The management of gingival hyperplasia on patient with orthodontic treatment

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Recently the orthodontic treatment needs had increased with the increased of community incomes. During treatment sometimes there is problem toward periodontal tissue. Fixed appliances that bonded to the teeth surface can cause difficulty in controlling the plaque especially in the marginal region that can cause the inflammation and gingival enlargement. Gingival enlargement due to the local irritation of the plaque can be treated with plaque control, scaling, root planing until surgery intervention. The aim of the treatment with surgical intervention for gingival enlargement is to eliminate the gingival pocket so the patient can easily clean the teeth and the disease will not continue. Beside that the gingival contour will recover and become normal again

Key words: gingival hyperplasia, gingivectomy, orthodontic treatment

Introduction

Orthodontic care performed by fixed appliance or removable appliance sometime causing adverse effect on periodontal appliance directly or indirectly. Direct effect like mobile teeth or even necrose, while the indirect effect like plaque making patient difficult to do plaque control because there is device attached to teeth. Study has suggested that the difficulties in plaque control after orthodontic devices can cause gingival enlargement, namely *chronic inflammatory enlargement*. Plaque control difficulties can make plaque accumulation in marginal gingiva then inflammation process occurred enlarging the gingiva. Patients unable to do proper plaque control so the plaque easily adhere and accumulate this also called *plaque retention factors* \(^1,2\).

Other involving factor in this case is possibility that the patient still in developmental age or 15 years old. Several studies suggested correlation between gingivitis severity on puberty period \(^3\).
Clinical features show swelling over the marginal gingiva with plaque and calculus on supra and subgingival, painfull and prone to bleeding especially every teethbrushing.

In this study, a case report was explained related with gingiva enlargement care after fixed orthodontic appliance use and removable appliance intervened with gingivectomy and gingivoplasty surgery, but then recurred again. After education about proper plaque control and further surgery shows satisfying results.

Cases

A 15 years old man came to Periodontic Department Dentistry Faculty Hasanuddin University, Makassar, on September 25th, 2012 with pain on teethbrushing and bleeding after teethbrushing. Patient also complain of enlarged gum on the upper and lower jaw. Patient came with referral letter from Orthodontic department and already using fixed appliance in the last 1 year. In the referral letter explained that the patient already given antibiotics and antiinflammatory drugs but not showing satisfactory, thus he referred to Periodontic department for further care.

When presented in Periodontic Department, the general condition is healthy and cooperative both the patient and his parents. They wished that the patient’s gum condition getting better not merely the neat alignment of teeth.

From history taking to the patient and his parents, known that the patient only brush his tooth in the morning and rarely in the afternoon, for 3 minutes duration, backward and forward movement over the upper and lower jaw as well as towards the back and front teeth.

Swelling occurred 3 months ago and did not aesthetically disturbing. At that time, the bleeding after teethbrushing only occurred rarely and for certain time only. Pain was not felt yet, thus patient not bothered yet by the condition. Recently, patient really disturbed with the painful on teethbrushing and bad appearance of the gum, patient was afraid to brush his teeth properly because pain and fear of bleeding. The parents also complained bad smelling of his breath when patient talked. At that time, patient already given antibiotic (Amoxan 500 mg), and antiinflammation drugs (Cataflam 25mg) 3 times a day. Scaling could not be performed because painfull in scaling trial especialy over subgingiva area. Patient was asked to come to clinic 7 days afterwards.
On October 2\textsuperscript{nd} 2012 patient came again and gingiva swelling still there, but its color not too reddish, the pain was not felt anymore when subgingiva scaling performed. At this moment, scaling to whole plaque were possible to the supragingiva and subgingiva, the first time was performed on the upper jaw from the 14th tooth until the 24th tooth and were covered with \textit{periodontal pack}. Patient was asked to control again the upcoming week.

On October 9\textsuperscript{th}, 2012 patient control again, periodontal pack were released, proper healing was observed and gingiva shown normal criteria. Gingivectomy and gingivoplasty procedure were planned to be performed one week later.

On October 28\textsuperscript{th}, 2012 patient visited for control and gingivectomy and gingivoplasty were performed to the lower jaw, started from 34th tooth until the 44th, patient was instructed to control on the upcoming week.

On November 4\textsuperscript{th}, 2012, periodontal pack was released, the gingiva was still appeared reddish but satisfying result was shown. Patient was instructed to control again one week later.

On 16\textsuperscript{th} December, 2012, patient came to control again, lower jaw appeared swollen again, gingival pocket presented, and subgingival plaque was apparent. After we obtained information about how the patient brush his teeth and its duration, we found out that the wrong way of teethbrushing was still performed. Backward and forward movement of the brush with short duration (± 1-2 minutes) and brushing time was during shower and before breakfast, then dental health education was given to replace that habit.

Gingivectomy was redone again on the lower jaw and patient controlled again one month later. Patient visited again on February 3\textsuperscript{rd}, 2013, gingiva showed normal clinical appearance; gingival pocket was not found, normal gingiva colour, and no swelling was observed.
Before gingivectomy

After gingivectomy

Discussion

On this case according history taking and clinical examination, we found out the problem faced by the patient were complained of teethbrushing, bad appearance of gingiva, and foul breath. The complain of teethbrushing difficulty because of the pain and swollen gingiva occured that make the bad appearance of gingiva and plaque and calculus accumulation resulted on foul breath.

Based on history taking the toothbrushing method performed by backward and forward movement and only occured once a day and sometime twice a day, making the plaque quickly accumulated, in addition, the method and timing of teethbrushing after eat was not proper. From history taking, before fixed appliance was planted, he did the same method, but never causing gingiva inflammation. Fixed appliance indeed became one predisposing factor of the periodontal disease occurence. Beside that the age of patient when controlled was 15 years old, considered as puberty age. On that age, there was hormonal changes especially the growth hormone that make little induction toward the gingiva could lead to inflammation. \(^{1,3,4,5}\)

At first visit, patient presented with gingival swelling almost covering the crown, especially on the lower jaw, hence patient had difficulty on teethbrushing, but after
relieved by the antibiotics and antiinflammatory drugs one week later patient was already able to brush his teeth again but with caution and few bleeding sometimes occurred. After he underwent gingivectomy, gingiva appeared back to normal, but after two months, the swelling recurred. Based on history taking, the method of oral and teeth hygiene was improper, thus the plaque and calculus accumulated again and cause swollen gingiva. On the recent visit, he was given dental health education (DHE) and had follow up after one month. Better result was shown thereafter, then the second gingivectomy was performed. This case stressed the failure of operator in giving DHE at the first visit, which was considered uneffectively controlling the symptoms.

It is already well recognized that orthodontic devices like fixed appliance will limit the patient to brush his teeth, thus allowing plaque accumulation and other deposits adhere to the teeth and device surfaces. Therefore, the prevention demands longer period of teethbrushing, proper method, and specialized tooth brush. Current studies have shown that oral hygiene is strongly related to the gingiva inflammation and reversibility associated after scaling, curettage, and root planning interventions.1,3,6,7

Conclusion

According to this case report, it could be inferred that the orthodontic treatment especially fixed appliance could cause plaque accumulation resulting from difficulty of the patient in plaque control, eventually allowing gingiva inflammation to occur. Intense collaboration with periodontics department to monitor the periodontal tissue during the orthodontic treatment course significantly would optimize the outcome and preventing adverse events. Gingivectomy treatment performed in this case showed the magnitude importance of dental health education, because without proper education and oral – dental hygiene after operation might lead to disappointing result with unexpected adverse events.
References