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Central Odontogenic Fibroma- A Deep Seated Lesion Unveiled

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Abstract: *Central Odontogenic Fibroma is a tumor of odontogenic ectomesenchyme around the crown of an unerupted tooth which is more common in females with a mean age of 34 years. In this article we describe an unusual case of Central odontogenic fibroma (WHO type) which manifested as a well-defined unilocular radiolucency associated with an impacted tooth in an asymptomatic 59 year old male patient, with more emphasis to its radiographic differential diagnosis.*

Keywords:*impacted, unerupted, pericoronal radiolucencies, odontogenic fibroma, odontogenic tumor*

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I. Introduction

Pericoronal radiolucency is a well-defined radiolucency around the crown of the impacted and unerupted tooth and is mostly seen in 37% of mandibular and 15% of maxillary impacted third molar region.[1]Most of the pericoronal radiolucencies in the mandible are provisionally diagnosed as dentigerous cyst or odontogenic keratocyst.

Odontogenic fibroma (OF) is a rare, benign tumor of mesenchymal origin, which usually appears on radiographs as a well-defined unilocular radiolucency, or as a multilocular lesion frequently associated with unerupted or impacted teeth. It occurs most commonly in the posterior mandible, with a mean age of 34 years, and with a slight female predominance. It is usually asymptomatic, slow growing, non-aggressive and sometimes may cause root resorption.[2]OF is characterized by varying amounts of odontogenic epithelium interspersed in a dense collagenous fibrous stroma.

Here is a case report of a 59 year old male patient, who was identified with a pericoronal radiolucency associated with an impacted third molar, which was radiographically diagnosed as odontogenic keratocyst, but histologically proven as central odontogenic fibroma (COF).

II. Case Report

A 59 year old male patient reported to the Department of Oral Medicine and Radiology with a chief complaint of loose upper front tooth since 2 months. His medical and family history wasnon-contributory. Examination of all systems was normal. He had undergone multiple extractions without any postoperative complications. He had a habit of smoking 10 beedis per day since 40 years. On extraoral examination, no facial asymmetry was noted. (Fig.1)On intraoral examination, multiple teeth were missing and grade II mobility with severe abrasion and gingival recession of the remaining teeth wasnoted. (Fig.2)Both the buccal mucosa and the edentulous alveolar ridge were pigmented. Thus based on the clinical examination, we came to a provisional diagnosis of chronic generalised periodontitis.

Fig 1: Extraoral photograph

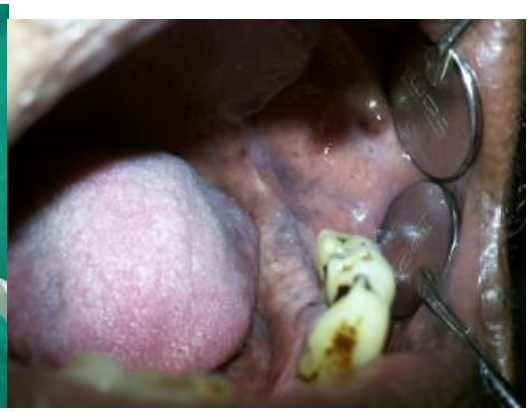


Fig 2: Intraoral photograph showing no obliteration of buccal or lingual vestibule

On radiographic examination, panoramic view (Fig.3) showed the presence of two impacted teeth 38 and 48 with an enlarged follicular space in relation to 48 and a well-defined unilocular radiolucency of approximate size 1.5 x 1.5 cm was present on the distal aspect of mesioangularly impacted 38 extending superoinferiorly from the crown to the apical third of the root and involving the ramus and did not reveal any other retained root stumps. An intraoral periapical radiograph was also taken which confirmed the same finding.(Fig.4)Based on these findings, radiographic differential diagnosis of odontogenic keratocyst (OKC), unicystic ameloblastoma, initial stage of odontogenic myxoma, calcifying epithelial odontogenic tumor (CEOT), and odontogenic fibroma were given in relation to impacted 38.

