

Erupted Compound Odontoma in Anterior Maxilla: Case Report and Brief Literature Review

Sunali Khanna¹, Ibrahim K. Ali²

¹Associate Professor, Department of Oral Medicine and Radiology, Nair Hospital Dental College, Mumbai, Maharashtra India

²Oral Medicine and Radiology Specialist, City Dental Clinic, Amravati, Maharashtra, India

Corresponding Author: Ibrahim K. Ali

DOI: <https://doi.org/10.52403/ijhsr.20230415>

ABSTRACT

Odontoma or odontome is the most common odontogenic tumor in oral cavity. Compound odontoma or fibro odontoma is most commonly located in anterior maxilla. Odontoma are hamartoma comprised of various dental tissues, that is, enamel, dentin, cementum, and occasionally pulp. Odontoma are slow-growing, benign tumors. The World Health Organization (WHO) outlines odontomas as two types- Compound odontoma and complex odontoma. Compound odontoma very rarely erupts in the oral cavity. We report this interesting case of a large erupted compound odontoma in anterior maxilla.

Keywords: odontoma, odontome, Compound odontome, benign tumor, fibro odontoma, odontogenic tumor, hamartoma

INTRODUCTION

Odontoma are hamartomas comprised of various dental tissues, that is, enamel, dentin, cementum, and occasionally pulp. Odontoma are slow-growing, benign odontogenic tumors. In 1867, Paul Broca coined the term “odontoma”. The World Health Organization (WHO) outlines odontomas as two types-Complex odontoma, a malformation in which all dental tissues are present, however arranged in a disorderly pattern; and compound odontoma, a malformation in which all dental tissues are present in a pattern that is more orderly than that of the Complex type [1]. They are usually revealed on routine radiographs or when absence of eruption or delayed eruption is investigated. Most are associated with tooth malposition, malformation, impaction, or delayed eruption. The erupted odontoma are present coronal to an erupting or impacted tooth or superficially in bone and may have

facilitated its eruption into the oral cavity [2]. Even though the etiology of Compound odontomas is still unclear, several theories have been proposed, which include trauma, infection, family history, and genetic mutation. Such odontomas can be discovered at any age but the age with the highest prevalence is the second decade of life [3]. These tumors have a male predilection and are frequently observed in the posterior mandible [4, 5]. Compound odontoma seldom erupts in the oral cavity. The eruption of these tumors differs from tooth eruption since the lesion has no periodontal ligament; this could be credited to bone sequestration or the remodeling of jaw bones [2]. Radiographs play a vital role in the detection of dental developmental anomalies, to obtain the proper diagnosis, prognosis, and treatment plan [6]. Panoramic radiograph or Orthopantomogram is widely used to study various structures and pathologies in the maxillo-facial region [7].

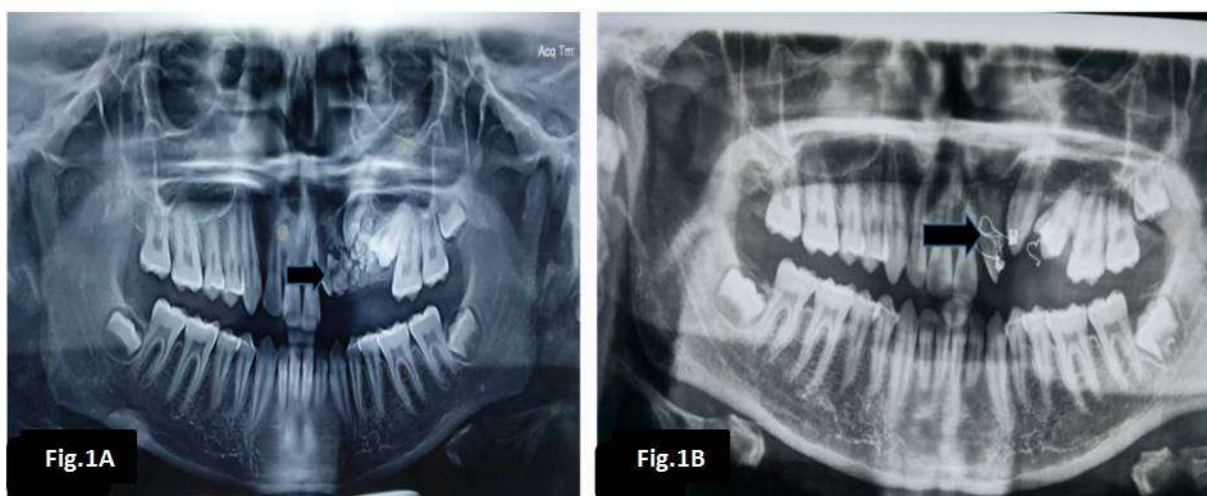
The use of cone beam computed tomography (CBCT) in clinical practice offers a variety of advantages for imaging of the maxillofacial region. The advantages are rapid scan time, image accuracy and reduced patient radiation dose [8-12]. Multiplane and three-dimensional CT imaging elucidates the accurate extent of the disease [13]. On radiograph, these tumors appear as well-defined radiopacity surrounded by a radiolucent rim representing the connective tissue of the dental follicle [4]. We report this interesting case of a large erupted compound odontoma, which was associated with the ulceration of the buccal mucosa.

