonstrated two well-defined radiopaque maxillary lesions surrounded by a thin radiolucent halo, highly suggestive of complex odontoma. Histopathological examination confirmed the diagnosis. Surgical excision was successfully performed with favorable postoperative evolution. This case highlights the major contribution of imaging in diagnosis, differential diagnosis, and preoperative planning of unusual maxillary odontomas.

Keywords: Complex Odontoma, Maxillary Odontoma, Odontogenic Tumor, Impacted Teeth, Facial CT, Panoramic Radiography.

INTRODUCTION

Odontomas represent the most common benign odontogenic tumors of the jaws and are currently classified as hamartomatous developmental malformations rather than true neoplasms. According to the World Health Organization classification, odontomas are divided into compound odontomas, composed of multiple tooth-like structures, and complex odontomas, characterized by a disorganized arrangement of dental tissues.

The etiology of odontomas remains incompletely understood. Several factors have been implicated, including trauma, infection, hereditary syndromes, and genetic abnormalities affecting odontogenesis. Complex odontomas are usually slow-growing, asymptomatic lesions that predominantly involve the posterior mandible, whereas maxillary localization is less frequent.

Despite their benign behavior, large lesions may interfere with tooth eruption and produce cortical expansion, facial asymmetry, or secondary infection. Imaging plays a central role in diagnosis by demonstrating the characteristic radiopaque appearance surrounded by a radiolucent rim. We report an unusual case of complex maxillary odontoma and emphasize the importance of radiological assessment in diagnosis and treatment planning.

CASE REPORT

An 18-year-old male patient without significant medical history presented with progressive left maxillary swelling evolving over a period of three years. Clinical examination revealed no facial asymmetry or limitation of mouth opening. Intraoral examination demonstrated a firm, non-inflammatory swelling involving the left maxillary region associated with persistent carious deciduous central incisor, lateral incisor, and canine teeth.

Panoramic radiography demonstrated two well-defined radiopaque lesions involving the left maxillary region. The lesions were surrounded by a thin radiolucent halo and were associated with impacted retained permanent teeth.

Facial computed tomography confirmed the presence of conglomerate radiopaque maxillary masses with irregular and amorphous morphology, surrounded by a well-defined radiolucent rim. The lesions were associated with impacted retained left maxillary teeth. CT imaging allowed accurate assessment of lesion extension, cortical expansion, and relationship with adjacent structures, providing essential information for surgical planning.

Following surgical excision, histopathological examination revealed conglomerates of dental hard and soft tissues arranged in a disorganized pattern, confirming the diagnosis of complex odontoma.

Postoperative evolution was favorable, and the patient remained asymptomatic without evidence of recurrence during follow-up.

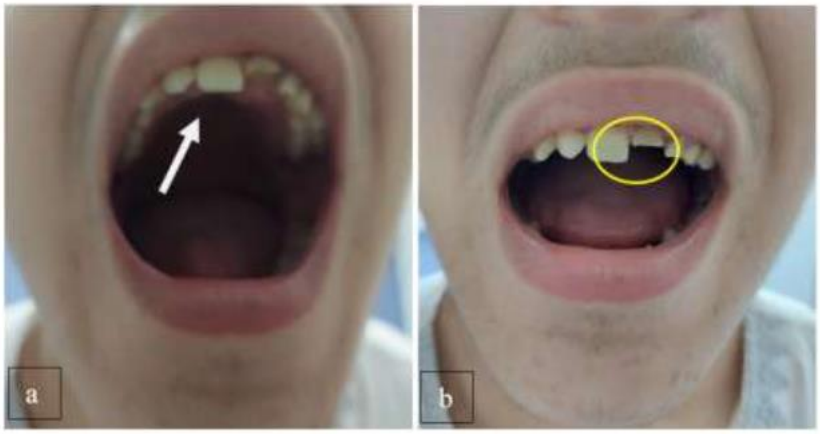

Fig-1: Intraoral examination (a, b) showing left maxillary swelling (white arrow) along with carious deciduous left teeth (central, lateral incisor and canine) (yellow circle)

