



RECURRENT LOCALIZED CHRONIC GINGIVAL ENLARGEMENT IN FIXED ORTHODONTIC TREATMENT- A NOVEL CASE REPORT

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ABSTRACT

Gingival enlargement is a common clinical problem which mostly occurs with clinical evidence of local irritation. However, gingival enlargement is a more common sequel of orthodontic treatment than other manifestations. It is generally considered that enlargement will resolve on removal of orthodontic appliances. A case of 12 year old male with maxillary and mandibular localized chronic inflammatory gingival enlargement associated with prolonged orthodontic therapy is reported here. This case contradicts previous ideology of orthodontic appliance removal for resolution of gingival enlargement and advocates surgical management for such condition.

Keywords: Gingival enlargement, Gingivectomy, fixed orthodontic treatment, nickel allergy.

INTRODUCTION

Gingival enlargement is a common clinical problem. Most of the causative factors that may lead to an unusual hyperplastic tissue response to chronic inflammation is usually associated with local irritants such as plaque, calculus and bacteria. ¹Genelhu et al and Kouraki et al observed that gingival enlargement is however more common sequel of orthodontic treatment than other manifestations. ^{2, 3}Gingival enlargement can begin within 1- 2 months after placement of appliances. Fibrous gingival enlargements associated with fixed orthodontic appliances are considered to be transitory and it is thought that enlargement resolves on removal of orthodontic appliances. ⁴ However, this was contradicted by Ramadan as he observed that resolution may not be complete even after removal of orthodontic appliances. ⁵ Eliadas et al stated that gingival enlargement associated with orthodontic appliances is usually associated with the inflammatory response induced by the corrosion and emphasis has been placed on nickel. ⁶Holmstrup & Vanarsdall mentioned that inflammatory gingival enlargement is considered as type 4 hypersensitivity and is manifested as nickel allergic contact stomatitis. ^{7, 8} Nickel may activate monocyte and epithelial cells, suppressing or promoting the expression of intracellular adhesion molecule 1 by endothelial cells, mostly depending on its concentration. ⁹

Pubmed and EBSCOhost search revealed many cases of gingival enlargement however there is

no case report published mentioning the orthodontic treatment induced gingival enlargement related to nickel release from the orthodontic appliances. So this case report presents a case of recurrent localized chronic inflammatory gingival enlargement which is recurrent in type.

CASE REPORT

A 12 year old male patient undergoing fixed orthodontics therapy reported to the Dept of Paedodontics & Preventive Dentistry, K M Shah Dental College & Hospital, Piparia, Gujarat with chief complain of gum enlargement. On intraoral examination, pink colored gingival enlargement was seen with bleeding on probing. (Fig. 1) Consistency of gingiva was fibrous. Pocket depth examination of all teeth revealed 5 mm pockets in relation with 25 26 36 35 33. However, the increased pocket depth was because of gingival enlargement and not because of actual attachment loss.

For investigation purpose, patient was advised Intra Oral Periapical Radiographs for radiographic examination to rule out bone loss and complete blood examination to check for any abnormalities suggestive of infection, allergic reaction or blood disorder such as bleeding disorder, anemia etc. Clinical examination and investigations confirmed diagnosis of chronic inflammatory gingival enlargement was given.

Patient was advised removal of orthodontic band from 26 and 36 & brackets from 25 35 & 33 and thorough oral prophylaxis was done. As

homecare oral hygiene maintenance 0.2% chlorhexidine mouthwash was prescribed along with brushing. However, on one month follow up it did not show any regression hence the surgical intervention was advised and Gingivectomy procedure was carried out. (Fig. 2 & 3) Patient was advised one month follow up with proper oral hygiene maintenance.

On one month follow up, no gingival enlargement was observed so bonding of orthodontic bracket was carried out. Patient was advised for further 6 months follow up to evaluate gingival health status.

On 6 month follow up it showed similar gingival enlargement (Fig. 4 & 5) in relation to above mentioned teeth and also on the contralateral side of the jaw, which required surgical intervention. Similar treatment regime was followed to treat the recurrence of gingival enlargement.

Orthodontist was advised for superior placement of brackets to avoid gingival contact. Further 6 month follow up was carried out which showed no recurrence of gingival enlargement.



Figure 1. Preoperative photograph showing gingival enlargement in relation to 26 25 36 35 33



Figure 2. Gingivectomy procedure in 26



Figure 3. Gingivectomy procedure in 36



Figure 4. 6 months follow up left side



Figure 5. 6 months follow up right side

DISCUSSION

Gingival enlargement varies from mild enlargement of isolated interdental papilla to segmental gingiva of uniform and marked enlargement affecting one or both of the jaws.

Orthodontic treatment induced gingival overgrowth shows very specific fibrous and thickened gingival appearance; which is different from fragile gingiva with marginal gingival redness, usually seen in inflammatory gingival lesions. Fibrous gingival enlargements associated with fixed orthodontic appliances seem to be transitory, and it is generally thought that enlargement resolves after orthodontic therapy. However, Ramadan's study concluded that resolution may not be complete.⁵ In our case also the gingival enlargement didn't resolve after removal of orthodontic brackets.

When chronic inflammatory gingival enlargement includes a significant fibrotic component that doesn't resolve completely after initial periodontal therapy, surgical removal is the treatment of choice. Commonly advocated surgical approaches for the treatment of gingival enlargement are Gingivectomy or the flap

technique.¹⁰ Considering this evidence after failing to obtain the complete resolution of gingival enlargement with primary periodontal therapy, Gingivectomy procedure was performed in our case.

However, on 6 months follow up the gingival enlargement was again observed. A study done by GURSOY et al concluded that continuing low dose of nickel released to the initiating factor in gingival enlargement from orthodontic treatment.⁴ This findings are supported by various other studies which confirms the chronic exposure to nickel from orthodontic appliance can cause gingival enlargement.^{7,8,9} In our case too, the gingival enlargement was observed after first 6 month follow up and not in later 6 month follow up when brackets were not in direct contact with Gingiva, which is supportive of previous studies. After second gingivectomy procedure patient was advised the follow up every 3 months to perform complete oral prophylaxis. As the disease progression is sought to occur only if bacterial factor acts post initiation of disease through nickel exposure.

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