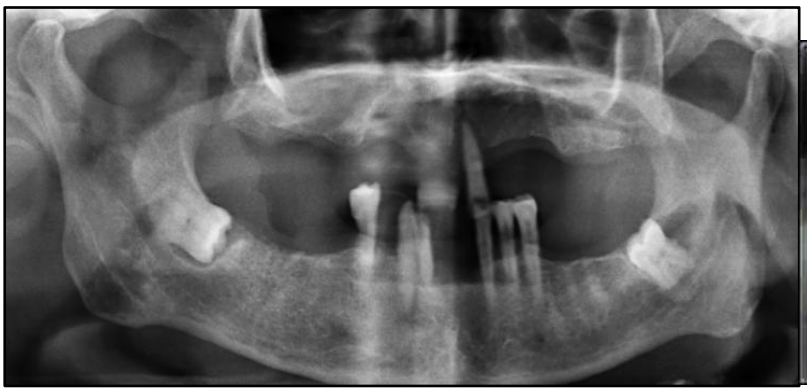


Fig 3: Preoperative panoramic radiograph

Fig 4: Preoperative IOPA irt 38

Odontogenic keratocyst (OKC) is more common in the second to third decade in the posterior mandible with a male predominance and is usually asymptomatic, although a mild swelling may appear.[3]When in a pericoronal position, OKC may be indistinguishable from a dentigerous cyst. Lesion is likely to be OKC if cystic outline is connected to the tooth at a point apical to CEJ or if no expansion of the cortical plates has occurred.[4]

Unicystic or mural ameloblastoma appears as a pericoronal unilocular radiolucency with localized thinning and haziness of hyperostotic radiopaque rim[5] usually associated with an unerupted mandibular third molar with a male predilection and average age of 27 years.[3]It was considered as the second differential diagnosis as the lesion favoured the site and radiographic appearance.

Odontogenic myxoma can occur in any age between 10-30 years with a slight female predilection. It grows slowly, may or may not cause pain and cause swelling if untreated. It has a mandible predilection in a ratio 3:1. If it is located pericoronally with an impacted tooth, initial stage of odontogenic myxoma appears as a unilocular, cyst like radiolucency. The tumor can displace and loosen the teeth, scallops between the roots of teeth and rarely can cause resorption of the teeth.[4]Though the age and sex predilection was not favourable, this was included as a differential diagnosis based on site and radiographic appearance.

Calcifying epithelial odontogenic tumor (CEOT) or Pindborg tumor is more common in men with age predilection ranging from 8- 92 years with a mean age of 42 years. It is more common in the mandible in a ratio 2:1 in the premolar-molar region. Majority of CEOT lesions are associated with an impacted tooth (52%). Radiographs taken early in the development of these tumours reveal a unilocular radiolucent area around the crown of a mature, unerupted tooth with a well-defined cyst-like cortex, which may displace a developing tooth.[4]

Central odontogenic fibroma is more common in females with age ranging from 11 to 39 years. It may either be asymptomatic or may cause swelling and mobility of teeth. It is more common in the mandible in molar-premolar region. Radiographically, initially it may appear as a well-defined unilocular radiolucency and large lesions may have multilocular pattern with finer and straight internal septa which may cause expansion with maintenance of a thin cortex.[4]

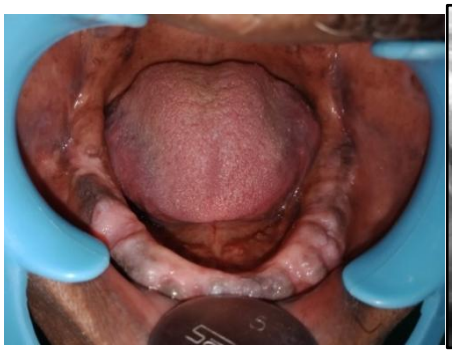
Calcifying epithelial odontogenic cyst manifests as a slow-growing, painless swelling of the jawwith a mean age of 36 years and can appear as pericoronal well-defined and corticated radiolucency anterior to first molar.[4]But CEOC was not considered as our differential diagnosis as the site was not favouring.

The size of the normal follicular space is 2-3 mm. If the size of follicular space is greater than 5mm, dentigerous cyst should be considered.[4]Dentigerous cyst or the follicular cyst is the most common well-defined unilocular radiolucency with well-corticated margins associated with an impacted tooth, with its epicenter just above the crown of the involved tooth and attached to the cemento-enamel junction (CEJ).[5] But this was excluded in our differential diagnosis because the lesion was attached apical to the CEJ.

