Case Report

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Calcifying Epithelial Odontogenic Tumour

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Abstract

The calcifying epithelial odontogenic tumor is a rare benign odontogenic tumor that was first described by Pindborg in 1955. It accounts for less than 1% of all odontogenic neoplasms. The tumor is characterized histologically by the presence of polygonal epithelial cells, calcification, and eosinophilic deposits resembling amyloid. Here by we report the case of CEOT in 40 years old male patient and also attempt made to discuss the clinicopathological and radiological features, diagnosis, treatment and prognosis of CEOT.

Keywords: Odontogenic Tumour; Liesegang Rings; Amyloid Material; Eosinophilic; Polygonal Epithelial Cells.

Introduction

The calcifying epithelial odontogenic tumor (CEOT) is a rare odontogenic tumor that was first described by Pindborg in 1955 and thereafter, CEOT was termed Pindborg tumor by Shafer *et al*. World Health Organization in 1992 classified it as a benign odontogenic tumor, which is exclusively epithelial in its tissue of origin. It accounts for less than 1% of all odontogenic neoplasms, with an uncertain histoge-nesis and unique microscopic features, which can be easily distinguished from other odontogenic lesions[1,2]. The most common mode of presentation is as a slow growing intraosseous mass in the mandible in the fourth to fifth decade of life. There is no gender predilection. The etiology is unknown, and no predisposing factors have been identified[3]. Histopathology is the gold standard for diagnosis of CEOT. Characteristic features on histology are polygonal epithelial cells, calcification, and eosinophilic deposits resembling amyloid[4]. The differential diagnosis for CEOT should include adenomatoid odontogenic tumor (AOT), calcifying odontogenic cyst (COC), ameloblastic fibro odentoma (AFO), odontoma[5].

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Case Report

A 40 year old male patient reported with a complaint of swelling in the left upper tooth back region since 2 months, swelling was insidious in onset and gradually increased to present size. Intraoral examination revealed an nontender growth measuring about 3X2 cm swelling noticed over the buccal vestibular area of tooth no 24 to 26 [Figure 1]. On palpation, the growth was multinodular, fixed, indurated, and hard in consistency. Ortho-pantomograph revealed a mixed radiolucent-radiopaque lesion associated with impacted tooth, which was multilocular with coarse trabeculae extending from left maxillary 1st premolar to 1st molar region, scattered foci of calcification seen over floor of maxillary sinus. CT scan revealed A well circumscribed, oval, mixed density lesion in the left maxillary sinus extending laterally into the soft tissue of the cheek and medially into the left nasal cavity, the associated impacted tooth, Specks of calcifications and erosion of the floor of the maxillary sinus [Figure 2]. Routine blood investigations were within the normal limits. After the incisional biopsy, the microscopic examination revealed an epithelial neoplasm composed of sheets and nests of polyhedral epithelial cells with an abundant eosinophilic, granular cytoplasm. Cellular outlines were distinct and intercellular bridges were noted. Considerable

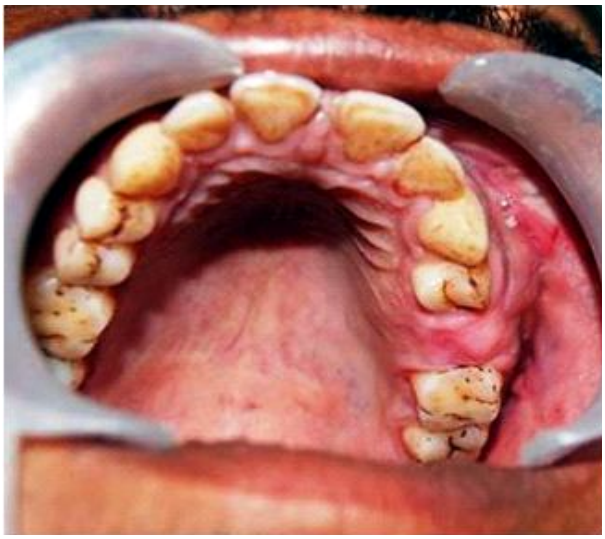

Fig. 1: Photograph showing diffuse swelling in the buccal vestibule extending from 24 to 26

