



Case Series

## Clinical and Histopathological Evaluation of Gingival Enlargement: A Case Series of Diverse Etiologies

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Received: 07-06-2026

Accepted: 25-06-2026

Available online: 21-07-2026

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Medical and Pharmaceutical Research

### ABSTRACT

**Background:** Gingival enlargement is a common clinical condition with diverse etiologies ranging from inflammatory and drug-induced to reactive and neoplastic processes. Accurate diagnosis is essential for appropriate management. This case series describes the clinical presentation, etiological diversity, histopathological findings, and management of six patients with gingival enlargement.

**Methods:** Six patients presenting with gingival enlargement were evaluated through detailed clinical examination, radiographic assessment, and histopathological analysis. Nonsurgical periodontal therapy followed by appropriate surgical interventions was performed. Excised tissues were subjected to histopathological examination, and patients were followed up to assess healing and recurrence.

**Results:** The cases included idiopathic, drug-induced, reactive, and neoplastic gingival enlargements. All patients showed satisfactory healing following surgical management. Histopathological evaluation confirmed the clinical diagnosis in each case. No recurrence was observed during the follow-up period.

**Conclusion:** Gingival enlargement represents a spectrum of conditions requiring careful clinical and histopathological evaluation. A systematic diagnostic approach combined with appropriate therapeutic intervention ensures accurate diagnosis and favorable clinical outcomes.

**Keywords:** *Gingival enlargement; Gingival hyperplasia; Case series; Histopathology; Periodontics.*

### INTRODUCTION

Gingival enlargement is a common clinical finding in periodontal practice and represents an increase in the size of the gingival tissues due to a variety of etiological factors. It may arise as a result of inflammatory changes, drug-induced alterations, systemic conditions, neoplastic processes, or idiopathic causes<sup>1</sup>. Based on distribution, gingival enlargement can be localized or generalized, and according to anatomical involvement, it may be marginal, papillary, or diffuse<sup>1</sup>.

Gingival overgrowth may lead to functional impairment, including difficulty in mastication and speech, as well as aesthetic concerns that can significantly affect a patient's quality of life. Furthermore, enlarged gingival tissues can create niches for plaque accumulation, thereby exacerbating periodontal inflammation<sup>2</sup>.

Management of gingival enlargement depends on the underlying etiology and may include nonsurgical periodontal therapy, elimination of contributing factors, and surgical intervention such as gingivectomy or excisional biopsy<sup>3</sup>. Histopathological examination remains the gold standard for definitive diagnosis, particularly in suspicious lesions<sup>4</sup>.

### CASE SERIES

#### Case 1:

A 14-year-old female presented with a chief complaint of generalized gingival enlargement in both arches for 3 months. The patient was edentulous since childhood with no relevant medical or family history. Extraoral examination was unremarkable. Intraoral examination revealed generalized Grade III, firm, non-inflammatory, pigmented gingival

enlargement covering the alveolar ridges. Radiographic evaluation showed a root stump in relation to #46 and caries in #36.

Following phase I therapy, sextant-wise external bevel gingivectomy was performed under local anesthesia. Histopathological examination revealed dense fibrous connective tissue with increased fibroblasts and acanthotic epithelium with elongated rete ridges, suggestive of idiopathic gingival fibromatosis. The patient was kept under regular follow-up.



Figure 1: Clinical and histopathological features of idiopathic gingival enlargement.

(A) Preoperative profile view.

(B) Post-gingivectomy view.

(C) Histopathological image

### Case 2:

A 45-year-old female presented with swollen gums associated with spacing and malalignment of anterior teeth. Medical history revealed hypertension under medication (amlodipine 10 mg). Intraoral examination showed generalized fibrotic gingival enlargement with probing depths ranging from 4–7 mm. Radiographic findings indicated generalized bone loss and a periapical lesion in relation to #36.

After consultation with the physician, the drug was substituted. Initial periodontal therapy was performed, followed by extraction of #42, #41, and #31 along with gingivectomy. Histopathological evaluation confirmed inflammatory fibroepithelial hyperplasia. Prosthetic rehabilitation was carried out, and the patient was maintained under periodic follow-up.



Figure 2: Drug-induced gingival enlargement.

(A) Preoperative clinical presentation.