CASE REPORT

A 14-year-old male presented to the clinics, with the chief complaint of swelling on the upper left side of his face over a past month. The condition began with a mild, dull, and intermittent pain in this region. Extraoral examination revealed no gross facial asymmetry. Intraoral examination showed yellowish, irregularly shaped solid mass, appearing as calculus, measuring approximately 3 cm (mesiodistally) × 2 cm (buccolingually). The mass extended mesiodistally from the region of the maxillary left lateral incisor to 1st premolar. The left maxillary lateral incisor, canine, premolar was clinically missing. An ulcer

was noted on the buccal mucosa adjacent to this lesion. On palpation, this lesion was bony hard, immobile, and non-tender in nature. Based on the above mentioned clinical findings, a provisional diagnosis of fibro-osseous lesion was established. Odontoma, cementoblastoma, and osteoid osteoma were considered in the differential diagnosis. On radiological examination, the panoramic radiograph demonstrated a well-defined radiopaque mass with irregular borders surrounded by a thick radiolucent band, multiple tooth-like structure were present inside the lesion and impacted maxillary lateral incisor, canine, premolar (Fig. 1A). Based on the radiographic findings, a radiographic diagnosis of compound odontoma was given and the differential diagnoses of cemental dysplasia, cementoblastoma, odonto-ameloblastoma, ameloblastic fibro-odontoma, cemento-ossifying fibroma, and calcifying epithelial odontogenic tumor were considered. The tumor was excised under general anesthesia via an intraoral approach, and the odontoma was elevated by periosteal elevator. The capsule of the odontoma was entirely curetted. The patient was called up for follow-up after six months of the surgical excision (Fig. 1B) and no evidence of recurrence of tumor was noted on the radiograph.

Figure 1.



DISCUSSION

Odontoma is the most common odontogenic tumor in oral cavity. Compound odontoma is most commonly located in anterior maxilla. Complex odontoma are commonly found in the posterior mandible region. An increased prevalence of these tumors is noted in children and adolescents. These lesions are usually diagnosed in routine radiological investigation in the second or third decades of life [14]. The etiology is unclear; but proposed causes include hereditary anomalies (Gardner's syndrome, Hermann's syndrome, and basal cell nevus syndrome), local trauma, odontoblastic hyperactivity, infection, or persistence of portion of dental lamina between the tooth germs or inheritance through a mutant gene or interference [15]. Multiple KCOTs are the most persistent and characteristic symptom of basal cell nevus syndrome, occurring most frequently in the first and second decade of life [16]. Hitchin recommended that odontomas are inherited through a mutant gene or interference, possibly postnatal, with genetic control of tooth development. In humans, there are probabilities for the lamina between the tooth germs to disintegrate into clumps of cells. The persistence of a portion of lamina may be a critical factor in the etiology of Compound or complex odontomas [17]. Mostly odontomas are asymptomatic and the clinical features of odontoma may include retention of deciduous teeth, non-eruption of permanent teeth, pain and tooth displacement [3]. In the present case, impacted maxillary lateral incisor, canine, premolar was noticed on the panoramic radiograph. Even though the reason for odontomas erupting in the oral cavity are controversial, the cause is attributed to the eruptive forces of the apparently impacted teeth, and in case of absence of teeth, the cause could possibly be the resorption of alveolar ridge exposing the odontoma, alveolar bone remodeling in young patients, or reactive growth of the capsule enveloping odontoma in elderly patients [2, 3].

