



## Peripheral dentinogenic ghost cell tumor- a case report

### KEYWORDS

Odontogenic neoplasms, Dentinogenic ghost cell tumors, peripheral lesions.

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### ABSTRACT

*Dentinogenic ghost cell tumors (DGCT) are rare lesions with the peripheral variants (PDGCT) being still uncommon. Clinically these PDGCTs mimic epulis, fibroma, peripheral giant cell reparative granuloma, neurofibroma, or peripheral ameloblastoma. Histopathological examination showing the presence of odontogenic epithelium, ghost cells and dentinoid are essential for the definitive diagnosis of these lesions. These features help in the identification of PDGCT which can be managed by simple excision as they are not associated with recurrences.*

### Introduction:

Dentinogenic ghost cell tumors, also known as odontogenic ghost cell tumors, are rare odontogenic epithelial lesions, considered to be the neoplastic counterparts of Calcifying cystic odontogenic tumors (CCOT) [1]. They can occur in any age group with no significant gender predilection. When occurring in the maxilla and mandible they are labeled as Central or Intraosseous DGCT (CDGCT), unlike those which occur in the gingival margin/sulcus, with no bony involvement, when they are known as peripheral DGCT. PDGCT are much less common than CDGCT.

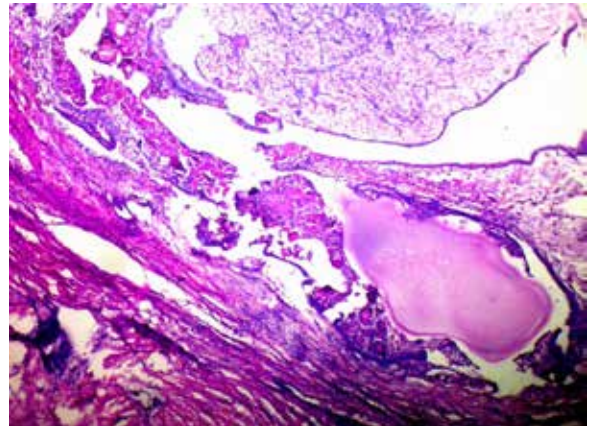
Herein we report a case of a PDGCT occurring in the posterior aspect of the gingival sulcus and briefly review the literature.

### Case report:

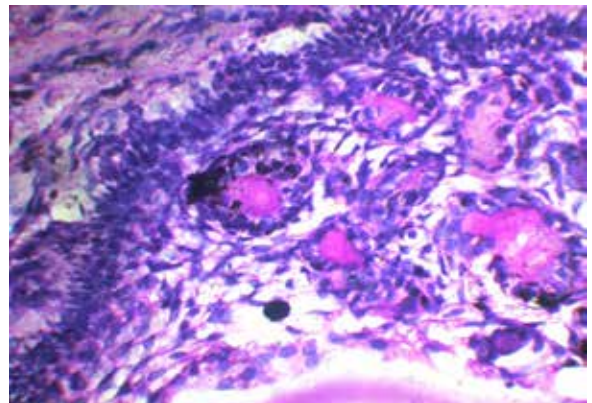
A 47 yr old female with no remarkable past history presented with the complaint of a painless mass in the right lower gum margin between the premolar and molars, of 3 months duration. Examination revealed a 2cm diameter gray brown mass with a bulging surface over the gingival sulcus, in an edentulous patient using ill fitting dentures. Radiology revealed no bony involvement of any kind. Excision was done under local anesthesia with a diagnosis of Epulis.

Grossly we received a 2cms diameter smooth gray brown mass. Cut section was solid gray brown with a small cystic space.

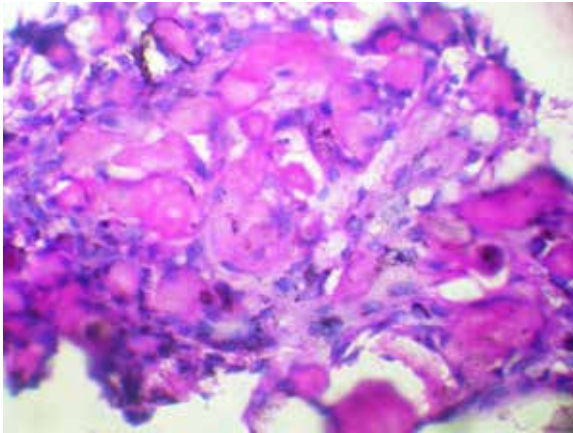
Histopathological examination revealed a solid lesion lined by hyperplastic stratified squamous epithelium with the subepithelial connective tissue stroma ameloblastoma like islands with peripheral palisaded columnar cells and central stellate reticulum, interspersed by hyaline masses of dentin like material and anucleate ghost cells.



**Fig-1 H & E stain x 10x .Showing connective tissue stroma and a cyst lined by odontogenic epithelium. Also present was a cyst lined by focally disrupted odontogenic epithelium interspersed by ghost cells**



**Fig-2 H & E stain x 40x . Showing cyst wall lined by odontogenic epithelium and islands of dentin odontogenic epithelium and islands of dentinogenic epithelium and islands of dentin**



**Figure-3 – H & E stain, x 40x showing ghost cells interspersed by odontogenic epithelium and foci of dystrophic calcification.**

There was no evidence of any mitotic activity. Small specks of calcification were seen among the ghost cells.

Based on the histopathological and radiological findings, a diagnosis of a peripheral dentinogenic ghost cell tumor (PDGCT) was made.

#### Discussion:

Dentinogenic ghost cell tumors (DGCTs) are rare neoplasms, accounting for 1.9% to 2.1% of all odontogenic tumors. Few cases of DGCT have been reported so far with only some of these showing no bone involvement (PDGCT). [2]. The rarity of these lesions is due to failure of recognition, as many of them are mistakenly diagnosed as peripheral ameloblastomas. [3]

They usually present as nodular swellings on the edentulous alveolar mucosa in denture wearers, suggesting that irritation or trauma may be inciting agents.

Existing literature shows that they are more common in the canine and premolar regions and show a predilection for the elderly. These peripheral lesions tend to be less aggressive with no known risk of recurrence unlike the central or osseous counterparts.[4].

Histogenetically, they are thought to arise from cell rests of Serres or the surface epithelium.

Microscopically they show odontogenic epithelial islands and varying amount of ghost cells, showing keratinization and foci of calcification. The ghost cells are thought to be metaplastic squamous cells with subsequent calcification caused by ischemia in odontogenic epithelial cells. [5] Formation of dentinoid or osteoid material is thought to be an inflammatory response of the body to the presence of ghost cells [6]

Though the cystic lesions are identified as COCT and solid lesions are considered DGCT, cystic change has been described in the solid ones as well. The cystic change is thought to take place in the proliferating epithelial islands. [7]. Our case also shows cystic foci in addition to solid areas .

Immunohistochemical evaluation of these lesions shows that the epithelial cells are positive for cytokeratins characteristic of odontogenic epithelium. The ghost cells and calcified bodies are devoid of any immune-reactivity suggesting that they are either derived from metaplastic transformation or coagulative necrosis of odontogenic epithelium .[8]

A radical approach in the form of wide excision is now the proposed line of treatment for central DGCT which tend to recur after incomplete initial curettage, whilst simple excision is the treatment of choice for PDGCT which are not associated with recurrence.

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