Complex Composite Odontoma: A Cause of Impacted Teeth

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Abstract

Odontomas are one of the most common odontogenic lesions, earlier considered as mixed odontogenic neoplasms but lately have been accepted as hamartomatous malformations. They are either detected accidentally on radiographs or when they are a cause of impeding normal eruption of teeth. Odontomas originate from the odontogenic tissue and contain enamel and dentine, hence are referred to as composite lesions. They can be of two types depending on the appearance. If they have masses of calcified structures resembling multiple miniature teeth then they are called compound odontomas and if they appear as an irregular disorganized radiopaque mass they are referred to as complex odontomas. A case if complex odontoma is reported herewith which led to impacted maxillary molar.

Keywords: *Harmartoma, denticles, odontogenic neoplasm, radiopaque mass.*

Introduction

The most common odontogenic lesions are odontomas which represent all odontogenic tissues i.e. Enamel, dentine, cementum and pulp tissue in one lesion hence referred to as a composite lesion.[1] Since they originated both from the ectoderm and mesodermal components of the odontogenic apparatus, they contain both enamel and dentine.[2] Although they can be detected at any age, being a developmental malformation, they are seen with twenty years of age and are generally asymptomatic lesions, unless associated with mild tooth pain or swelling, they are detected on incidental radiography.[3] There is a definite female gender predilection and also the maxillary arch, especially the anterior region is more frequently affected.[4] Odontomas are notorious for impeding eruption of nearby teeth. They are usually small in size though large sizes have been reported which can cause expansion of the cortex.

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Depending upon their radiologic appearance they may be classified into complex or compound odontomas.[5] Compound odontomas appear as miniature teeth like structures, known as denticles, where each structure has enamel, dentine, pulp and cementum like normal teeth.[6] Complex odontomas are disorganized irregular masses of enamel, dentine and cementum mixed up. Compound odontomas are commonly visible in anterior maxilla and complex odontomas in posterior mandible. Odontomas have also been associated with other odontogenic tumours like ameloblastoma[7] adenomatoid odontogenic tumour[8] and calcifying epithelial odontogenic tumour[9] and are then referred to as hybrid tumours.[10]

Case Report: A 28-year-old female patient reported with missing upper molar on the right side. History revealed the second molar on the right maxillary arch did not erupt in childhood. She did not have any toothache or swelling in the area. The medical, surgical, dental, personal and family histories were non-contributory.

On clinical examination, the maxillary second and third molars were missing, the alveolar ridge appeared normal without any bulge, swelling or tenderness on palpation.

A periapical radiograph was taken and revealed a single large well-defined irregular radiopaque mass

distally in relation to 16. Since the radiopaque mass was not fully covered in the periapical radiograph, maxillary lateral occlusal radiograph was taken of the right side which showed, a single large well-defined irregular radiopaque mass distally in relation to 16, with an unerupted molar displaced superiorly. A Panoramic radiograph was taken to screen the jaws for any other lesion and it revealed a single large well-defined irregular radiopaque mass distally in relation to 16, with an unerupted molar displaced superiorly. The radiographic features were suggestive of a complex odontoma and the patient refused any treatment after knowing the hamartomatous nature of the lesion and agreed for regular-follow-ups.

Discussion

The word "Odontoma" was given by Broca in 1867 to describe odontogenic neoplasm formed by the enlargement of developing odontogenic tissues.[2] The odontogenic tissues undergo morpho-differentiation to form enamel and dentine in teeth, but the tissues do not reach the normal level of morpho-differentiation and form abnormal enamel and dentine in the form of odontomas.[11] The aetiopathogenesis of this lesion remains unknown as yet but local infection or trauma may trigger its formation. Genetic mutation could also be cause where the normal tooth development is halted.[12] Odontomas are indolent and gradually grow in size and being a developmental lesion, they are most of the time detected within twenty years of age, though in rare cases like in the present case, they may be incidentally detected later in life.

As per the classification of the World Health Organization (WHO), odontomas are of two types, complex odontomas and compound odontomas.[13] They are bot to be confused with dilated odontomas which refers to dens invaginatus another developmental anomaly.[14]The former is rarer and is seen in the posterior mandibular region, however in the present case it is seen in the maxillary arch.About four-fifths of odontomas are associated with impacted teeth. [15] Odontomas can safely be removed surgically as they are generally encapsulated and easily come out as a single specimen and there is never any recurrence.

The radiologic appearance is very characteristic, the odontomas are well-defined radiopaque lesions surrounded by a thin radiolucent line denoting the capsule covering them. The appearance ranges from multiple miniature teeth like structures (denticles) to a diffuse, irregular, radiopaque mass. Enamel and dentine can be visualized on radiographs.[16] Though the diagnosis is often radiologic, histopathologic evaluation of the excised odontomas shows enamel, dentine, cementum, pulp, and cementum in haematoxylin eosin stained sections. While the compound odontomas resemble normal teeth, the complex odontomas look like masses of coalesced hard odontogenic tissue. Scanty, myxoid connective tissue stroma having epithelial odontogenic rests seen with the hard tissue mass resembling normal dental follicular pattern.[17,18]

Figure 1: Maxillary arch on the right side, missing maxillary second permanent molar.