Conservative surgical enucleation is regarded as the treatment of choice in compound odontoma. As, these tumors are often associated with impacted teeth, the possibility of eruption of the impacted tooth, after a supposed obstructive odontoma has been surgically removed remains an important issue. Corticosteroids can be administered after surgical removal of odontoma to reduce post surgical pain as corticosteroids are a class of compounds secreted endogenously by the adrenal cortex and manufactured as synthetic analogues for therapeutic use, predominantly because of their powerful anti-inflammatory and immunosuppressive properties [18-20]. In children, the impacted permanent teeth, depending on the age of the child and the stage of tooth development, may be left to erupt by itself or may be guided to occlusion via orthodontic traction [3,4]. In any case, follow-up is essential following odontoma excision. The presented case was called up for follow-up after six months of the surgical excision (Fig. 1C) and no evidence of recurrence of tumor was noted on the radiograph. However, in the present case, the associated impacted tooth was not removed along with the tumor taking into consideration the age of patient and future orthodontic treatment.

CONCLUSION

Compound odontoma are the tumors of odontogenic origin that are often asymptomatic and are detected on routine radiographs. It rarely erupts in oral cavity and tends to be associated with impacted teeth. Despite its benign nature, eruption in the oral cavity can cause pain, inflammation, infection, and ulceration. Therefore, it is essential to diagnose odontomas as soon as possible and treat them appropriately to avoid associated complications.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. H. P. Philipsen, P. A. Reichart, and F. Prætorius, "Mixed odontogenic tumours and odontomas. Considerations on interrelationship. Review of the literature and presentation of 134 new cases of odontomas," *European Journal of Cancer Part B*, vol. 33, no. 2, pp. 86–99, 1997. doi: 10.1016/S0964-1955(96)00067-X.
2. C. C. Ragalli, J. L. Ferreria, and F. Blasco, "Large erupting Compound odontoma," *International Journal of Oral and Maxillofacial Surgery*, vol. 29, no. 5, pp. 373–374, 2000. DOI: [https://doi.org/10.1016/S0901-5027\(00\)80056-9](https://doi.org/10.1016/S0901-5027(00)80056-9)
3. Vengal M, Arora H, Ghosh S, Pai KM. Large erupting Compoundodontoma: a case report. *J Can Dent Assoc* 2007; 73:169-73. <http://www.cda-adc.ca/jcda/vol-73/issue-2/169.html>
4. Bagewadi SB, Kukreja R, Suma GN, Yadav B, Sharma H. Unusually large erupted Compound odontoma: A rare case report. *Imaging Sci Dent*. 2015 Mar;45(1):49-54. doi:10.5624/isd.2015.45.1.49
5. Serra-Serra G, Berini-Aytes L, Gay-Escoda C. Erupted odontomas: a report of three cases and review of literature. *Med Oral Patol Oral Cir Bucal* 2009; 14: E299-303. <https://www.ncbi.nlm.nih.gov/pubmed/19300370>
6. Luke AM, Kassem RK, Dehghani SN, Mathew S, Shetty K, Ali IK, Pawar AM. Prevalence of dental developmental anomalies in patients attending a Faculty of Dentistry in Ajman, United Arab Emirates. *Pesquisa Brasileira em Odontopediatria e Clinica Integrada*. 2017;17(1):1-5. <https://doi.org/10.4034/PBOCI.2017.171.38>