Ameloblastic fibroma appears as a unilocular well-defined radiolucency associated with an impacted tooth. It has a male predilection[3] and is more common in mandible in molar-premolar region.[5]But since it is seldom seen in patients over 20 years of age, it was excluded from our differential diagnosis.

The patient underwent total extraction with enucleation of 38 and 48 and the enucleated specimens were sent for histopathological examination. Histopathology from 38 revealed the presence of bundles of collagen fibers with fibroblasts and fibrocytes along with numerous areas of inactive odontogenic islands and calcifications interspersed in the connective tissue stroma thus giving a histopathological diagnosis of Odontogenic Fibroma (WHO type). Histopathology of specimen from 48 revealed hyperplastic dental follicle. We thus came to a final diagnosis of chronic generalised periodontitis with Central odontogenic fibromain relation to impacted 38.

Thus a patient, who reported with just a complaint of mobility of teeth, was identified with a deep-seated lesion of Central Odontogenic Fibroma from our radiographic examinations. Postoperative review and radiograph after five months showed adequate bone healing with no evidence of recurrence of the lesion. (Fig.5,6)



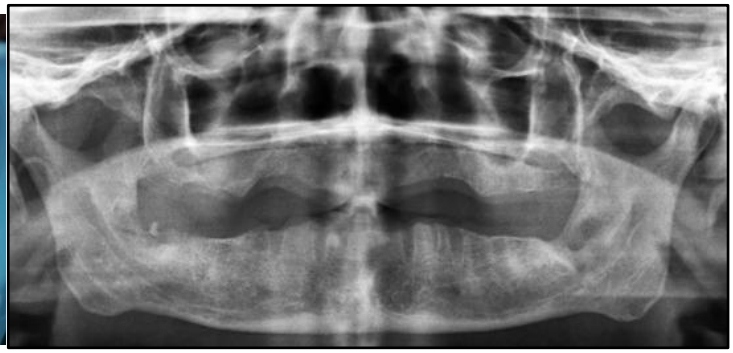


Fig 5: Postoperative after 5 months Fig 6: Postoperative radiograph after 5 months

III. Discussion

Odontogenic fibroma (OF) is a rare benign odontogenic neoplasm arising from the mesenchymal odontogenic tissue.[6]Although rare, it accounts for 0-5.5% of odontogenic tumours.[2,7]

According to WHO Classification of Odontogenic tumors (2005),OF was considered as a benign odontogenic lesion derived from "odontogenic ectomesenchyme with or without odontogenic epithelium". But according to WHO classification(2017), OF is considered as a benign odontogenic tumor with a mesenchymal origin. The current definition of OF by WHO: OF is defined as a rare neoplasm of mature fibrous connective tissue, with variable amounts of inactive-looking odontogenic epithelium, with or without evidence of calcification.[8]

Based on location, OF is classified as Peripheral odontogenic fibroma (extra-osseous or arising from gingiva) and Central odontogenic fibroma (intra-osseous or arising from bone).[6]Peripheral odontogenic fibroma (POF), as benign odontogenic neoplasm of the periodontal soft tissues,is more common than central variant in a ratio 1.4:1.[9] POF presents as a solitary elevated, exophytic lesion, mostly in the facial gingiva of the mandible in the incisor-canine and premolar region with no radiological changes in the underlying alveolar bone.[10] The POF is treated by local excision with excellent prognosis.

COF is a lesion around the crown of an unerupted tooth resembling a small dentigerous cyst[2]which is mainly found in the posterior mandible (molar-premolar region) and anterior maxilla (anterior to first molar) region.[4] Wesley et al (1975) explained that the lesion is central in the jaws and has a slow and persistent growth which result in a painless cortical expansion.[11]It can affect children and young adults between the ages of 11 and 39 years with a female predilection (2.2:1).[4] Mean age of predilection is 34 years.[3] Affected patients may be asymptomatic or may have swelling and mobility of the teeth.[4]In this case, there was an unusual presentation of COF in a 59 year old male patient in the posterior mandible without any associated swelling or tooth mobility in the involved region.

OFis usuallywell-defined with unilocular radiolucent internal structure in smaller lesions or a multilocular patternwith fine and straight septa in the larger lesions,[4]and rarely it may exhibit a mixed radiolucent-radiopaque appearance with poorly defined or diffused borders.[12]Other features include tooth displacement, root resorption, slight downward displacement of the inferior alveolar canal and expansion of the inferior cortex of the mandible.[3] Here, there was a well-defined unilocular radiolucency around the impacted 38 region without any effect on the surrounding structures.

