Gingival phenotype and success of root coverage by Tarnow’s technique: A case report and review of literature

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ABSTRACT

Various studies have documented that, gingival biotype plays a very important role in success of root coverage, thinner is the biotype less is the blood supply. Evidence gathered by various studies says that, thick gingival biotype allows us to make tissue manipulation better than thin tissue and it also resists trauma and subsequent recession. Thus the present case report discusses the success of root coverage in thick and thin gingival biotypes by Tarnow’s technique.

Key words: Gingival Recession, Tarnow's Technique, Biotype

INTRODUCTION

Previously, the significance of taking into thought the differences in gingival tissue during treatment planning has been emphasized. Specifically, it was pointed out how thick and thin gingival biotypes act in response to inflammation, restorative trauma, and parafunctional habits. If gingival biotypes behave different in different oral conditions, then it becomes important to assess tissue biotypes and success of root coverage.

Nonetheless, abundant empirical evidence suggests that thick tissue, subjectively determined, resists trauma and subsequent recession, promotes creeping attachment, improves implant esthetics, exhibits less clinical inflammation, and renders predictable surgical procedures (Borghetti and Gardella, 1990).

Thus the present case report discusses the success of root coverage in thick and thin gingival biotypes by Tarnow’s technique.

METHODOLOGY

Figure 1 is a thin gingival biotype in a female patient, with gingival thickness of 0.75 mm measured by Trans gingival probing (Savitha and Vandana, 2005) assessed by anaesthetizing the facial gingiva with infiltration using 2% Lidocaine Hydrochloride with 1:80,000 adrenaline injection. Using aUNC-15 probe the gingival thickness was assessed at the measurement points 20 min after injection. Measurements were then rounded up to the nearest millimeter (Savitha and Vandana, 2005). It was a Miller’s class I recession in relation to tooth #14. We planned out coronally advanced Semilunar flap technique given by Tarnow. In which split thickness flap is elevated and advanced coronally for root coverage. Figure 2 is a thick gingival biotype in a male patient, with gingival thickness of 1 mm measured by Trans gingival probing. It was also Miller’s class I recession in relation to tooth #11 and tooth # 21. The same Tarnow’s technique is employed for root coverage.

RESULTS AND DISCUSSION

Figure 3a shows immediate post operative position of the marginal gingival. Figure 3b shows 1 month post operative view showing relapse. Figure 4a shows the position of the gingival margin immediately after surgery and Figure 4b shows 1 month post operative view showing successful root coverage.

The successful root coverage in thick gingival biotypes could be explained by the fact that, A dense gingival biotype may reflect underlying osseous morphology; that is,
Figure 1. Pre operative picture. Class 1 gingival recession in a female patient with gingival thickness 0.75 mm measured by trans gingival probing.

Figure 2. Pre operative view of class 1 recession in 11 and 21. In a male patient with gingival thickness of 1 mm measured by transgingival probing.
**Figure 3a.** Gingival margin position immediate post operation by Tarnow's technique.

**Figure 3b.** Gingival margin 1 month post operation.
Figure 4a. Gingival margin immediately post operation by Tarnow's technique.

Figure 4b. Gingival margin 1 month post operation.
thicker the gingiva, the greater its bony support (Kois, 2004). By itself, thick soft tissue has two factors that encourage its survival. The first, a high volume of extracellular matrix and collagen, allows it to withstand collapse and contraction. Likewise, more layers of epithelial keratinization deflect physical damage and microbial ingress. The second and arguably more essential factor is its increased vascularity. Greater perfusion enhances oxygenation, clearance of toxic products, immune response, and growth-factor migration. In short, it boosts wound healing. Supraperiosteal vessels, for the most part, feed the free and attached gingiva in a caudocranial direction (vestibule to gingival margin [GM]) (Folke and Stallard, 1967).

Anastamoses of these structures and vessels from the bone and periodontal ligament (PDL), whose major sources are the superior and inferior alveolar arteries, exist such that some collateral circulation occurs upon surgical trauma. Flap survival depends on the degree of primary and collateral blood supply (Egelberg, 1966).

Ischemia results from a lack of either. Full-thickness flaps preserve gingival vascular patency and display dilation of the supraperiosteal vessels; if there is proper tissue adaptation, revascularization between flap and underlying bone establishes within days (Caffesse et al., 1981).

Conversely, split-thickness flaps leave fewer gingival capillaries intact, and subsequently, rely heavily on the compensatory blood flow from bone and PDL. If few vessels exist (that is, thin bone and unusually sparse vasculature) or if the flap itself has too few patent arterioles, necrosis results (Tissot and Sullivan, 1971).

Conclusion

Hypothetically, a thin full-thickness flap may react similarly to a split-thickness flap over an avascular area. Separated from its underlying collateral source, a thin full-thickness flap may not have sufficient blood supply to support itself, let alone a graft or other material inserted below it. Thus, the thicker the gingiva, the better the blood supply (Hwang and Wang, 2006), and better is the post operative healing. In this case report, we have discussed about thick versus thin gingival tissues and described why it is important to appreciate tissue biotypes during periplastic treatment planning.

REFERENCES


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