(B) Post-surgical outcome.

(C) Histopathological features consistent with fibroepithelial hyperplasia.

### Case 3:

A 48-year-old male presented with a localized gingival overgrowth in the upper right posterior region associated with bleeding on brushing. The patient had a history of tobacco use for 10 years. Clinical examination revealed a well-defined, pedunculated, firm, erythematous lesion measuring approximately 12 × 10 mm in relation to #13 and #14.

Following initial periodontal therapy, complete surgical excision of the lesion was performed under local anesthesia. Histopathological examination revealed features consistent with fibrous epulis. The patient was advised cessation of tobacco use and maintained under follow-up.

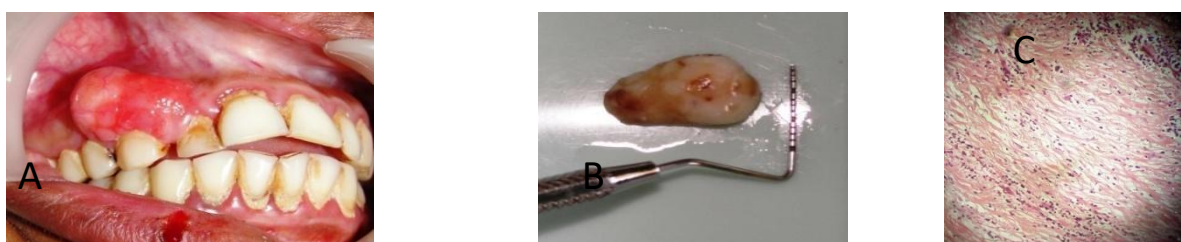


Figure 3: Fibrous epulis.

(A) Preoperative lesion.

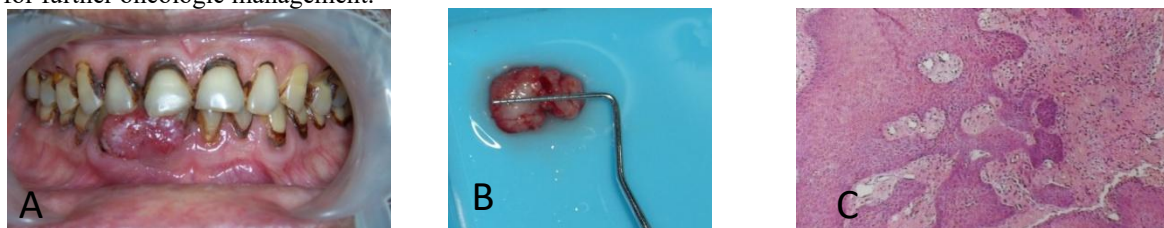
(B) Excised tissue specimen.

(C) Histopathological features showing fibrous proliferation.

#### Case 4:

A 61-year-old male presented with a localized gingival growth in the lower anterior region associated with bleeding. The patient had a long-standing history of tobacco quid placement. Clinical examination showed a pedunculated, firm, erythematous lesion measuring approximately 15 × 8 mm in relation to #31 and #41.

The lesion was surgically excised under local anesthesia and sent for histopathological evaluation. Microscopic findings revealed features suggestive of well-differentiated squamous cell carcinoma. The patient was referred to a higher center for further oncologic management.



**Figure 4:** Gingival squamous cell carcinoma.

(A) Clinical presentation.

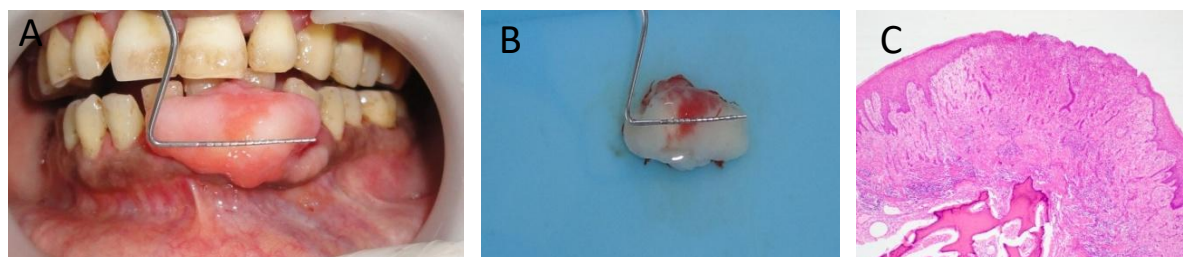
(B) Excised lesion.