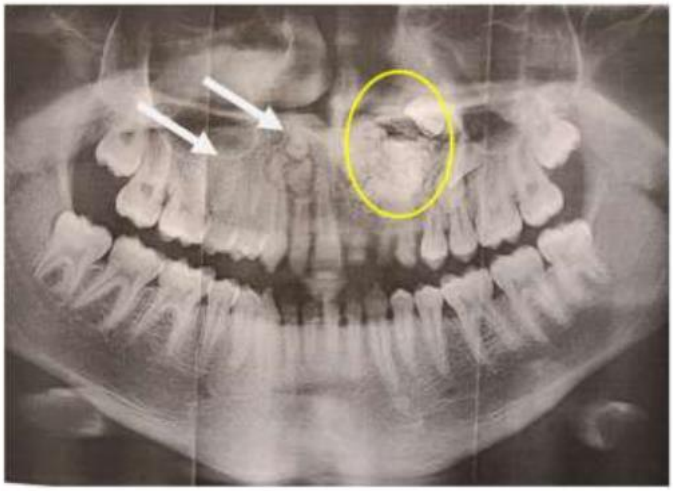

Fig-2: Panoramic radiograph showed

2 maxillary lesions as a well-defined radiopacity (white arrows) surrounded by a radiolucent halo along with impacted retained left teeth (yellow circle)

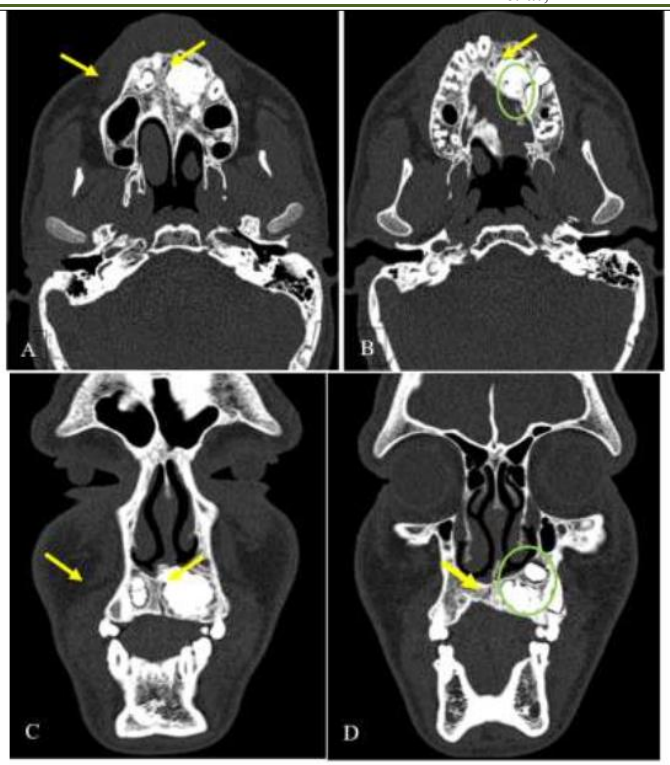

Fig-3: Axial images (A, B) and coronal images (C, D) of facial CT showed a conglomerate and radiopaque, shapeless maxillary masses, surrounding by a well-defined radiolucent rim (yellow arrows) along with impacted retained left teeth (green circle)

DISCUSSION

Odontomas are benign odontogenic lesions composed of enamel, dentin, cementum, and pulp tissue. They account for the majority of odontogenic tumors and are considered developmental hamartomas resulting from abnormalities of odontogenesis rather than true neoplastic proliferation.

Complex odontomas are characterized by a disorganized arrangement of dental tissues and differ from compound odontomas, which contain multiple rudimentary tooth-like structures. The relative frequency of complex odontomas varies between 5% and 30% among odontogenic tumors. They are most frequently diagnosed during the second decade of life, with a slight male predominance, as observed in our patient.

The etiology of complex odontomas remains uncertain. Several hypotheses have been proposed, including local trauma, inflammatory processes, hereditary syndromes, and genetic mutations interfering with normal tooth morphogenesis. Disturbances in odontoblastic and ameloblastic differentiation are believed to contribute to abnormal dental tissue formation.

Clinically, complex odontomas are usually asymptomatic and are often discovered incidentally during routine radiographic examinations. However, larger lesions may lead to delayed tooth eruption, impaction, displacement of adjacent teeth, cortical bone expansion, facial asymmetry, cystic transformation, or, more rarely, pain and infection. In the present case, the lesion was associated with retained impacted teeth and maxillary cortical expansion.