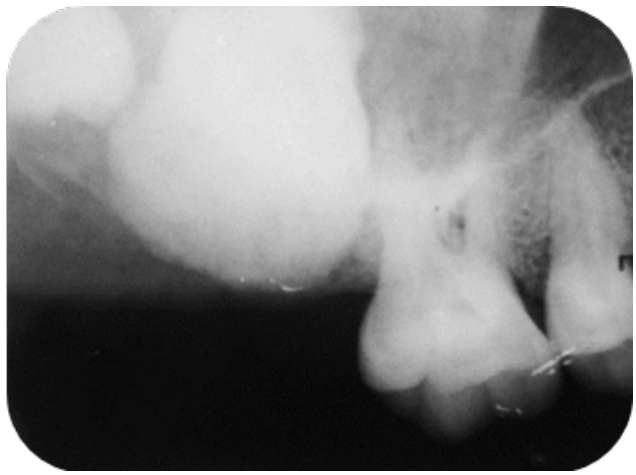

Figure 2: Intra-oral periapical radiograph of right maxillary molar region showing a single large well-defined irregular radiopaque mass distally in relation to 16.

Figure 3: Maxillary lateral occlusal radiograph of the right side showing a single large well-defined irregular radiopaque mass distally in relation to 16, with an unerupted molar displaced superiorly.

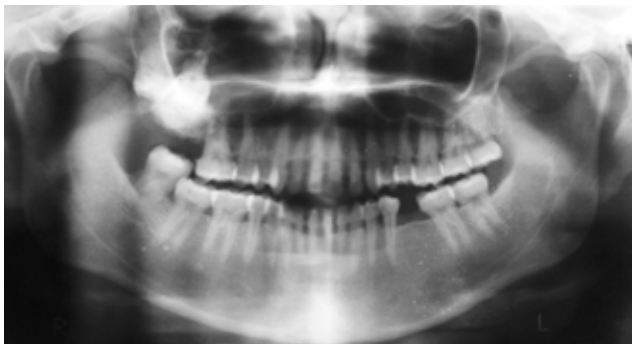

Figure 4: Panoramic radiograph shows a single large well-defined irregular radiopaque mass distally in relation to 16, with an unerupted molar displaced superiorly.

Conclusion

Odontomas have been often reported in the literature, complex odontomas of huge size, compound odontomas containing hundreds of denticles, odontomas erupted into the oral cavity and secondarily infected odontomas are some of them. As dentist's awareness regarding the presence of odontomas impeding the eruptive path of teeth is essential and their hamartomatous nature gives reassurance to the patient. Odontomas can be easily removed when required and it carries a favourable prognosis without any recurrence.

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Ethical Permission: Approved

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References

1. Shafer WG, Hine MH, Levy BM. A textbook of oral pathology. 3rd ed. Philadelphia: WB Saunders Co; 1974. pp. 276–278.
2. Reichart PA, Philipsen HP. Odontogenic tumors and allied lesions. London: Quintessence; 2004. Compound odontoma; pp. 149–153.
3. Nelson LB, Thompson DRL. Compound odontoma. Head Neck Pathol. 2010;4:290–291.
4. Srivastava A, Annaji AG, Nyamati BS, Singh G, Shivakumar GC, Sahana S. Complex odontoma in both the jaws: a rare case report. J Orofac Res. 2012;2:56–60.
5. Oz YG, Tosun G, Kiziloğlu D, Durmuş E, Şener Y. An unusual association of odontomas with primary teeth. Eur J Dent. 2007;1:45–49.
6. Noonan VL, Gallagher G, Kabani S. Compound and complex odontomas. J Mass Dent Soc. 2006;55:40–40.
7. Baskaran P, Misra S, Kumar MS, Mithra R. Adenomatoid odontogenic tumor - a report of two cases with histopathology correlation. J Clin Imaging Sci. 2011;1:64
8. Misra SR, Lenka S, Sahoo SR, Mishra S. Giant pindborgtumor (calcifying epithelial odontogenic tumor): an unusual case report with radiologic-pathologic correlation. J Clin Imaging Sci. 2013 Dec 31;3(Suppl 1):11.
9. Raghunath V, Rath R, Kamal F, Misra SR. Massive granular cell ameloblastoma with dural extension and atypical morphology. ContempClin Dent. 2014;5(4):535–538.
10. Mohanty N, Rastogi V, Misra SR, Mohanty S. Papilliferouskeratoameloblastoma: an extremely rare case report. Case Rep Dent. 2013;2013:706128.
11. Serra-Serra G, Berini-Aytés L, Gay-Escoda C. Erupted odontomas: a report of three cases and review of the literature. Med Oral Patol Oral Cir Bucal. 2009;14:E299–E303.
12. Vengal M, Arora H, Ghosh S. Large erupting complex odontoma: a case report. J Can Dent Assoc. 2007;73:169–273.
13. Mishra S, Mishra L, Sahoo SR. A Type III Dens Invaginatus with Unusual Helical CT and Histologic Findings: A Case Report. J Clin Diagn Res. 2012;6(9):1606–1609.
14. Dagistan S, Cakur B, Göregen M. A dentigerous

cyst containing an ectopic canine tooth below the floor of the maxillary sinus: a case report. J Oral Sci. 2007;49:249–252.

15. Chen Y, Li TJ, Gao Y. Ameloblastic fibroma and related lesions: a clinicopathologic study with reference to their nature and inter-relationship. J Oral Pathol Med. 2005;34:588–595.
16. Gallana-Alvarez S, Mayorga-Jimenez F, Torres-Gomez FJ. Calcifying odontogenic cyst associated with complex odontoma: case report and review of the literature. Med Oral Patol Oral Cir Bucal. 2005;10:243–247.
17. Ogunlewe MO, Adeyemo WL, Ladeinde AL, Bamgbose BO, Ajayi OF. Surgical management of a large complex odontoma of the mandibular angle-ramus region through intra-oral buccal approach – a case report. Niger Postgrad Med J. 2005;12:312–315.
18. Neville BW, Damm DD, Allen CM, Bouquot JF. Oral and maxillofacial pathology. 2nd ed. Philadelphia (PA): WB Saunders; 2002. Odontogenic cysts and tumors; pp. 631–632.