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# False gingival enlargement as a diagnostic problem: a case report

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**Dates:**
Accepted 17 October 2007

**To cite this article:**
*Int J Dent Hygiene* **6**, 2008; 68–71
Kesić L, Mihailović D, Pešić Z, Obradović R. False gingival enlargement as a diagnostic problem: a case report.



**Abstract:** The aim of the case report was to describe gingival enlargement in a patient who came to the Department of Oral Medicine and Periodontology at Niš Dental Clinic. After anamnesis had been taken, and following clinical examination, laboratory blood analysis, radiological examination and pathological examination, it was established that gingival enlargement was a consequence of medicament injection. We are of the opinion that gingival enlargement was a consequence of sclerotic agent injection.

**Key words:** gingival enlargement; periodontal disease; sclerotic agents

## Introduction

Gingival enlargement is a common feature in gingival disease (1, 2). Many types of gingival enlargement can be classified in connection with aetiological factors and pathological changes (3–5).

**1.** Inflammatory enlargement: chronic and acute (6).
**2.** Drug-induced enlargement (7–12).
**3.** Gingival enlargements associated with systemic diseases:
**(a)** Conditioned enlargement (pregnancy, puberty, vitamin C deficiency, plasma cell gingivitis, non-specific conditioned enlargement-granuloma pyogenicum).
**(b)** Systemic diseases causing gingival enlargement (leukaemia and granulomatous diseases – Wegener's granulomatosis, sarcoidosis, etc.) (13–15).
**4.** Neoplastic enlargement (gingival tumours) – benign tumours and malignant tumours.
**5.** False enlargement – these enlargements are not real enlargements, but may appear as such as a result of increase in size of

the underlying osseous or dental tissue. The gingival tissue usually has no clinical signs of inflammation (16, 17).

Gingival enlargement is a fibrous overgrowth of gingival tissue that can be induced by various pharmacological agents through poorly understood mechanisms (9). It may occur because of hyperplasia or inflammatory processes. Unless a histological analysis is undertaken, the nature of the enlargement cannot be confirmed (6). Proliferative overgrowth of the gingival tissue makes it more difficult for patients to maintain oral hygiene (9, 18). Surgical correction of the gingival overgrowth is still the most frequent treatment. Such treatment is only advocated when the overgrowth is severe. It includes scalpel gingivectomy, overgrowth flap surgery, electro-surgery and laser excision (19).

## Case report

Patient ZG, male sex, 35 years of age, came to the Department of Oral medicine and Periodontology, Niš Dental Clinic because of the following problem: 6 months before, he had visited a private dentist in Leskovac with an intention of removing tooth calculus. After tooth calculus had been removed, the dentist injected a medicament into the gingival tissue once per week. After the third injection, the patient noticed that the gingival tissue started to enlarge and disturb him during toothbrushing.

Clinical examination: an abnormal bump, the size of a hazelnut, was present at the gingival area of the upper left second incisor and canines. The gingival tissue at this area was pale, firm and did not bleed at irritation (Fig. 1).

After removing the oral biofilm, obtaining laboratory results (which showed normal findings) and radiological examination, a surgery (removing of abnormal part of gingival tissue) was scheduled. It was noticed that the bone and periosteum were enlarged, and that they induced gingival 'swelling'. Taking into consideration the tumorous changes, a complete removal of the changed bone and gingival tissue from this area was conducted. The extirpated tissue was sent to histological verification. The histological analysis was performed by means of the standard haemotoxylin and eosin (HE) and it showed collagen enlargement in the gingival tissue and the presence of chronic inflammation (Fig. 2), as well as the bone structure which consisted of thin bone trabecules with osteoid at periphery. The post-operative follow-up was with no adverse events (Fig. 3).

