

DEN 2311 Oral Pathology Paper 2022

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Overview

Pyogenic Granuloma, also known as lobular capillary hemangioma, is a vascular tumor with proliferated blood vessels that is benign and can occur in all ages and ethnicities. It is most caused by trauma to the area affected, Herpes Viruses 1 and 2, Human papillomavirus type 2, and BRAF mutations. It develops in three stages (1. cellular phase, 2. capillary phase, and 3. involuntary phase.) Bleeding is a common symptom associated with all three stages of development. Pyogenic granulomas can be difficult to diagnose because they appear like other tumors, lesions, and infections (Said, 2018). Pyogenic granulomas can negatively affect a patient's quality of life, depending on the location and size of the tumor.

Etiology

Pyogenic granulomas can form subcutaneously or intravascularly. It can be spontaneously, at the site of injury, or at the site of capillary malformations (Wollina, 2017). As well as being associated with Herpesviruses and HPV, it is associated with certain medications and treatments. The most common form is a solitary lesion. However, multiple disseminated lesions may occur due to adverse reactions from melanoma treatment with selective BRAF inhibitors. Multiple periungual (around finger/toenail) lesions may occur from targeted oncological treatments that use epidermal growth factor receptor inhibitors or mitogen-activated protein kinase (MEK) inhibitors (Wollina, 2017).

Clinical Presentation

Pyogenic granulomas can present as small or large, lobulated, or smooth, exophytic nodules that are pedunculated in shape. A more common term to describe the shape is that of a mushroom. Pyogenic granulomas are red in color and are known to bleed profusely with the slightest manipulation. The lesion may appear raw or crusty, depending on the stage it is in. Pyogenic granulomas can occur anywhere but are mostly seen on the hands (specifically the nail folds), lips and gingiva. Rare but serious locations where pyogenic granulomas can occur are the vulva and penis, gut, and esophagus. Intravascular pyogenic granulomas pose the most danger, due to their ability to cause thrombosis.

Demographic

Pyogenic granulomas are non-discriminatory, meaning they may appear in all ethnicities and age groups. However, recent studies show that ORAL pyogenic granulomas tend to appear in the second to fifth decades in more females than males. Furthermore, it is more commonly seen in patients with systemic diseases or patients who are prone to trauma in the areas where the occurrence is most common.

Biopsy / Histology / Radiographs

An excision biopsy of the lesion and its surrounding structures and tissues would be taken by the doctor to rule out differential diagnoses and malignancies. Biopsies are usually taken by the doctor when the lesion is in an area where the occurrence is not common. Otherwise, pyogenic granulomas are diagnosed easily based on their appearance. Histologically, endothelial cell clusters will be present, as well as clear signs of mitosis due to the cellular phase of the lesion. Also, areas of edema can be seen where there are spaces between cells. Inflammation can be seen where there is a cluster of cells. A clear well

defined ulcerative border that appears pedunculated encapsulates the sample. Blood vessels are seen as well (Ribeiro, 2021).

On a radiograph, pyogenic granulomas are absent. However, alveolar bone resorption can be a sign of the presence of this lesion. Moreover, some research suggests if large enough, it can appear radiolucent with radiopaque poorly marginated borders.

Differential Diagnosis

Pyogenic Granuloma has many differential diagnoses. It is similar to Kaposi sarcoma, malignant lymphomas, amelanotic melanoma, and basal/squamous/metastatic carcinoma. Patients who report the lesion lasting more than 6 months indicate that there is a malignancy occurring and not a pyogenic granuloma. Moreover, if there is no history of trauma, that can further separate malignant conditions from pyogenic granulomas.

Treatment

Treatment of pyogenic granulomas can include excision, curettage, electrocautery, radiosurgery, cryosurgery, sclerotherapy, or laser treatment options (Wollina, 2017). Excision has the lowest recurrence rate and is the primary choice of treatment for patients with this lesion. In children, topical and oral medical therapy has proven effective. Another less invasive method of treatment is applying salt directly onto the lesion (Salinas, 2021).

Prognosis

Pyogenic granuloma is benign and will not become cancerous. In pregnant patients, it is self-limiting and will resolve in a few weeks. Otherwise, it requires treatment. Without treatment, there is a high chance that infection and overgrowth will occur. After treatment, the prognosis is good, with a low recurrence rate.

Professional Relevance

As dental hygienists, helping restore and maintain a patient's oral health is our job. Pyogenic granulomas can cause pain, and discomfort, and can serve as a microbial reservoir for bacteria to fester and multiply. In addition, the pain and swelling, and proclivity to bleed may cause the patient to avoid cleaning a certain area where the lesion may be present. Consequentially, the patient's oral health will become worse over time.

The third leading cause of death in the United States is medical malpractice. Misdiagnosing or missing a diagnosis account for a significant percentage of medical malpractice. Many cancers are found in dental offices. It is a dental hygienist's duty to be well-versed in all lesions, most importantly those pertaining to the mouth, so that proper referrals may be given.

Bibliography

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