An unusual gingival mass in the anterior maxilla

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THE CHALLENGE

A 57-year-old nonsmoking woman with no systemic conditions except mild hypertension sought treatment for a mass of the gingiva, which had been rapidly growing for the previous 2 months, although it had existed for nearly 20 years. She had no complaints, such as pain or bleeding, except for the expansion of the lesion itself.

Intraoral examination revealed an ovoid, solid, and fibrotic mass on the right anterior maxilla with a diameter of approximately 2 centimeters (Figure 1). A periapical radiograph revealed an irregular radiopacity and 2 punchlike radiolucencies, each with a diameter of 0.5 through 1 millimeter in the adjacent bone (Figure 2). An excisional biopsy was performed while the patient was under local anesthesia. A pulsatile hemorrhage arising from the lesions in the bone occurred, which was controlled with gauze pressure. The denuded bone was fully covered by a laterally advanced flap.

Histopathologic evaluation revealed islands of mostly columnar, basaloid epithelial cells in the connective tissue beneath the stratified squamous epithelium, which resembled ameloblasts (Figure 3). These islands and surrounding areas were observed to contain enlarged keratinized cells with no nuclei. In some areas neighboring the epithelium, hard-tissue formations with characteristics of osteodentin were detected.

The surgical area healed without hindrance, but an expected depression occurred in the tissue contour after the superficial pressure resorption. No recurrence was observed 15 months after the surgery (Figure 4).

Figure 1. Nonspecific appearance of the mass.

(Please see next page for additional images.)

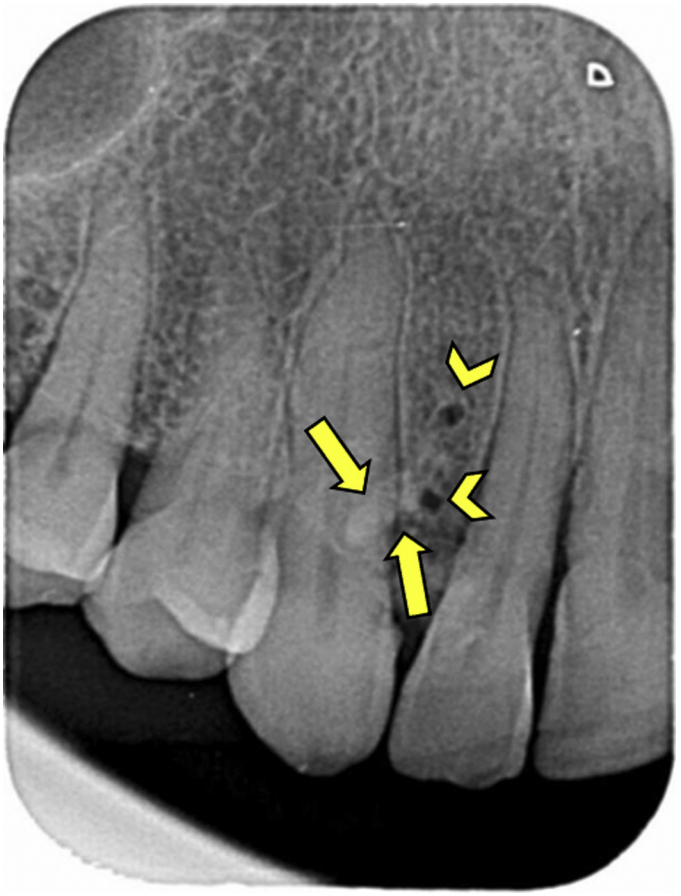

Figure 2. Periapical radiograph showing 2 discrete radiolucencies (arrowheads) representing nutrient canals, normal anatomic structures, and an irregular radiopacity (arrows), reflecting the calcifying parts of the lesion.

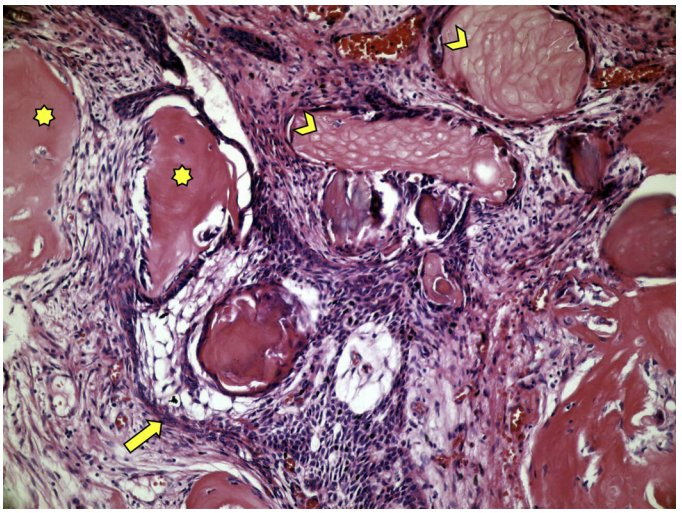

Figure 3. Enlarged cells with no nuclei (arrowheads) and dentinoid material (stars) can be observed among masses formed by epithelium-originated odontogenic cells resembling ameloblasts (arrow) (hematoxylin-eosin, magnification ×100).

