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HYPERTROPHIC GINGIVITIS: ETIOLOGY, CLASSIFICATION, TREATMENT, AND PREVENTION

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Abstract
Hypertrophic gingivitis is a chronic inflammatory disease of the periodontal tissues characterized by an increase in the volume of the gingival margin and interdental papillae. This condition not only compromises oral aesthetics but also creates niches for pathogenic microflora, potentially leading to periodontitis. This article explores the multifactorial etiology of the disease—ranging from local dental factors to systemic hormonal shifts—classifies its clinical forms, and evaluates modern therapeutic approaches including pharmacological and surgical interventions.

Introduction

The health of periodontal tissues is a critical component of overall systemic health. Among inflammatory periodontal diseases, **hypertrophic gingivitis (HG)** stands out due to its proliferative nature. Unlike catarrhal gingivitis, which is characterized by redness and edema, HG involves the actual enlargement (hypertrophy or hyperplasia) of the gingival tissue.

It is most prevalent among adolescents (pubertal gingivitis), pregnant women, and patients taking specific categories of medications. If left untreated, the pseudo-pockets formed by the enlarged tissue become reservoirs for dental plaque, leading to bone loss and tooth mobility. This article aims to provide a comprehensive overview of the disease using the IMRAD structure to facilitate clinical understanding and management.

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Methods

To synthesize this comprehensive review, a systematic analysis of current dental literature and clinical protocols was conducted. Data were categorized based on:

1. **Etiological Factors:** Mechanical, systemic, and drug-induced causes.
2. **Clinical Classification:** Edematous vs. Fibrous forms.
3. **Therapeutic Efficacy:** Comparing conservative therapy with electrosurgical and laser-assisted gingivectomy.
4. **Preventative Protocols:** Evaluating the impact of professional hygiene and patient education on recurrence rates.

Results

1. Etiology (Causes)

The development of hypertrophic gingivitis is rarely attributed to a single factor. It is typically a result of a local irritant acting upon a body with predisposed systemic conditions.

- **Local Factors:** * Chronic irritation from malocclusion or crowded teeth.
  - Poorly contoured restorations (overhanging fillings) and orthodontic appliances.
  - Accumulation of microbial biofilm (dental plaque).
  - Mouth breathing, which leads to dehydration of the anterior gingiva.
- **Systemic Factors:**
  - **Hormonal Changes:** Significant shifts during puberty, pregnancy, or menopause increase the gingival response to plaque.
  - **Endocrine Disorders:** Particularly diabetes mellitus and thyroid dysfunction.
  - **Blood Disorders:** Leukemias can manifest as significant gingival enlargement.
- **Drug-Induced Hyperplasia:** * Anticonvulsants (e.g., Phenytoin).
  - Immunosuppressants (e.g., Cyclosporine).
  - Calcium channel blockers (e.g., Nifedipine).

2. Classification (Types)

Clinically, hypertrophic gingivitis is divided into two primary forms based on the tissue's reaction:

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Feature	Edematous Form (Inflammatory)	Fibrous Form (Proliferative)
Color	Bright red or cyanotic (bluish)	Normal pink or slightly pale
Consistency	Soft, loose, and friable	Dense and firm
Bleeding	High (occurs during brushing/eating)	Minimal or absent
Pain	Often present during touch	Usually painless
Surface	Glossy, loss of "stippling"	Granular or smooth, but tough

Severity Levels:

- **I Degree:** Coverage of up to 1/3 of the tooth crown.
- **II Degree:** Coverage of up to 1/2 of the tooth crown.
- **III Degree:** Coverage of more than 1/2 of the tooth crown, sometimes reaching the incisal edge.

3. Treatment Strategies

Management follows a phased approach, starting from the least invasive methods.

- **Phase I: Etiotropic Therapy (Removal of Causes)**
  - Professional oral hygiene (ultrasonic scaling and Air-Flow).
  - Replacement of faulty restorations and correction of orthodontic anomalies.
  - Consultation with an endocrinologist or GP to stabilize systemic health or adjust medications.
- **Phase II: Conservative Treatment**
  - **Antiseptics:** Chlorhexidine gluconate (0.12%) rinses.
  - **Anti-inflammatory:** Gels containing metronidazole or lidocaine for the edematous form.
  - **Sclerotherapy:** For the edematous form, injecting sclerosing agents (e.g., glucose or calcium chloride) can help shrink the tissue.
- **Phase III: Surgical Treatment**
  - Necessary for the **Fibrous form** or III Degree hypertrophy.
  - **Gingivectomy:** Removal of excess tissue using a scalpel, electrosurgery, or Diode Laser. Laser treatment is preferred currently due to its hemostatic properties and faster healing.

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4. Prevention (Prophylaxis)

- **Primary Prevention:** Maintaining rigorous oral hygiene (brushing twice daily, flossing) and biannual dental check-ups.
- **Secondary Prevention:** Early detection of malocclusion in children and monitoring patients on high-risk medications.
- **Patient Education:** Instructing patients on the importance of "nasal breathing" and the use of interdental brushes.

Discussion

The findings suggest that the **edematous form** is highly reversible if the irritant is removed and hygiene is improved. However, the **fibrous form** represents a permanent structural change in the connective tissue, making surgical intervention the only viable path to restoring function and aesthetics.

A critical observation in modern periodontology is the role of the "host response." Two patients with the same amount of plaque may react differently; one may develop simple gingivitis, while another develops severe hypertrophy due to genetic or hormonal predisposition. Therefore, treatment must be personalized. For instance, in pregnant patients, surgery is usually deferred until postpartum unless the enlargement interferes with mastication.

The advent of **Diode Lasers** has revolutionized the treatment of the fibrous type, reducing postoperative pain and the risk of infection compared to traditional cold-scalpel techniques.

Conclusion

Hypertrophic gingivitis is a complex condition that requires a multidisciplinary approach involving dentists, orthodontists, and sometimes primary care physicians. While the edematous form responds well to conservative therapy and improved hygiene, the fibrous form typically requires surgical correction.

Success in treatment is not defined by the surgery itself, but by the prevention of recurrence. This is achieved through strict maintenance of oral hygiene and the elimination of local irritating factors. Regular professional monitoring is essential, particularly for patients with systemic risk factors, to ensure long-term periodontal stability.

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