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Incidental Bump on Lingual Gingiva

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The following Case Challenge is provided in conjunction with the UT Health San Antonio School of Dentistry faculty.

A 38-year-old male with an incidental bump noted on the lingual gingiva.

After you have finished reviewing the available diagnostic information, make the diagnosis.

Diagnostic Information

History of Present Illness

Jimmy is a 38-year-old patient of record who has just returned home from a two year overseas assignment in Costa Rica. He reports that while out of the country, he had his teeth cleaned once and now needs a comprehensive check-up. He has no complaints and relates no problems in the past two years.

Medical History

- Adverse drug effects: none
- Medications: Naproxen as needed for shoulder soreness
- Pertinent medical history: osteoarthritis, prior BCG vaccination (completed a 9 month regimen of prophylactic isoniazid 15 years ago)
- Pertinent family history: paternal fatal MI age 65 (long-term smoker), maternal - DM type 2 managed with diet. Siblings are healthy
- Social history: denies tobacco or alcohol exposure and denies recreational drug exposure

Clinical Findings

Extraoral examination reveals normal TMJ function, no facial muscle tenderness, and no cervical lymphadenopathy. Intraoral examination reveals an intact dentition in good repair with no evidence of caries or periodontal disease. There is well-defined, firm, smooth surfaced papule noted on the lingual alveolar ridge interproximal to #22/23 (Figure 1). The lesion is broadly attached and blanches with pressure (Figure 2). A periapical radiograph of the area is within normal limits, with no evidence of alveolar bone loss or osseous involvement. The lesion is excised and submitted for histologic assessment.



Figure 1. Smooth surfaced papule on the lingual alveolar ridge interproximal to #22/23.



Figure 2. Blanching noted with applied lateral pressure.

Histopathologic Findings

The biopsy of the gingival mass shows a submucosal proliferation of nests, cords and islands of odontogenic epithelium. The epithelium displays peripherally palisaded columnar epithelial cells with nuclear polarization away from the basement membrane, nuclear hyperchromasia, subnuclear cytoplasmic clearing, and central keratinization. A supporting fibrovascular connective tissue stroma is present. There is a patchy acute and chronic inflammatory infiltrate. No bone involvement is identified.



Figure 3. Low-power histologic image showing an infiltrative submucosal proliferation of nests and strands of odontogenic epithelium. Mild inflammation is present.



Figure 4. High-power histologic image of the odontogenic epithelial islands exhibiting peripherally palisaded columnar epithelial cells with nuclear polarization away from the basement membrane, nuclear hyperchromasia, subnuclear cytoplasmic clearing, and central keratinization. There is a supporting fibrovascular stroma.

Select Diagnosis

Can you make the diagnosis

A 38-year-old male with an incidental bump noted on lingual gingiva.



Select the Correct Diagnosis A. Retrocuspid papilla

- B. Peripheral ossifying fibroma
- C. Peripheral ameloblastoma
- D. Peripheral giant cell granuloma

Retrocuspid papilla

Choice A. Sorry, this is not the correct diagnosis.

The retrocuspid papilla is a well-defined soft tissue nodule located on the lingual gingiva of the mandibular cuspid.^{1,2} Commonly observed in children, it is considered a normal anatomic variation the often disappears with age. The typical retrocuspid papilla presents as a small (< 5 mm) smooth or slightly pebbly surfaced pink papule on the lingual gingiva in the mandibular canine area. Most cases present bilaterally. Once recognized, the retrocuspid papilla requires no treatment unless a change is noted during a routine follow-up examination. Histopathologic assessment reveals a mass of loosely-arranged delicate fibrous connective tissue with stellate and multinucleated fibroblasts.^{1,2} Elongation of the rete ridges and/or increased vascularity may also be observed. The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

Peripheral ossifying fibroma

Choice B. Sorry, this is not the correct diagnosis.

The peripheral ossifying fibroma (POF) is the third most common localized reactive hyperplastic lesion to affect the oral cavity after a pyogenic granuloma and a peripheral giant cell central granuloma.³ The etiology is not well understood, but most authorities believe the POF originates from an inflammatory hyperplasia of cells in the periodontal ligament since it arises exclusively in the gingiva or in close proximity to the periodontal ligament.^{1,3} It typically presents as reddish, well circumscribed nodule (<1.5 cm) in the gingival tissue anterior to the permanent molars of a young adult.^{1,4} Pain and displacement of teeth may occur. Histopathologic characteristics include a predominantly fibrous connective tissue stroma with abundant fibroblasts, collagen, profuse endothelial cell proliferation, and mineralized material (calcifications).³ Treatment consists of thorough excision to include the periodontal ligament and periosteum. A recurrence rate of up to 20% is attributable to incomplete initial excision and failure to thoroughly scale and root plane the adjacent teeth.³ The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

Peripheral ameloblastoma

Choice C. Congratulations! You are correct.

The ameloblastoma is an aggressive epithelial odontogenic neoplasm.^{1,5} These neoplasms can be broadly categorized into three groups: intraosseous solid and multicystic, intraosseous unicystic, and peripheral. Ninety nine percent of ameloblastomas are intraosseous, with only 1% being peripheral.⁵ The typical peripheral ameloblastoma presents as a slow growing, firm, asymptomatic, smooth surfaced or papillated papule with no evidence of underlying bone invasion.¹ The tumor is believed to arise from remnants of the reduced enamel epithelium, cell rests of the dental lamina, or from basal cells of the surface epithelium.⁶ Histopathologic examination reveals a submucosal proliferation of nests, cords and islands of odontogenic epithelium. The epithelium displays peripherally palisaded columnar epithelial cells with nuclear polarization away from the basement membrane, nuclear hyperchromasia, subnuclear cytoplasmic clearing, and central keratinization. A supporting fibrovascular connective tissue stroma is present. Treatment consists of excision down to the periosteum and recurrence is uncommon.

Peripheral giant cell granuloma

Choice D. Sorry, this is not the correct diagnosis.

The peripheral giant cell granuloma (PGCG) is a relatively common benign reactive gingival lesion.¹ The PGCG is believed to originate from the periodontal ligament or the periosteum and occurs in response to gingival irritation. Inadequate oral hygiene may be a contributing factor. Any age may be affected and there is a slight female predilection. Clinically, the PGCG usually presents as sessile or pedunculated red-blue smooth surfaced mass (< 2 cm) in the molar region that often mimics the pyogenic granuloma. Ulceration and involvement of underlying bone may cause resorption of the alveolar bone, tooth mobility and/or tooth displacement.⁴ Histopathologic findings include a proliferation of multinucleated giant cells within a background of ovoid and spindle-shaped mesenchymal cells. Hemosiderin deposits may be observed.¹ Treatment consists of thorough excision to include the periodontal ligament and periosteum and a recurrence rate of up to 18% has been noted. The histopathologic and clinical findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

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