Archives of Dental Research 2023;13(2):122–125

Content available at: https://www.ipinnovative.com/open-access-journals

Archives of Dental Research

Journal homepage: https://www.adr.org.in/

Case Report

A case report of plaque-induced gingival enlargement - unlike the ordinary

Raaja Sreepathy CS[1]*, D Lekha Alanija[1], C. Vikram[1], Arunmozhi Ulaganathan[1], Shanmugapriya Ramamurthy[1], Rathinasamy Kadhiresan[1]

[1] *Dept. of Periodontics and Implantology, Sri Venkateswara Dental College and Hospital, Chennai, Tamil Nadu, India*

ARTICLE INFO

Article history:
Received 01-10-2023
Accepted 30-11-2023
Available online 18-12-2023

Keywords:
Gingival Overgrowth
Gingival Hyperplasia
Gingival
Hypertrophy

ABSTRACT

Gingival enlargements are one of the most common conditions affecting the periodontium. These enlargements occur due to a variety of factors, like plaque accumulation, hormonal changes, or systemic drug influence. Improper oral hygiene and microbial dysbiosis predispose an individual to plaque-induced gingival enlargement. The treatment strategy involves thorough oral prophylaxis and stringent oral hygiene maintenance. Described here is a case report of plaque-induced gingival enlargement, which has been managed with complete non-surgical and localized surgical periodontal therapy. The therapeutic intervention significantly reduced clinical parameters like bleeding on probing and periodontal pocket depth.

1. Introduction

The continual exposure of the oral mucosa to internal and external stimuli results in a wide range of disorders, from developmental to reactive to malignant. A majority of oral mucosal lesions that affect people are reactive in origin. As a result of a reaction to a low-grade injury, irritation, calculus, or prosthetic appliances or restorations that were incorrectly shaped and created, these lesions are known as reactive lesions. Chronic irritation increases the growth of granulation tissue in the early stages. Inflammatory gingival enlargement can be classified as acute or chronic, with chronic alterations occurring more frequently.[1] Prolonged exposure to plaque leads to chronic inflammatory gingival enlargement (CIGE). Inflammatory gingival enlargements caused by plaque may not resolve if the gingival tissue is fibrotic, leading to the persistence of the periodontal pocket and making it challenging to maintain proper oral hygiene.[2] This can cause further inflammation and plaque build-up, continuing the vicious cycle. Gingival overgrowth has a complex origin, and it is caused by a variety of plaque or linked to hormone imbalances. Intake of systemic drugs for various systemic conditions like hypertension, etc has been proven to have an effect on the gingiva. Drugs like amlodipine, phenytoin, etc are commonly reported to cause gingival enlargement. The influence of hormonal changes will also implicate changes in the gingiva mainly during puberty and pregnancy.[3] Functional issues including trouble chewing, impaired speech, and aesthetics are brought on by these enlargements.[4]

In 1987, Mc Gaw et al., graded gingival overgrowth[5]

1. Grade 0: No overgrowth, feather-edged gingival margin,
2. Grade 1: Blunting of ginigval margin,
3. Grade 2: Moderate gingival overgrowth (one-third of crown length),

* *Corresponding author*.
E-mail address: csraaja@gmail.com (Raaja Sreepathy CS).

https://doi.org/10.18231/j.adr.2023.024

4. Grade 3: Marked gingival overgrowth (more than one-third of the crown).

This overgrowth was later enhanced by Bokenkamp et al., in 1994 graded gingival over growth:[6]

1. Grade 0: No sign of enlargement,
2. Grade 1: Enlargement confined to interdental papilla,
3. Grade 2: Enlargement involving interdental papilla and marginal gingiva,
4. Grade 3: Enlargement covering three-quarters of the crown of the tooth or more.

The treatment of choice for gingival enlargement is gingivectomy and the first mention of gingivectomy dates to 1742, when Fauchard describes the method for removing too much tissue. Later, Robicsek reported a similar process where the granulation tissues were eliminated and the tissues were excised.[7]

The underlying causes of gingival enlargement and the subsequent changes they cause in the tissues are the basis for the treatment strategies used to treat it. The main modes of treatment include compiling a thorough medical history, noninvasive periodontal therapy, and surgical excision to maintain aesthetic and functional requirements.

This case report depicts a case of chronic inflammatory gingival enlargement and its management strategy. These enlargements often correspond to an ongoing bacterial plaque buildup. Regular professional oral prophylaxis and good patient compliance are mandatory in the management of such cases.