Figure 4. Month 15 visit; no recurrence was observed.

Can you make the diagnosis?

A. peripheral ossifying fibroma
B. peripheral giant cell granuloma
C. peripheral odontogenic fibroma
D. peripheral ameloblastoma
E. peripheral dentinogenic ghost cell tumor (DGCT)

The diagnosis:

E. peripheral DGCT

DGCT is a solid neoplasm of odontogenic epithelium characterized by the presence of aberrant keratinization, ghost cells, and dentinoid.[1] It was considered to be a variant of calcifying odontogenic cyst until Praetorius and colleagues[2] suggested, to our knowledge for the first time, that the lesion is a separate entity. The lesion may arise centrally or peripherally. The peripheral form appears to be rare and may easily be confused with reactive or inflammatory lesions.[3]

DGCTs represent 1.9% through 2.1% of all odontogenic tumors.[4] Among DGCTs the extraosseous form appears less frequently (10%-17%). The onset age of DGCT varies from 4 months through 89 years with equal distribution between male and female patients. The most frequent sign is swelling, and the duration of clinical signs varies from 1 month through 10 years.[5] Thus, the lesion described here seems to have had clinical signs of long duration, approximately 20 years. The behavior of this lesion did not seem to have followed a regular pattern: a minor swelling in the beginning and, after a long standstill period, it began to expand rapidly. The reason for exacerbation is not known.

Because peripheral DGCTs have a very low recurrence rate, conservative removal of such lesions is adequate in most cases.[6]

DIFFERENTIAL DIAGNOSIS

Peripheral ossifying fibroma

Peripheral ossifying fibroma is a hyperplasia of the gingiva, occasionally with ulcerated and erythematous surface characteristics. Most cases appear with a maximum diameter of 1.5 cm in patients from the ages of 25 through 35 years.[7] The etiology of peripheral ossifying fibroma is unclear although it is thought to be, most probably, a reaction to local irritants.[8] The age of this patient and the size of the lesion diverged from the typical characteristics of peripheral ossifying fibroma, emphasizing that histopathologic evaluation is the essential diagnostic tool.

Peripheral giant cell granuloma

Peripheral giant cell granuloma appears as a firm or soft extraosseous nodule in the gingival or alveolar mucosa. It is thought to arise as a reaction to local irritation such as extractions, inadequate restorations, food impaction, malposition, dental biofilm, or calculus.[9] It is characterized by highly cellular connective tissue with numerous osteoclast-type multinucleated giant cells and vascular proliferation; thus, histopathologic evaluation is definitive in differential diagnosis. It appears mostly during the third to fifth decades of life and more frequently in women as a painless lesion. The most frequent symptom is swelling.[10]

Peripheral odontogenic fibroma

Peripheral odontogenic fibroma is a firm, smooth, usually sessile and slow-growing odontogenic tumor. It is characterized by proliferation of fibromyxomatous connective tissue throughout which various amounts of epithelium are scattered, occasionally containing calcification foci such as dentinoid, cementicles, or bone.[8] It has an onset age range similar to that of DGCT, that is, from birth to 80 years of life, with female patients being affected slightly more often than male patients.[11] As for the other exophytic masses described here, the presence of ghost cells is indicative in the differential diagnosis.

Peripheral ameloblastoma

Ameloblastoma is an uncommon, mostly small (0.5-4.0 cm), painless, and sessile neoplasm of the enamel epithelium exhibiting no hard-tissue differentiation.[12] The peripheral form is less aggressive than the conventional ameloblastoma. Peripheral ameloblastoma should always be considered in the differential diagnosis of gingival masses. It may appear in patients ranging widely in age (16-92 years) as a solid lesion with various surface characteristics, although it often induces papillomatous changes, which clinically differentiates it from our case.[12,13] Nonetheless, the histopathologic

appearance of ghost cells and dysplastic dentin formation, which distinguishes DGCT from ameloblastoma, is essential for diagnosis.[14]

CONCLUSION

Peripheral DCGT is a scarce neoplasm. It can be treated by a relatively conservative surgical approach. Precaution is advised for possible bleeding. ■

https://doi.org/10.1016/j.adaj.2021.04.003

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Disclosure. None of the authors reported any disclosures.

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Diagnostic Challenge is published in collaboration with the American Academy of Oral and Maxillofacial Pathology and the American Academy of Oral Medicine.

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