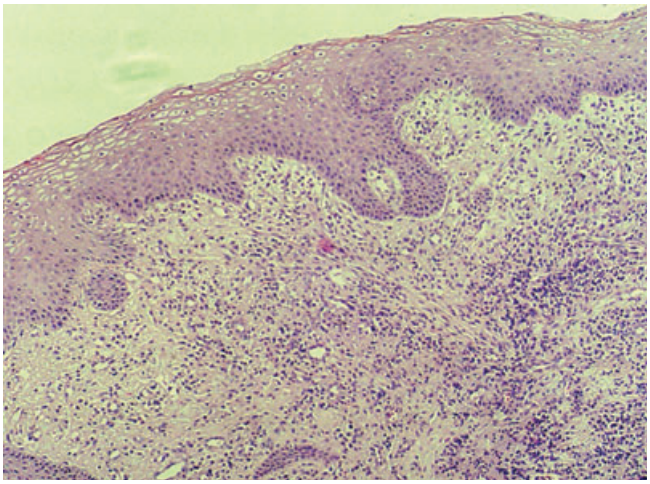

*Fig. 2.* Enlargement of collagen in gingival tissue. Focuses of chronical inflammation (HE, obj ×10).

*Fig. 1.* Clinical appearance.

*Fig. 3.* Clinical appearance after finished therapy.

## Discussion

Gingival enlargement can develop from chronic or acute inflammatory changes. Inflammatory gingival enlargement is usually secondary complication of other types of enlargement, and together they are called combined gingival enlargement. In these situations, it is very important to understand its double or multiple aetiology and to treat it adequately (3–5).

Acute inflammatory gingival enlargement results from bacteria which penetrated deeply into the tissue. Chronic inflammatory gingival enlargement is caused by prolonged exposure to oral biofilm and factors which are favourable for the accumulation of oral biofilm (20). Also, the administration of some drugs, such as anticonvulsants, immunosuppressant, calcium channel blockers, phenytoin, etc., can provoke gingival enlargement (18). Histological results of such enlargement show connective tissue and epithelium hyperplasia. In our case – the anamnesis, clinical investigation and histological analysis showed no reasons for such diagnosis. The histological analysis also showed bone structure which consisted of thin bone trabecules with osteoid at periphery. Such histological status points to the usage of sclerotic agents which injured periost, provoked subperiostal bleeding and later calcification.

Systemic diseases were excluded by diagnostic and laboratory tests (21). Tumours were excluded by histological investigation (11, 22–24).

The enlargement of the bone subjacent to the gingival area occurs most commonly in exostoses, but it can occur in Paget's disease, fibrous dysplasia, central giant cell granuloma, ameloblastoma, osteoma and osteosarcoma. In this case report, they were excluded by histological investigation, as well as radiological findings in this case report (4, 5, 11, 25–31). Because of the above-mentioned reasons, it can be assumed that the applied sclerotic agent therapy (the patient associates the time of gingival enlargement with the time of therapy) was the reason for gingival enlargement. It has been shown that a soft tissue injury in the vicinity of bone induces a periostal proliferation (30). Vascular disruption, as a consequence of a trauma, resulting in a transient ischaemia in the periosteum, would produce hypertrophy and hyperplasia of the periosteal cells, with an osteogen differentiation (28, 31).

Namely, classic periodontal therapy implies basic therapy with treatment of periodontal pockets. Also, other methods can be applied – surgical procedures, chemotherapeutics, antibiotics, physical methods, etc. (4, 5, 32–34). Some of these methods have had better and some worse results. But it is very important to have correct indications for certain method usage (18, 19).

Although the literature contains many references to phenytoin-, cyclosporine- and/or calcium channel blocker-induced gingival overgrowth, sclerotic agent-induced gingival overgrowth has not been reported. Similarly, an allergic reaction to a silicon-based dental material was noticed in a case report. It was shown that silicon can induce granulomatous reactions in the gingival tissue (35, 36). Deep application of sclerotic agents was first described by Hulin (cited by Petrović) (37). He described a range of sclerotic agents: calcium salts, especially phosphate salts, formaldehyde, hinine, urethane, methylene blue, etc. These agents were injected in the form of micro-drops using a sharp needle circularly around the tooth (in correlation with patient's anamnesis data). In this way, dense fibrous rings originate around the tooth. After retraction of the fibrous tissue, the depth of periodontal pocket reduces. Success cannot be achieved rapidly and improvements occur after few months, and both the patient and the therapist must have patience.

## Conclusion

If we want to avoid complications of periodontal therapy, it is necessary to have good knowledge of the anatomy-morphological characteristics of oral cavity, periodontal therapy techniques and possible unfavourable occurrences to which we have to react in a timely manner and to recognize the cause of gingival enlargement.

To the end of avoiding therapy mistakes, it is necessary to carry out diagnostic procedures and to avoid diagnostic problems such as problems caused by gingival enlargement.

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