2. Case Report

A 20-year-old female patient reported to the Department of Periodontics and Implantology, at Sri Venkateshwara Dental College and Hospital, Chennai, with a chief complaint of swollen gums in both upper and lower front teeth region for the past 6 months. The patient also reported bad breath and bleeding gums while brushing. On intra-oral examination painless, Grade II type of Gingival enlargement was found (Bokenkamp, 1994). Gingival examination reveals erythematous marginal and papillary gingiva with soft and edematous consistency in the maxillary and mandibular arches, with the labial and buccal aspects being more noticeable than the palatal and lingual regions. The gingiva appeared friable and soft with a smooth and shiny surface, loss of stippling, and obliterated contour. There was the presence of false pockets (pseudo pockets). Some regions showed signs of ongoing acute inflammation.

Periodontal examination revealed the presence of sub-gingival plaque, calculus, and bleeding on probing. The enlargement was diffuse, soggy in appearance with a probing depth of around 5mm and generalized gingival bleeding on probing Slight ballooning of the interdental

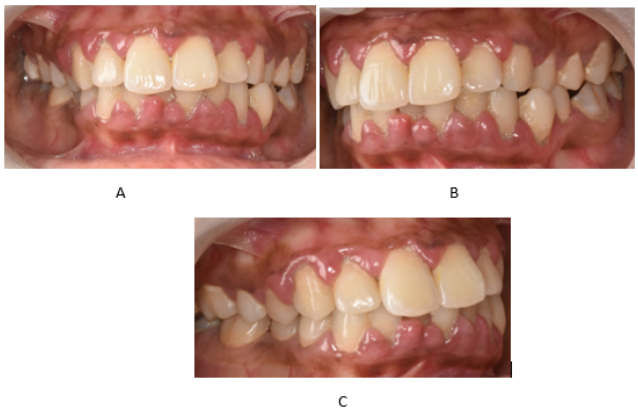

Figure 1: (**A**): Preoperative facial view **(B):** Preoperative left lateral view (**C**): Preoperative right lateral view

Figure 2: Post non-surgical periodontal therapy

Figure 3: External bevelgingivectomy

papilla was seen in the mandibular anterior. There was no systemic, family, or drug history reported.

On the basis of medical history and intra-oral examination, a provisional diagnosis of Chronic inflammatory gingival enlargement was made. Orthopantomogram results showed no bone deficiencies and complete hemogram readings were within the normal range.

2.1. Treatment done

Non-surgical periodontal therapy was initiated. Complete Ultrasonic Scaling was done on both arches. After 2 weeks, there was some amount of resolution of Gingival

Figure 4: (A): Post-operative healing after 12 Weeks **(B):** Left lateral post-operative after 12Weeks **(C):** Right lateral post-operative after 12 Weeks

Enlargement with no bleeding on probing. So, root surface debridement was planned. Under local anesthesia (2% lignocaine hydrochloride with 1:80,000 epinephrine), curettage was performed in the anterior maxillary and mandibular arch with the help of Gracey curettes # 1, 2, 3, 4,5,6. The patient was advised to perform proper oral hygiene maintenance and trained in the proper brushing technique (Modified Bass Technique).

Chlorhexidine 1.2% mouthwash was prescribed and warm saline rinses were advised along with it. The patient was recalled in 14 days. On the basis of the existing enlargement, a gingivectomy with a scalpel was planned. Prior to the surgery, written informed consent was obtained. Under local anesthesia, an external bevel gingivectomy was carried out. Tin foil was placed as a barrier and the area was covered with a periodontal pack.

Immediately following surgery, ice packs were recommended intermittently for three hours and the patient was advised to use 0.12% chlorhexidine gluconate mouth rinse for four weeks. Systemic antibiotics and analgesics were prescribed (Amoxicillin-500 mg, three times daily for five days). Healing was uneventful with very minimal post-operative pain. Recall check-up showed uneventful healing and the patient was followed for the next 6 months at a regular interval of 1 month. The patient was recalled after 1 month for review.

3. Discussion

A typical sign of gingival disease is gingival enlargement, which can be brought on by gingival inflammation, fibrous overgrowth, or a combination of the two.