(C) Histopathological features showing malignant epithelial changes.

#### Case 5:

A 53-year-old male presented with a localized gingival enlargement in the lower anterior region for 6 months. Clinical examination revealed a pedunculated, firm, non-tender lesion measuring approximately 15 × 10 mm in relation to #31, #32, and #41, with bleeding on probing.

Following scaling and root planing, surgical excision was carried out. Histopathological examination confirmed the diagnosis of peripheral fibroma. The patient was kept under regular follow-up with reinforcement of oral hygiene measures.



**Figure 5:** Peripheral fibroma.

(A) Preoperative lesion.

(B) Postoperative healing.

(C) Histopathological features confirming diagnosis.

#### Case 6:

A 35-year-old female presented with a progressively enlarging gingival mass associated with difficulty in mouth closure and intermittent bleeding. No relevant medical or habit history was reported. Extraoral examination revealed facial asymmetry and lip incompetence. Intraoral examination showed a large gingival growth extending from #11 to #14 involving both labial and palatal aspects.

After initial periodontal therapy, the lesion was surgically excised under local anesthesia. Histopathological findings were consistent with capillary hemangioma, characterized by numerous proliferating capillaries within connective tissue stroma. The patient was advised regular follow-up.



**Figure 6:** Capillary hemangioma.

(A) Preoperative lesion.

(B) Histopathological features showing vascular proliferation.

(C) Postoperative outcome.

## DISCUSSION

Gingival enlargement represents a heterogeneous group of conditions with varied etiologies, including inflammatory, drug-induced, reactive, and neoplastic processes. Accurate diagnosis is essential, as clinical presentation alone may be insufficient to differentiate among these entities. Recent studies have emphasized that gingival enlargements often present with diverse clinical and histopathological features, making biopsy essential for definitive diagnosis<sup>5</sup>.

Idiopathic gingival fibromatosis, as observed in Case 1, is a rare condition characterized by slow, progressive, fibrotic enlargement of the gingiva and is often associated with genetic predisposition<sup>6</sup>. Surgical intervention remains the treatment of choice; however, recurrence is common, necessitating long-term follow-up<sup>6</sup>.

Drug-induced gingival enlargement, as seen in Case 2, is frequently associated with calcium channel blockers such as amlodipine. The pathogenesis involves altered fibroblast activity and increased extracellular matrix deposition<sup>7</sup>. Literature highlights that drug substitution along with periodontal therapy plays a crucial role in management<sup>8</sup>.

Reactive lesions such as fibrous epulis and peripheral fibroma (Cases 3 and 5) are commonly associated with local irritants and are effectively managed by surgical excision along with elimination of etiological factors<sup>9</sup>.

Case 4 highlights the diagnostic challenge of gingival lesions mimicking benign enlargements but representing malignant pathology. Gingival squamous cell carcinoma may resemble reactive lesions, leading to delayed diagnosis. Histopathological examination is therefore mandatory, especially in high-risk patients<sup>10</sup>.

Capillary hemangioma, as presented in Case 6, is a benign vascular lesion that may clinically mimic other gingival enlargements. Histopathological evaluation is essential for confirmation<sup>11</sup>.

Overall, gingival enlargement should be approached systematically, with emphasis on accurate diagnosis, elimination of etiological factors, and appropriate management to achieve favorable outcomes.

## Clinical Significance

This case series highlights the importance of early diagnosis and histopathological evaluation in gingival enlargements to differentiate benign, reactive, and malignant lesions, thereby ensuring appropriate management and improved patient outcomes.

## CONCLUSION

Gingival enlargement encompasses a wide spectrum of conditions ranging from inflammatory and reactive lesions to drug-induced and neoplastic processes. As clinical presentation alone may be misleading, a comprehensive diagnostic approach incorporating clinical, radiographic, and histopathological evaluation is essential<sup>4</sup>.

Early diagnosis and appropriate management are crucial to prevent disease progression and improve patient outcomes. An individualized, multidisciplinary approach is necessary for successful treatment and long-term maintenance.

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