Various histological classifications of COF are described in Table 1.

Table 1: Histopathological classifications of central odontogenic fibroma

1. Gardner (1980)[13]	Hyperplastic dental follicle	Simple type	Complex/ WHO Type
2. Langlais (1995)[3]	Simple type	Complex type/ WHO type	Granular type
3. WHO classification (2005)[6]	Epithelium-poor type (Simple type)	Epithelium-rich type (Complex/ WHO type)	
4. WHO classification (2017)[8]	The simple subtype excluded due to poorly defined and documented epithelial-poor type		

Thus, OF have two histological variants: simple type and WHO type, of which simple type has been excluded in the WHO classification, 2017. The **simple type** contains many plump fibroblasts uniformly placed and interspersed equidistant in the mature collagen fibers with sparsely scattered odontogenic epithelial rests.The **complex or WHO type**, is more cellular and has more epithelial rests and may also contain calcifications resembling dysplastic dentin, cementum, or osteoid.[4]The third variant, **granular cell variant**, is derived from odontogenic ectomesenchyme and secondarily contains abundant odontogenic epithelium which is uniformly distributed.Hence the third variant is a specific variant of WHO type.[3]
The lesion responds well to surgical enucleation since the lesion is benign with no tendency to undergo malignant transformation and with low recurrence rate.

IV. Conclusion

Thus a patient who reported with just a complaint of mobility of teeth was identified with a deep-seated lesion with radiological examination. So as oral diagnosticians we should always expect the unexpected and should be vigilant enough for sufficient routine radiological examinations so that we may not miss any major diagnosis ever.

References

[1]. Anand S, Kashyap B, Kumar GR, Shruthi BS,Supriya AN. Pericoronal Radiolucencies with Significant Pathology: Clinico- histopathologic Evaluation. Biomed J 2015; 38:148-152.doi: 10.4103/2319-4170.133779

[2]. Rajendran R, Sivapathasundharam B.Shafers Textbook of oral pathology, 6th edition. Elsevier 2009: 254-297.

[3]. Langlais RP, Langland OE, Nortje CJ. Diagnostic Imaging of the Jaws, Williams & Wilkins, Baltimore, 1995: 370-376.

[4]. White SC, Pharoah MJ. Oral radiology principles and interpretation 6th edition, Mosby Elsevier 2009:346-399.

[5]. Wood NK, Goaz PW. Differential diagnosis of oral and maxillofacial lesions 5th Ed. Mosby Elsevier 1997: 279-295.

[6]. Santoro A, Pannone G, Ramaglia L, Bufo P, Lo Muzio L, Saviano R. Central odontogenic fibroma of the mandible: A case report with diagnostic considerations. Annals of Medicine and Surgery. 2016; 5:14-18. doi:10.1016/j.amsu.2015.11.004.

[7]. Veeravarmal V, Madhavan RN, Nassar MM, Amsaveni R. Central odontogenic fibroma of the maxilla. J Oral MaxillofacPathol 2013; 17:319.

[8]. Soluk-Tekkeşin M, Wright JM. The World Health Organization Classification of Odontogenic Lesions: A Summary of the Changes of the 2017 (4th) Edition. Turk PatolojiDerg. 2018;34(1). doi: 10.5146/tjpath.2017.01410.

[9]. Baiju CS, Rohatgi S. Peripheral odontogenic fibroma: A case report and review. Journal of Indian Society of Periodontology. 2011;15(3):273-275. doi:10.4103/0972-124X.85674.

[10]. Armas JM, Hunter KD, Jenkins WM. Odontogenic fibroma: an unusual presentation, J. Oral MaxillofacPathol 2008; 12: 68-71.

[11]. Chhabra V, Chhabra A. Central odontogenic fibroma of the mandible. ContempClin Dent. 2012 Apr-Jun; 3(2): 230–233.

[12]. Kaffe I, Buchner A. Radiologic features of central odontogenic fibroma.OralSurg Oral Med Oral Pathol 1994;78:811-8.

[13]. Hedge U, Rekha. M. Central odontogenic fibroma of maxilla - A case report. International Journal of Applied Dental Sciences 2015; 1(4): 05-07.

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