Gingival enlargement can be classified according to etiologic factors and pathologic changes.[8]

- Inflammatory enlargement

1. (a) Chronic

   (b) Acute

- Drug-induced enlargement
- Enlargement associated with systemic disease

A. Conditioned enlargement

1. Pregnancy
2. Puberty
3. Vitamin C deficiency
4. Plasma cell gingivitis
5. Nonspecific

B. Systemic diseases causing gingival enlargement

1. Leukemia
2. Granulomatous diseases

• Neoplastic enlargement:

1. Benign tumors
2. Malignant tumors

• False enlargement

The most common form of enlargement is inflammatory which is due to plaque-induced inflammation of the gingival tissues. It can be localized or generalized, exaggerated by hormonal effects, as seen in puberty or pregnancy, or complicated by certain systemic medications. Both adults and teenagers are frequently affected by this condition. Most cases have been reported in the fourth to sixth decade of life, determining a direct relationship between the frequency of the injury with the increased time of use of the prosthesis; a minority (<5%) of the cases occurs in children, especially in those who are in mixed dentition.

Local factors that cause inflammation to increase are self-reinforcing since it is frequently difficult to thoroughly clean the "pseudo pockets" created by swollen tissue. Halitosis may occur due to the collecting bacteria breaking down food debris. While local etiologic causes are nearly always present in cases of inflammatory-type gingival enlargement, a number of significant systemic variables may also contribute to the issue and jeopardize the effectiveness of treatment intended to eliminate focal irritants.[9]

4. Conclusion

The definitive diagnosis of the causative factors, improvement of oral hygiene, aesthetics, and function by removal of local factors, and surgical removal of the overgrowth are all essential for the successful treatment of gingival enlargement. This case report demonstrates the value of a thorough case history and clinical examination in the management of enlargements. Plaque and calculus, which are local factors, are known to contribute to gingival hypertrophy. As a result, oral prophylaxis and routine check-ups are crucial components of supportive periodontal treatment that cannot be overlooked.[10]

5. Source of Funding

None.

6. Conflict of Interest

None.

References

1. Carranza FA, Hogan E, Newman MG, Takei HH, Klokkevold PR, Carranza FA. Inflammatory gingival enlargement-a case report. *J Adv Med Dent Sci*. 2006;1(3):109–22.
2. Tomar N, Vidhi M, Mayur K. Inflammatory gingival enlargement-a case report. *J Adv Med Dent Sci*. 2014;2:109–122.
3. Bharti V, Bansal C. Drug-induced gingival overgrowth: The nemesis of gingiva unravelled. *J Indian Soc Periodontol*. 2013;17(2):182–7.
4. Lindhe J, Karring T, Lang NP. Clinical periodontology and implant dentistry. 6th ed. Iowa: Blackwell Publishing Ltd; 2003. p. 1480.
5. Mcgaw T, Lam S, Coates J. Cyclosporin-induced gingival overgrowth: Correlation with dental plaque scores, gingivitis scores, and cyclosporin levels in serum and saliva. *Oral Surg Oral Med Oral Pathol*. 1987;64(3):90007–14.
6. Bokenkamp A, Bohnhorst B, Beier C, Albers N, Offner G, Brodehl J. Nifedipine aggravates cyclosporine A-induced gingival hyperplasia. *Pediatr Nephrol*. 1994;8(2):181–6.
7. Newman M, Takei HH, Klokkevold PR, Carranza FA. Gingival surgical technique. Carranza's clinicall periodontology. St Louis: W.B. Saunders Co; 2010. p. 872.
8. Newman MG, Takei HH, Klokkevold PR, Carranza FA. Carranza's clinical periodontology. 11th ed. St. Louis, Mo: Elsevier; 2012. p. 872.
9. Hassell TM, Jacoway JR. Clinical and scientific approaches to gingival enlargement. *Quintessence Int Dent Dig*. 1980;11(10):53–60.
10. Anuroopa DP, Savita S. Importance of Supportive Periodontal Therapy in the Treatment of Inflammatory Gingival Overgrowth: A 12 Month Follow- Up. *Scholars J Dent Sci* . 2015;2(2A):140–3.

Author biography

Raaja Sreepathy CS, PG Student https://orcid.org/0000-0002-0145-857X

D Lekha Alanija, PG Student https://orcid.org/0000-0002-4852-3156

C. Vikram, Senior Lecturer https://orcid.org/0009-0008-6370-639X

Arunmozhi Ulaganathan, Professor and Head https://orcid.org/0000-0002-6061-6654

Shanmugapriya Ramamurthy, Professor https://orcid.org/0000-0003-2121-4932

Rathinasamy Kadhiresan, Professor https://orcid.org/0000-0002-9606-2964

Cite this article: Raaja Sreepathy CS, Lekha Alanija D, Vikram C, Ulaganathan A, Ramamurthy S, Kadhiresan R. A case report of plaque-induced gingival enlargement - unlike the ordinary. *Arch Dent Res* 2023;13(2):122-125.