

ODONTOMAS: REVIEW OF LITERATURE AND REPORT OF A CASE

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Abstract

Odontomas are the most common of the odontogenic tumors of the jaws, which are benign, slow growing and nonaggressive. Odontomas are usually asymptomatic but sometimes may interfere with the eruption of the associated tooth leading to impaction or delayed eruption. These lesions are usually diagnosed on routine radiological examination in the second decade of the life. The aim of this paper is to present a thorough review on the etiology, clinical presentation, histopathological features and treatment aspects of odontomas. A case of compound odontoma has been reported along with.

Key words: Odontogenic tumors, odontoma, hamartomas, treatment.

Introduction

The odontoma is perhaps more accurately defined as a hamartoma than a true neoplasm.¹ The term odontoma was first coined by Broca in 1866, who defined it as a tumor formed by overgrowth of complete dental tissue.² Odontoma has also been defined as “a tumor that has developed and differentiated enough to produce enamel and dentin.”^{3,4} Odontomas are usually composed of different dental tissues, including enamel, dentine, cement and in some cases, pulp tissue.^{5,6} The second edition of the WHO Histologic Typing of odontogenic tumors classifies odontomas under the broad category of tumors containing odontogenic epithelium with odontogenic ectomesenchyme, with or without dental hard tissue formation. Under this classification, three types of odontomas are listed: odontoameloblastoma, complex and compound odontoma.⁷ According to 2005 WHO classification of odontogenic tumours, there are two types of odontomas, compound and complex odontomas.⁸ Odontomas have also been classified as central odontoma (which presents inside the bone), peripheral odontoma (which occur in the soft tissue covering the tooth-bearing portions of the jaws) and erupted

odontoma according to their clinical presentation.⁹

Case Report

A 30-year-old patient reported to us with a chief complaint of food lodgment and occasional localized pain in the left quadrant of the lower jaw. Patient gave a past dental history of crown placement in relation to 37 as the tooth was grossly carious. On clinical examination, shallow periodontal pockets are noted mesial and distal to 37 (Fig. 1). An intraoral periapical (IOPA) radiograph was taken, which revealed interdental bone loss mesial and distal to 37 and loss of contour of the crown on the mesial aspect of 37. Along with this, a well defined homogenous radio-opaque mass was seen between the roots of 36 and 37, covering the medial one third and apical part of the distal root of 36 and mesial root of 37. The mass was covered with radiolucent halo, which was well appreciated on the distal aspect (Fig. 2). No secondary effects like resorption or displacement of the roots were seen. Based on the clinical and radiological features, a provisional diagnosis of localized periodontitis and complex odontoma has been made. The mass was excised surgically under local anesthesia, and histopathologic examination of

the excised mass confirmed the diagnosis of complex odontoma (Fig 3).



Fig1: Clinical photograph showing ceramic crown in relation to 37.



Fig2: IOPA radiograph showing a well defined radio-opaque mass

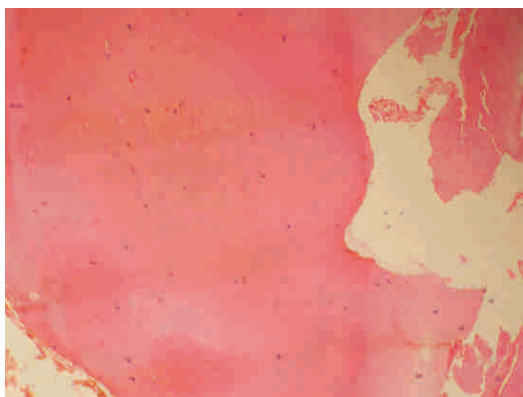


Fig3: Photomicrograph showing disorganized areas of dentin cementum and pulp tissues.

