Peripheral Ossifying Fibroma

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Oral Pathology 2023

Section: 3B

Overview / Etiology

Peripheral ossifying fibroma (POF) is a harmless enlargement of the gingiva, specifically in areas "interdentally" in the papilla. This occurs most frequently in teenagers and young adults. Peripheral ossifying fibromas are formed from the ligaments of periodontal tissue cells. "It is often seen on the maxillary facial gingiva involving the anterior teeth. It is thought to be related to poor gingival and periodontal health, where chronic inflammation causes the differentiation of pluripotent cells into bone-producing cells that are native to the area. It develops over weeks, months, and years and is slow growing."(Allen DDS & Woo MS, DMD, MMSc) The word "ossifying" means "bone" in POF. A bone that forms inside fibrous connective tissue where it is not supposed to belong. This is usually due to the accumulation of plaque around the teeth, trauma, which is prevalent in adolescents, and gum irritation, which leads to soreness. This is normally categorized as a spontaneous localized "overgrowth," also known as "hyperplasia," but it can also be classified as a benign neoplasm or tumor.

Clinical Presentation

Peripheral ossifying fibroma appears only locally between gums. The severity of the features varies from patient to patient and can range in size from a rice grain to a clove of garlic or larger. It can be smooth,

Chandwani, Manisha, and Gabriela Fernandes. Gabriela Fernandes, Buffalo, NY, 2018, Peripheral Ossifying Fibroma: Review and Case Report.

inconsistently textured, pink or red in color, or ruptured if it has been exposed to trauma. Here we discuss a case of POF in a 13-year-old male who encountered a “painless swelling” in the lower anterior mandibular zone of the jaw. Following an intraoral assessment for objective data, it was shown that "a single pedunclated 15 mm × 15 mm irregular pale pink growth extending mesiodistally from the distal surface of 31 up to the mesial surface of 24 and cervico-incisally from the attached gingival up to the middle third of crowns of #23, 24, 25, and 26" (Fernandes 2018) POF has the ability to swell and occupy up to four teeth, in this case, the lower anterior. In the current instance, the patient reports "painless" symptoms, and POF is "clinically manifesting as a painless, slow-growing, hard nodule, usually smaller than 2 cm" (Katanec 2022).

Demographic

According to Fahrner, MD, “Both males and females are affected, although a preference for females is noted (2:1 female-male ratio)” and “Worldwide, there is no racial or ethnic preference

observed.” (Fahrner, MD 2021). Although POF is much more common in women than in men, there isn't a specific ethnic group where these fibromas are more prevalent.

Biopsy / Histology / Radiographs

Biopsy = excisional biopsy (Fernandes 2018)

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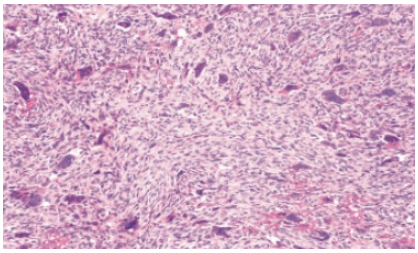
Histology = “...mass of connective tissue covered partly by parakeratinized stratified squamous epithelium with abundant fibroblasts, thin collagen fibers, blood capillaries, and few inflammatory cells, along with a few irregular calcified masses suggestive of peripheral ossifying fibroma.” (Fernandes 2018)



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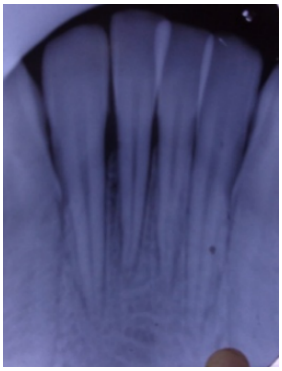
Radiographs = "erosive bone changes in the interdental area in relation with #24,25” (Fernandes 2018)



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Differential Diagnosis

POF can easily be mistaken for some other benign tumor with similar features to POF, such as giant cell fibroma, pyogenic granuloma and peripheral odontogenic fibroma. In an article Dr Beckman describes how peripheral odontogenic fibroma is found commonly in dogs, “slow growing, localized, exophytic mass on the gingiva resulting from chronic irritation…typically is a firm, pink, smooth swelling of the gingiva and normally seen as gingival hyperplasia.” (Dr. Brett Beckman 2023) Peripheral odontogenic fibroma has clinical aspects that are very similar to POF, however in the case of this benign tumor, it appears to be from a persistent aggravation and slowly developing into a local mass exclusively placed on the gingiva with clinical manifestations that are very close to POF with a smooth inflammatory gum tissue. In the case with pyogenic granulomas and giant cell granulomas it is unknown. For pyogenic granulomas it "often appears following an injury on the hands, arms, or face" (fathi 2022). POF and pyogenic granulomas have similar clinical characteristics, but they develop after trauma and occur not just in the oral cavity but also in various regions of the body. "These masses are normally painless and slow-growing in giant cell fibromas." Tangella (2018) describes them as "firm to the touch and well-defined." Because most benign tumors have similar appearances, they are frequently misinterpreted when clinically checked with the naked eye. Biopsies are always best to use to determine the source of the problem and provide a complete diagnosis.

Treatment

Simply because a tumor is benign does not mean it should be ignored. Many people feel because a tumor isn't malignant, it won't "harm" the body, however some benign tumors have the possibility to expand gradually and may never require treatment at some point. Others can be dangerous to one's health if they push on neighboring tissues, nerves, or organs depending where the area of concern is located. POF can be treated with a variety of therapies, including...

- Tumor removal with minor surgery
- Laser removal
- Usually, extraction of teeth. Not always necessary.
- If required, antibiotic or antifungal therapy for secondary infections

Prognosis

Farnher MD states “However, recurrences have been reported in 1 in 5 cases, usually within a year of initial surgical removal of the tumor”(Farnher 2021) and “Children are more likely to experience a tumor recurrence.” (Chang HJ, 2022) POF has a typically fair prognosis given the correct therapy, depending on the severity of the condition of course. However, there is a 20% likelihood of recurrence within a year of tumor removal. In addition, it is more likely to repeat in children since they have a more difficult time adhering to an everyday decent oral hygiene care regimen than an adult. Children are more likely to acquire caries lesions due to their thin enamel or accumulating biofilm because they may lack the dexterity of adults or require parental guidance. Excess biofilm can induce gingivitis and, on rare occasions, in this instance hyperplasia in particular local regions, which can eventually lead to a POF.

Professional Relevance

It is essential for a hygienist to thoroughly examine and assess every patient's medical history, as this can offer crucial and beneficial insights into the patient's health condition and its potential to impact oral health. Hormonal variables in women can act as a predisposing risk factor. "....especially estrogen and progesterone, once hormonal level variations can lead to changes in the production of gingival crevicular fluid." (Cavalcante 2022) Hormone swings, such as those of progesterone and estrogen, can fluctuate significantly throughout a woman's life; this includes adolescence, pregnancy, period cycles, and menopause later on in life. These hormonal fluctuations may have an effect on the chemical makeup of a patient's crevicular fluid. One example would be pregnancy. In some females, hormonal changes may affect the amount of gingival fluid released. This can result in an increase in gingival fluid and pregnancy gingivitis, which is a common condition that can be managed with good oral hygiene practices at home and three-monthly visits to a dental professional. If left untreated, inflammation of the gums can occur, which can cause the presence of plaque buildup under the gums and potentially cause a POF, or gingivitis, which can lead to periodontitis, which is linked to preterm delivery and low birth weight.

Citations

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