

Drug Related Gingival Hyperplasia
By Ha-Jung Lee
Oral Pathology 2018
Section: Tuesday AM

Overview

Drug-induced gingival hyperplasia, also known as gingival enlargement or hypertrophy, is a benign and inflammatory condition that appears as a soft and round overgrowth of gingival tissues. It can involve the gingival margin, interdental papilla, and attached gingiva. Some common symptoms include bleeding, swelling, disfiguration of gingiva, and pain is usually not present. Medications that have a high chance in causing gingival hyperplasia are phenytoin, nifedipine, and cyclosporin.

Etiology

There are four causes of gingival hyperplasia. Inflammatory gingival enlargement is caused by an inflammatory response to plaque accumulation. Medication-induced gingival enlargement is due to the intake of anticonvulsants (phenytoin), calcium channel blockers (nifedipine, verapamil, diltiazem), and immunosuppressants (cyclosporine). These medications cause a connective tissue response, which affects fibroblast function and increases the matrix of the gingival connective tissue as well as collagen formation. Hereditary gingival fibromatosis is a rare, genetic condition that presents as a slow-growing, firm, pale pink enlargement of the gingival. Systemic causes of gingival enlargement are caused by systemic conditions such as pregnancy, leukemia, or hormonal imbalances.

Clinical Presentation

Patient may report pain, presence of blood during brushing or flossing, and gingival swelling following the intake of the drugs. Difficulty with oral speech and mastication can also be present as well as trapped food leading to halitosis. Clinical presentation can range from firm, smooth and fibrotic gingival tissue to red, soft, bleeding, bulbous, and swollen gingiva. In more severe cases, mobility and alveolar bone resorption can be found. The facial gingiva is most commonly affected and can be localized or generalized. The anteriors are typically more involved than the posteriors.

Demographic

Although there are no racial or gender predilections for the onset of drug-related gingival hyperplasia, men are three times more likely to develop gingival hyperplasia with the administration of calcium antagonists (i.e. verapamil and nifedipine) and overall are more susceptible to the condition. Phenytoin-induced gingival hyperplasia is present more frequently in younger patients with epilepsy.

Biopsy / Histology / Radiographs

In most cases, the patient's medical history and a clinical presentation are usually sufficient to diagnose gingival enlargement. However if a biopsy is needed, an excisional one will be recommended. The biopsy will reveal proliferation of parakeratinized epithelium with elongated rete-pegs penetrating the connective tissue with few inflammatory cells. Histologically, the gingival tissue presents with an increasing amount of mature collagenous connective tissue that is highly vascularized in the extracellular tissue with normal fibroblasts and plasma cells. For a patient with gingival enlargement the most common x-rays taken are panoramics or full mouth series. In radiographs, alveolar bone loss is present as well as increased spacing between teeth.

Differential Diagnosis

*Pictures obtained from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4568527/>. Cited in References.

1) Fibrous peripheral fibroma



2) Angiogramulomas



3) Peripheral giant cell granuloma



4) Gingival cyst of Adult



Treatment

Discontinuation, change, or dose reduction of drug can lead to the regression of the lesion. Improvement in oral hygiene is recommended to decrease the inflammatory response to the tissues. For gingival enlargements involving periodontitis, surgical gingival resection (gingivectomy) may be needed to remove the excess gingival tissue. For specifically cyclosporine-induced gingival hyperplasia, Tacrolimus as an alternative immunosuppressant drug is effective in the management of gingival hyperplasia because gingival enlargement is not an adverse side effect. CO₂ lasers have been used to treat gingival overgrowth because it is capable of removing both soft and hard tissues.

Prognosis

Without treatment, recurrences are frequent with patients who are ineffective with their plaque control and those who continue to use the drugs that cause gingival hyperplasia. The condition will only exacerbate and can lead to bone destruction.

With treatment such as effective oral hygiene and switching to another type of drug the condition can resolve and symptoms will improve.

Professional Relevance

As a dental hygienist, one of our key roles during assessments is to review the patient's medical history as well as the medications currently being taken. Any adverse drug effects on the oral cavity must be documented and examined. Our goal is the prevention rather than treatment of disease and it is our goal to guide the patient in bringing their gingival condition back to a

healthier state. Our main objective should be educating the patient on their oral condition and this includes recommending appropriate aids as well as products that can promote a more effective oral hygiene.

Citations

Agrawal, Amit. "Gingival Enlargements: Differential Diagnosis and Review of Literature." *World Journal of Clinical Cases*, Sept 2015.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4568527/>

Patil, L. et al. "Idiopathic Gingival Hyperplasia: A Case Report." *Journal of International Medicine and Dentistry*, March 2016.

https://jimind.in/uploaded/volumes/Gingival_hyperplasia.pdf

Samudrala, P. et al. "Drug-induced gingival overgrowth: A critical insight into case reports from over two decades." *Journal of Indian Society of Periodontology*, Sept 2016.

<https://www.semanticscholar.org/paper/Drug-induced-gingival-overgrowth%3A-A-critical-into-Samudrala-Chava/0265bdca1ed804821d3536959389742057b8dce5>

Sharma, P. et al. "Gingival hyperplasia: Should drug interaction be blamed for?" *Indian Journal of Pharmacology*, June 2017.

<http://www.ijp-online.com/article.asp?issn=0253-7613;year=2017;volume=49;issue=3;spage=257;epage=259;aulast=Sharma>

Trackman, P.C. "Molecular and Clinical Aspects of Drug-induced Gingival Overgrowth." *Journal of Dental Research*, April 2015.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4485217/>.