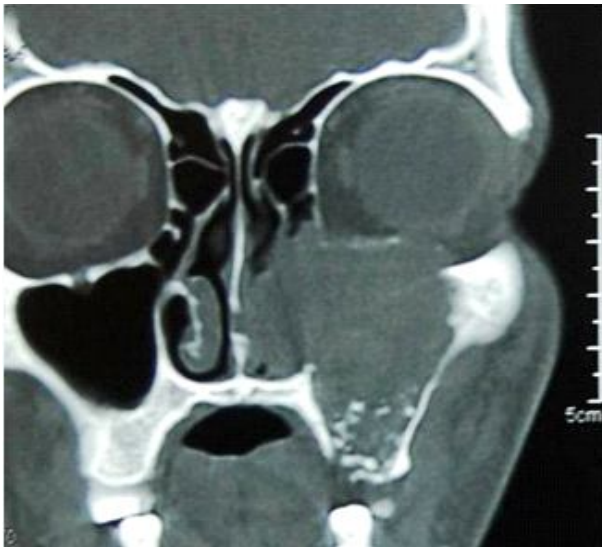

Fig. 2: CT scan showing specks of calcifications and erosion of the floor of the maxillary sinus.

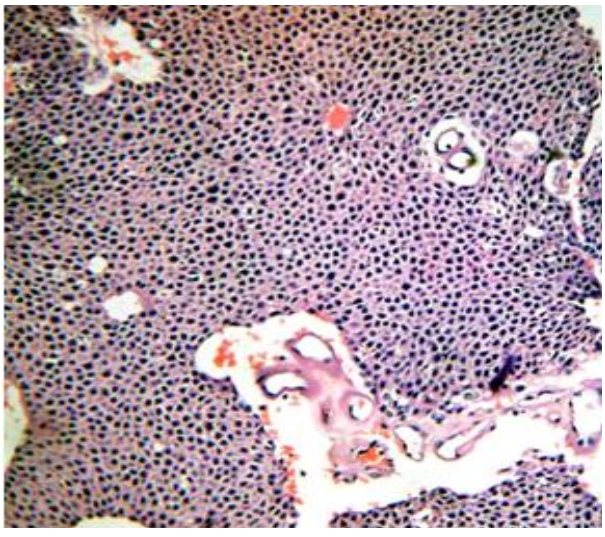

Fig. 3: Photomicrograph(10X) showing sheets of polyhedral cells

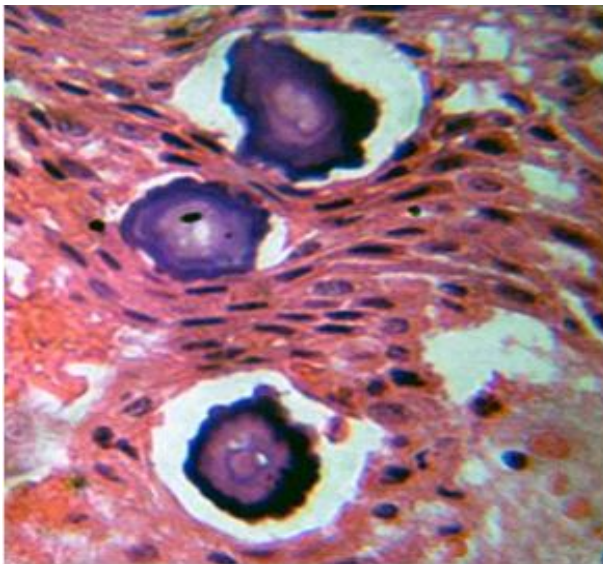

Fig. 4: Photomicrograph(100X) showing presence of calcifications in the form of leisegang rings

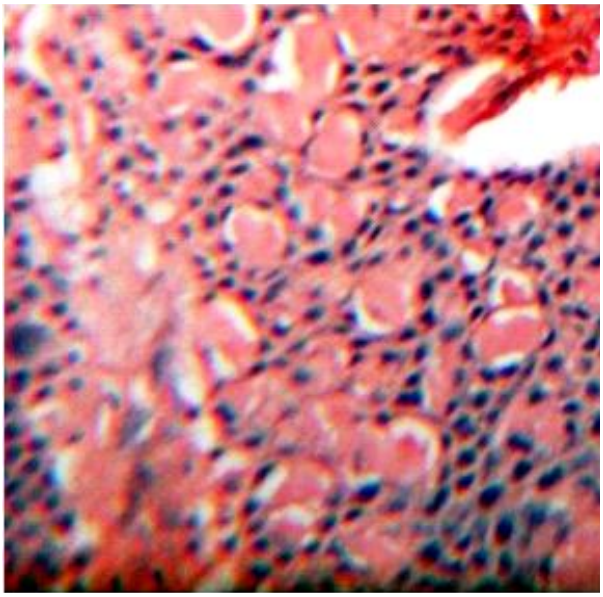

Fig. 5: Photomicrograph(100X) showing presence of amyloid deposits intracellularly and extracellularly

