CORRESPONDENCE

Root flattening of malpositioned teeth is effective for achieving complete root coverage

Gingival recession identifies the location of marginal periodontal tissues apical to the cementoenamel junction. Causes of gingival recession include plaque-induced gingival inflammation, toothbrushing trauma, or malpositioning of teeth. Root coverage has become a common periodontal plastic surgery. However, periodontal plastic surgery is invasive for patients. A few case reports have demonstrated successful root coverage by nonsurgical therapy. The present study reports a case in which root flattening of malpositioned teeth was effective for achieving complete root coverage.

A 38-year-old Japanese woman presented at a private practice setting. Her chief complaints were poor aesthetic appearance and hypersensitivity of teeth #23 and #44. Both teeth were malpositioned toward the buccal aspect. The plaque control record was 37%. She used a hard-bristled toothbrush. The mid-buccal aspect of tooth #23 exhibited the following baseline clinical parameters: 4 mm recession depth, 4 mm recession width, and 1 mm width of keratinized tissue (Miller’s Class I recession). Root caries were present near the cementoenamel junction. The mid-buccal aspect of tooth #44 exhibited the following baseline clinical parameters: 2 mm recession depth, 2 mm recession width, and 2 mm width of keratinized tissue (Miller’s Class I recession) (Fig. 1A1 and B1). The pocket depth was 2 mm, and there was no bleeding on probing. She was a nonsmoker and was systemically healthy. After local anesthesia, an intracrevicular, scalloped, partial-thickness incision was made. The minimal flap was raised with a partial-thickness flap, and thorough root debridement was performed with rotary and hand instruments to obtain a smooth, detoxified surface. The convex root surface was flattened within the bony housing of the adjunct tooth. Step shape of the root surface near the cementoenamel junction was corrected meticulously using hand instruments. Then the root was polished with a fluoride paste. The partial-thickness flap was not sutured (Fig. 1A2 and B2). A clinical examination was performed at the 4-month postoperative visit. Root coverage was complete. Pocket depth was 1 mm, and there was no bleeding on probing (Fig. 1A and B).

Richman reported that tooth position within the alveolar bony housing strongly correlated with gingival recession. All teeth demonstrating more than 3 mm gingival recession presented with significantly prominent facial tooth contours. Most teeth presented with their root structures extending beyond the facial alveolar housing. In the present case, teeth #23 and #44 were positioned toward the buccal aspect of the alveolar bony housing. In the present case, achievement of root coverage might be attributed to the reduction of root convexity within the bony housing of the adjunct tooth and reduced mesiodistal distance between periodontal spaces, as has been suggested in free gingival grafts. The coronal shift of the gingival margin after reduction of root convexity could occur through a mechanism similar to creeping attachment after nonsurgical therapy. A controlled clinical study compared two modalities of root surface treatment used for obtaining root coverage. Root planing and polishing improved gingival recession significantly, compared to polishing alone. The present study suggested that root flattening of malpositioned teeth by polishing was effective for achieving complete root coverage.

Conflicts of interest
The authors report no conflicts of interest related to this study.

References


Kazunari Ando
Private Practice, Ibaraki, Japan

Shuichi Sato*
Department of Periodontology, Nihon University School of Dentistry, Tokyo, Japan
Division of Advanced Dental Treatment Dental Research Center, Nihon University School of Dentistry, Tokyo, Japan

*Corresponding author. Department of Periodontology, Nihon University School of Dentistry, 1-8-13, Kanda-Surugadai, Chiyoda-ku, Tokyo 101-8310, Japan.
E-mail address: satou.shuichi@nihon-u.ac.jp

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