Discussion

Odontomas constitute about 22% of all odontogenic tumors of the jaws.⁶ According to the histopathological perspective, odontomas can be grouped as: (a) complex odontomas, in which the dental tissues are well formed but exhibit a more or less disorderly arrangement; and (b) composite odontomas, in which the dental tissues are normal, but their size and conformation are altered giving rise to multiple small tooth-like structures called denticles.¹⁰ The complex odontomas are usually located in the posterior mandible, while composite odontomas are more often found in the anterior maxilla.^{5,11} Complex odontoma are seen less common in comparison with compound variety in the ratio 1:2.¹² here have been isolated reports of odontomas in the maxillary sinus.¹³ The exact etiology of odontomas is uncertain, local trauma, infection growth pressure, hereditary and developmental influences have been suggested as possible causes.¹⁴ Majority of odontomas are asymptomatic, sometimes, swelling, pain, suppuration, bony expansion, delayed eruption and displacement of teeth are noted.¹⁵⁻¹⁷ severe cases of infection and regional lymphadenopathies have also been reported in the literature.¹⁸ In rare cases, both intraosseous compound and complex odontomas which are located may erupt in the oral cavity.^{12,19-23} The radiographic characteristics of odontomas are always diagnostic. The lesion consists of well defined radio-opacity surrounded by a radiolucent halo, which represents an enlarged cystic follicle. In compound odontoma multiple teeth like structures of varying size and shape are seen. Complex odontomas are seen as irregular radiodense masses with no resemblance to dental structures. Radiographically three different development stages can be identified depending on the degree of odontoma calcification. In the first stage the lesion appears radiolucent due to the lack of calcification, intermediate stage is characterized by partial calcification; and in the final stage the odontoma appears radio-opaque which is surrounded by a radiolucent halo.^{6,12,18,24} Sometimes, the degree of calcification of odontoma in the primary dentition is less in

comparison to permanent teeth and radiographic features are therefore not so radio-opaque. Therefore it is important to examine the radiographs carefully.²⁵

Odontomas, both compound and complex, must be examined microscopically, to establish a definitive diagnosis. Histologically, odontomas comprise of varying amount of enamel, pulp tissue, enamel organ and cementum. Odontogenic epithelium, odontoblasts and mesenchymal pulp tissue also may present in some cases. The connective tissue capsule is similar to that of dental follicle. Ghost cells are often seen along with spherical dystrophic calcification, enamel concretions and sheets of dysplastic dentin.^{26,27} Conservative surgical excision is the treatment of choice both forms of odontoma. Since both compound and complex odontomas are well encapsulated and easily enucleated from the surrounding bone. The prognosis of these tumors is very favorable, with a minimal tendency towards relapse.^{1,2,4,5,19,24}

Conclusion

Odontomas are benign tumors frequently seen in oral pathology that sometimes produce no symptoms and constitute casual findings of routine radiological studies. Early diagnosis and proper management of odontomas is necessary to prevent later craniofacial complications and other developmental problems.