nuclear polymorphism was a frequent finding. Extracellular amyloid-like substance and calcified concentric deposits in the form of Liesegang rings were also identified [Figure 3, 4 and 5]. Routine blood examination showed all values were within the normal limits. Patient was treated with enucleation with curettage of surrounding lesion area.

Discussion

CEOT is a rare benign but locally aggressive tumor. The lesion is a distinct entity and probably represents less than 1% of all odontogenic neoplasms[1,5].

Classically, CEOT presents as a painless slow growing mass in the mandible. The mean age of presentation is 40 years, age was well correlated with our case with equal incidence in men and women[8]. CEOT may present as an (intraosseous) central or (extraosseous) peripheral tumor[8] central CEOT is the more common type, accounting for more than 85% of the cases and presenting most commonly at the mandible [2]. The incidence of peripheral CEOT is reported to be about 6%. It occurs most commonly at the gingiva. The presentation of both intraosseous and extraosseous types is similar and both have similar histological features[2,3]. In the initial stage, it is totally radiolucent, simulating a dentigerous cyst because of its relation with impacted tooth. The final stages are associated with osseous destruction and the tumoral calcification giving it a soap bubble appearance[6]. Quite similarly the radiographic finding in our case showed a multilocular mixed radiolucent radiopaque finding. The diagnosis of CEOT is also based on histopathological examination revealing polyhedral neoplastic cells, which have abundant eosinophilic finely granular cytoplasm with nuclear pleomorphism and prominent nucleoli. Most of the cells are arranged in anastomosing sheet like masses. An extracellular eosinophilic homogenous material staining like amyloid is characteristic of this tumor with concentric calcific deposits called Liesigag Ring[7]. The case described also depicted sheets of polyhedral cells with prominent intercellular bridges calcific foci in abundance with amorphous eosinophilic material represents amyloid like material.

The treatment for CEOT has ranged from simple enucleation or curettage to radical and extensive resection such as hemimandibulectomy or hemimaxillectomy[8]. The choice should be individualized for each lesion because the radiological and histological features may differ from one lesion to another.

Conclusion

Since CEOT typically has no or minimal signs and symptoms, the tumor may extent large in size before being diagnosed. As long as many odontogenic tumors and dental lesions may have this characteristic, it is recommended that clinician emphasizes on regular dental follow-up and routine radiography to his patients.

Referrences

1. Chen CY, Wu CW, Wang WC, Lin L, Chen YK. Clear-cell variant of calcifying epithelial odontogenic tumor (Pindborg tumor) in the mandible. Int J Oral Sci 2013; 5(2): 115-9.
2. Sharma U, Gulati A, Batra H, Singh D. Calcifying epithelial odontogenic tumor in anterior maxilla associated with a supernumerary tooth: a case report. J Dent Res Dent Clin Dent Prospects 2013; 7(1): 51-4.
3. Franklin CD, Pindborg JJ. The calcifying epithelial odontogenic tumor. A review and analysis of 113 cases. Oral Surg Oral Med Oral Pathol 1976; 42(6): 753-65.
4. Cicconetti A, Tallarico M, Bartoli A, Ripari A, Maggiani F. Calcifying epithelial odontogenic (Pindborg) tumor. A clinical case. Minerva Stomatol 2004; 53(6): 379-87.
5. Singh N, Sahai S, Singh S, Singh S. Calcifying epithelial odontogenic tumor (Pindborg tumor). Natl J Maxillofac Surg 2011; 2(2): 225-7.
6. Philipsen HP, Reichart PA. Calcifying epithelial odontogenic tumour: biological profile based on 181 cases from the literature. Oral Oncology 2000; 36: 17-26.
7. Kamath G, Abraham R. Recurrent CEOT of the maxilla. Dent Res J (Isfahan) 2012; 9(2): 233-6.
8. Urias Barreras CM, Quezada RD, Koutlas IG, Gaitan Cepeda LA. Clear cell cystic variant of calcifying epithelial odontogenic tumor. Head Neck Pathol 2014; 8(2): 229-33.