

Soft Tissue Overgrowth on Transpalatal Arch during Orthodontic Treatment

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ABSTRACT

Background: The aim of this article is to present a case of soft tissue growth on the transpalatal arch during orthodontic treatment. A rare case of soft tissue growth on the transpalatal arch reported to the department of orthodontics. The loop of the transpalatal arch was completely buried in the soft tissue. The transpalatal arch was used for the purpose of reinforcing anchorage during orthodontic mechanotherapy. On examination the bands on both the side were loose and the transpalatal arch had slipped in the soft tissue. On removal of the transpalatal arch the soft tissue lesion healed uneventfully. The soft tissue growth can occur on the fixed appliance or a component of the appliance if it is in very close proximity with the mucosa. This change may or may not be reversible and care should be taken while placing and activating the appliance.

Keywords: Transpalatal arch, gingival growth, drug induced gingival hyperplasia.

INTRODUCTION

Orthodontic treatment is generally associated with some amount of gingival enlargement. The main cause of enlargement has been attributed to the inflammatory response. There is increased plaque retention and compromised hygiene because of the fixed appliance.¹ This inflammation of the gingiva because of plaque accumulation subsides after the appliance is removed.² Sometimes the gingiva does not subside completely after the orthodontic mechanotherapy. This can be due to prolonged orthodontic treatment and where the gingiva becomes fibrotic.^{3,4} In such cases the enlarged gingiva has to be surgically removed by gingivectomy procedures.

Gingival enlargement can also occur because of some other factors like drugs, medical conditions and ion leaching from the appliance. Amongst the drug induced gingival enlargement the phenytoin

and nifedipine are specifically causing drug induced gingival hyperplasia.⁵

CASE REPORT

A 18 year female patient undergoing orthodontic treatment in the department of orthodontics reported with soft tissue growth on the transpalatal arch. On examination it was found that the bands had become loose bilaterally. The transpalatal arch had been placed for the purpose of reinforcing the anchorage and initially had been kept clear of the soft tissue. Once the bands had become loose the transpalatal arch slipped close to the soft tissue on the palate and got covered (Figure 1) The oral hygiene of the patient was compromised and was complaining of pain on chewing. There was no history of any medical condition, pregnancy or use of drugs.

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Fig 1: Soft tissue overgrowth on the transpalatal arch.



Fig 2: Healed site after removal of transpalatal arch.

Case management

Oral prophylaxis was done as the first step and the loose bands and transpalatal arch was removed as a single unit. The transpalatal arch was teased out of soft tissue growth. The transpalatal arch could be retrieved without any excision as the growth was not fibrotic and tough. The area was cleaned and the transpalatal arch was removed for one visit. Patient returned after a week with reduced lesion. The site completely appeared normal after three weeks.

DISCUSSION

Phenytoin is a common antiepileptic drug; which acts on voltage-gated sodium channels in neural cells. It has been in the limelight of research for its effect on clinically detectable gingival overgrowth with a quoted prevalence figure of 50%^{6,7} Cyclosporin and calcium channel blockers, which are increasingly used for some cardiac diseases, immunosuppression and autoimmune disorders, also cause gingival enlargement.⁸

Researchers have also reported that ion leaching from orthodontic appliance is also responsible for causing gingival enlargement. Substantial amount of nickel and chromium ion are leached from the orthodontic appliance⁹

Corrosion products of the orthodontic appliance have been shown to cause labial desquamation and multiform erythema^{10,11}. Above mentioned conditions are rare more common clinical manifestation is gingival enlargement.¹² It is now well documented that low level of nickel exposure leads to significant increase in epithelial cell proliferation.¹³ significant amount of nickel leaches from the orthodontic appliance. This could be the probable cause of the overgrowth seen in this particular case. The transpalatal arch as seen in this case had slipped close to the soft tissue and caused irritation of the mucosa. Simply recementing the band and reestablishing the height of the transpalatal area resulted in regression of the growth completely.

It can be difficult to differentiate an allergic reaction from plaque induced inflammation. Experimental studies have shown to increase epithelial cell proliferation due to increase in cytokines and up regulation of keratinocytes. The soft tissue growth in this case does not seem to be because of heredity or drug induced. The patient completely ruled out any familial history of any such condition. Patient was not on medication which ruled out the possibility of drug induced gingival hyperplasia. The most probable cause for such enlargement seems to be inflammatory due to compromised hygiene and nickel sensitivity. The contribution of nickel sensitivity seems to be secondary as the patient was already wearing appliance for few months. The removal of transpalatal arch resulted in complete regression of the lesion.

CONCLUSION

There can be many reasons for abnormal soft tissue growth in the oral cavity. The most important reason for such growth is inflammatory. Patients wearing fixed appliances are prone to develop soft tissue proliferation due to increased plaque retention. All patients taking orthodontic treatment should be instructed to maintain good oral hygiene to avoid problems of decalcification and soft tissue overgrowth.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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