Radiological imaging is fundamental for diagnosis. The radiographic appearance of odontomas varies according to the degree of mineralization and stage of development. Early lesions may appear radiolucent, while mature lesions become progressively radiopaque. Fully developed complex odontomas typically appear as dense, irregular radiopaque masses surrounded by a thin radiolucent halo corresponding histologically to the connective tissue capsule.

Panoramic radiography often provides the initial diagnosis; however, computed tomography offers superior evaluation of lesion size, internal architecture, cortical expansion, and relationships with adjacent structures. CT imaging is particularly useful in large maxillary lesions because of the anatomical complexity of the region and its proximity to the maxillary sinus and nasal cavity. Cone beam CT may also be useful because of its high spatial resolution and lower radiation exposure.

The radiological differential diagnosis includes osteoma, cemento-ossifying fibroma, fibrous dysplasia, ameloblastic fibro-odontoma, and cemento-osseous dysplasia. Distinguishing these entities from complex odontoma relies on analysis of patient age, lesion location, morphology, association with impacted teeth,

and imaging characteristics. In mature lesions, the presence of a dense radiopaque mass surrounded by a radiolucent halo strongly favors the diagnosis of complex odontoma.

Histopathological confirmation remains essential and demonstrates disorganized dental tissues composed of enamel matrix, dentin, cementum, and pulp tissue. Surgical excision remains the treatment of choice and is generally curative. Conservative enucleation is recommended whenever possible to preserve adjacent structures and tooth development. Recurrence is extremely rare following complete excision.

Early diagnosis is important in order to prevent complications such as eruption disturbances, cortical expansion, infection, and esthetic deformities. Imaging therefore plays a key role not only in diagnosis but also in surgical planning and postoperative follow-up.

CONCLUSION

Complex odontomas are benign odontogenic hamartomas that may remain asymptomatic for long periods and are frequently discovered incidentally during imaging investigations. Large lesions may nevertheless produce tooth eruption disturbances, cortical expansion, and facial asymmetry. Imaging, particularly panoramic radiography and computed tomography, is essential for diagnosis, differential diagnosis, and surgical planning. Early recognition and appropriate surgical management help prevent complications and ensure favorable outcomes.

REFERENCES

- Wright JM, Vered M. Update from the 4th edition of the World Health Organization classification of head and neck tumours: odontogenic and maxillofacial bone tumors. Head Neck Pathol. 2017; 11:68-77.
- Bueno NP, Bergamini ML, Elias FM, Braz-Silva PH, Ferraz EP. Unusual giant complex odontoma: a case report. J Stomatol Oral Maxillofac Surg. 2020;121(5):604-607.
- Park JC, Yang JH, Jo SY, Kim BC, Lee J, Lee W. Giant complex odontoma in the posterior mandible: a case report and literature review. Imaging Sci Dent. 2018;48:289-293.
- Satish V, Prabhadevi MC, Sharma R. Odontome: a brief overview. Int J Clin Pediatr Dent. 2011;4:177-185.
- Perumal CJ, Mohamed A, Singh A, Noffke CE. Sequestrating giant complex odontoma: a case report and review of the literature. J Maxillofac Oral Surg. 2013;12:480-484.
- Dua N, Kapila R, Trivedi A, Mahajan S, Gupta SD. An unusual case of erupted composite complex odontoma. J Dent Sci Res. 2011.
- Kaur GA, Sivapathasundharam B, Berkovitz BK, Radhakrishnan RA. An erupted odontoma associated with pigmentation: a histogenetic and histological perspective. Indian J Dent Res. 2012; 23:699.
- Vengal M, Arora H, Ghosh S, Pai KM. Large erupting complex odontoma: a case report. J Can Dent Assoc. 2007; 73:169-173.
- Singh AK, Kar IB, Mishra N, Sharma P. Ameloblastic fibro-odontoma or complex odontoma: two faces of the same coin. Natl J Maxillofac Surg. 2016; 7:92-95.
- Philipsen HP, Reichart PA. Classification of odontogenic tumours: a historical review. J Oral Pathol Med. 2006; 35:525-529.
- White SC, Pharoah MJ. Oral Radiology: Principles and Interpretation. 6th ed. Mosby Elsevier; 2010:380-383.
- Wood NK, Goaz PW. Differential Diagnosis of Oral and Maxillofacial Lesions. 5th ed. Mosby; 2007:492.
- Chrcanovic BR, Jaeger F, Freire-Maia B. Two-stage surgical removal of large complex odontoma. Oral Maxillofac Surg. 2010; 14:247-252.