References

1. Shekar SE, Roopa SR, Gunasheela B, Supriya N. Erupted compound odontoma. *J oral Maxillofac Pathol* 2009;13(1):47-50.
2. Cohen DM, Bhattacharyya I. Ameloblastic fibroma, ameloblastic fibro-odontoma, and odontoma. *Oral Maxillofacial Surg Clin N Am* 2004;6:375-384.
3. Shafer WG, Hine MK, Levy BM. Cysts and tumors of odontogenic origin. In: *A textbook of oral pathology*. 4th edition. Philadelphia: WB Saunders; 1983. p. 258-17.
4. Gorlin RJ, Chaudrey AP, Pindborg JJ. Odontogenic tumors: classification, histopathology and clinical behavior in man and domestic animals. *Cancer* 1961;14:73-98.
5. Philipsen H, Reichart P, Praetorius F. Mixed odontogenic tumours and odontomas. Considerations on interrelationship. Review of the literature and presentation of 134 new cases of odontomas. *Oral Oncol* 1997;32:86-99.
6. Amado Cuesta S, Gargallo Albiol J, Berini Aytés L, Gay Escoda C. Review of 61 cases of odontoma. Presentation of an erupted complex odontoma. *Med Oral* 2003;8(5):366-73.
7. Kramer IRH, Pindborg JJ, Shear M. The WHO histological typing of odontogenic tumours. *Cancer* 1992;70:2988-94.
8. Barnes L, Eveson JW, Reichart P, Sidransky D. (Eds.). *World Health Organization Classification of Tumours. Pathology and Genetics of E558 Head and Neck Tumours*. Lyon: LARC Press; 2005. p. 310.
9. Junquera L, de Vicente JC, Roig P, Olay S, Rodríguez-Recio O. Intraosseous odontoma erupted into the oral cavity: An unusual pathology. *Med Oral Patol Oral Cir Bucal* 2005;10:248-51.
10. Amailuk P, Grubor D. Erupted compound odontoma: Case report of a 15 year old Sudanese boy with a history of traditional dental mutilation. *Br Dent J* 2008;204:11-14.
11. Tomizawa M, Otsuka Y, Noda T. Clinical observations of odontomas in Japanese children: 39 cases including one recurrent case. *Int J Paediatr Dent*. 2005;15:37-43.
12. Vengal M, Arora H, Ghosh S, Pai KM. Large erupting complex odontoma: A case report. *J can Dent Assoc* 2007;73:169-72.
13. Mupparapu M, Singer SR, Rinaggio J. Complex odontoma of unusual size involving the maxillary sinus: report of a case and review of CT and histopathologic features. *Quintessence Int* 2004;35(8):641-45.
14. Hitchin AD. The etiology of the calcified composite odontoma. *Br Dent J* 1971;130:475-82.
15. Kaugers GE, Miller ME, Abbey LM. Odontomas. *Oral Surg* 1989;67:172-6.
16. Stajic ZZ. Odontoma associated with a primary tooth. *J Pedodont* 1998;12:415-20.
17. Blinder D, Peleg M, Taicher S. Surgical considerations in cases of large mandibular odontomas located in the mandibular angle. *Int J Oral Maxillofac Surg* 1993;22:163-65.

18. Ferrer Ramírez MJ, Silvestre Donat FJ, Estelles Ferriol E, Grau García Moreno D, López Martínez R. Recurrent infection of a complex odontoma following eruption in the mouth. *Med Oral*. 2001 Aug-Oct;6(4):269-75.
19. Rumel A, de Freitas A, Birman EG, Tannous LA, Chacon PT, Borckas S. Erupted complex odontoma. Report of a case. *Dentomaxillofac Radiol* 1980;9:5-9.
20. Al-Sabbar WF, Putrus ST. Erupted odontoma. *Oral Surg Oral Med Oral Pathol* 1985;59:225-26.
21. Serio FG, Levy BA. Erupted compound odontoma. Review and report of case. *Ann Dent* 1987;46:41-42.
22. Gomel M, Seçkin T. An erupted odontoma: case report. *J Oral Maxillofac Surg* 1989;47:999-1000.
23. Widad EA, Putrus ST. Erupted odontoma. *Oral Surg Oral Med Oral Pathol* 1985;59:225-26.
24. Garcia-Consuegra L, Junquera LM, Albertos JM, Rodriguez O. Odontomas. A clinical-histological and retrospective epidemiological study of 46 cases. *Med Oral*. 2000 Nov;5(5):367-72.
25. Haishima K, Haishima H, Yamada Y, Tomizawa M, Noda T, Suzuki M. Compound odontomes associated with impacted maxillary primary central incisors: report of two cases. *Int J Paediatr Dent* 1994;4:251-56.
26. Levy BA. Ghost cells and odontomas. *Oral Surg* 1973;36:851-55.
27. Sedono O, Pindborg JJ. Ghost cell epithelium in odontomas. *J Oral Pathol* 1975;4:27-30.

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