7. Dora, A.C., Karjodkar, F., Sansare, K., Bansal, L., Ali, I., Motghare, D., Mishra, I., Kapoor, R. & Tambawala, S. 2016. Decortication of inferior alveolar canal in elderly population: A cone beam computed tomography study. *International Journal of Health Sciences and Research* 6(9): 239-244
8. IK Ali, K Sansare, F Karjodkar, M Saalim, Imaging analysis of onodi cells on cone-beam computed tomography, *International Archives of Otorhinolaryngology*, 2020, 24, 319-322, 10.1055/s-0039-1698779.
9. IK Ali, K Sansare, FR Karjodkar et al, Maxillofacial trauma patterns associated with external auditory canal fractures: Cone beam computed tomography analysis, *Dental Traumatology*, 2017, 33 (4), 276-280, 10.1111/edt.12336.
10. Ali IK, Sansare K, Karjodkar FR, Vanga K, Salve P, Pawar AM. Conebeam computed tomography analysis of accessory maxillary ostium and Haller cells: Prevalence and clinical significance. *Imaging Sci Dent* 2017;47(01):33–37. DOI: 10.5624/isd.2017.47.1.33.
11. Ali IK, Sansare K, Karjodkar FR, Salve P. Cone Beam Computed Tomography Assessment of Accessory Infraorbital Foramen and Determination of Infraorbital Foramen Position. *J Craniofac Surg* 2018;29(02):e124–e126. DOI: 10.1097/SCS.00000000000004120.
12. Ali IK, Sansare K, Karjodkar FR (2018) Analysis of inter-canine distance and dimensional changes in bite marks on foodstuffs using cone beam computed tomography. *Am J Forensic Med Pathol* 39(3):213-217. <https://doi.org/10.1097/paf.0000000000000399>.
13. Ali I K, Karjodkar F R, Sansare K, et al. Non-Familial Cherubism with Bilateral Maxilla and Mandible Involvement – Clinicoradiographic Findings. *Cureus* 2016, 8(7): e709. doi:10.7759/cureus.709.
14. S. D. Budnick, "Compound and Compound odontomas," *Oral Surgery Oral Medicine and Oral Pathology*, vol. 42, no. 4, pp.501–506, 1976. DOI:10.1016/0030-4220(76)90297-8.
15. Verma S, Arul AS, Arul AS, Chitra S. Erupted Compound odontoma of the posterior maxilla: A rarity. *J Nat Sc Biol Med* 2015;6:S167-9. doi:10.4103/0976-9668.166130.
16. Ali I K, Karjodkar F R, Sansare K, et al, Nevoid Basal Cell Carcinoma Syndrome - Clinical and Radiological Findings of Three Cases. *Cureus* 2016, 8(8): e727. doi:10.7759/cureus.727
17. A. D. Hitchin, "The aetiology of the calcified composite odontomes," *British Dental Journal*, vol. 130, no. 11, pp. 475–482, 1971. doi: 10.1038/sj.bdj.4802682.

18. M Saalim, K Sansare, IK Ali et al, Efficacy of betamethasone, hyaluronidase and its combination on mouth opening, burning sensation and QOL in patients with OSF, *Journal of Oral Biology and Craniofacial Research*, 2020, 10 (4), 492-497
19. Saalim M, Sansare K, Karjodkar FR et al. Oral submucous fibrosis and its impact on psychological stress: A case-control study? *Psychol Health Med*. 2020;1–11. doi: 10.1080/13548506.2020.1826545.
20. Saalim M, Sansare K, Karjodkar FR, et al. The prevalence of oral squamous cell carcinoma with oral submucous fibrosis. *J Cancer Res Ther* 2021;17:1510-4. 10.4103/jcrt.JCRT_719_19

How to cite this article: Sunali Khanna, Ibrahim K. Ali. Erupted compound odontoma in anterior maxilla: case report and brief literature review. *Int J Health Sci Res*. 2023; 13(4):118-122. DOI: <https://doi.org/10.52403/ijhsr.20230415>
