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study

Entire papilla preservation technique in the regenerative treatment of deep intrabony defects: One-year results

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RELEVANT BACKGROUND

Different flap designs, such as the modified papilla-preservation technique (Tonetti & Cortellini, 1995) and the modified minimally invasive surgical technique (Cortellini & Tonetti, 2007), have been proposed in the past in the field of reconstructive therapies as ways to improve primary closure and thereby prevent early wound-healing failure. These techniques, however, include a horizontal or diagonal incision in the defect-associated papilla, which may be a risk factor for wound failure.

AIMS

The aim of this case series was to evaluate the clinical applicability and one-year outcomes of a novel surgical procedure – the “entire papilla preservation technique” (EPP) – in the regenerative treatment of isolated deep intrabony defects.

MATERIALS AND METHODS

Twelve systemically healthy non-smoking patients, exhibiting at least one site with a two- or three-wall intrabony defect with PPD and CAL ≥ 7 mm and an intrabony component ≥ 4 mm, were included in the study. After completion of a non-surgical treatment phase, all subjects reached full-mouth plaque and bleeding scores $\leq 20\%$. Clinical parameters (PD, CAL, REC) were recorded at baseline (≥ 3 months after completion of cause-related therapy), and 12 months after the surgical procedure.

Following a buccal intra-crevicular incision, a bevelled vertical releasing incision was performed in the buccal gingiva of the neighbouring interdental space and extending just beyond the mucogingival line to provide adequate access to the intrabony defect. A full-thickness mucoperiosteal buccal flap was raised and an interdental tunnel was prepared providing access to the defect-associated area. After removal of inflammatory tissue and debridement of the root surface(s), enamel matrix derivatives (Emdogain) and porcine-derived bone substitutes (Gen-Os) were applied.

All subjects received systemic Doxycycline during the first postoperative week and were enrolled in a maintenance recall programme on a weekly basis during the first month and, thereafter, once per month.

results

- Twelve patients with a total of 12 intrabony defects were evaluated 12 months after reconstructive surgery. Seven teeth in the maxilla (six incisors and one premolar) and five teeth in the mandible (two incisors, one cuspid, and two molars) were included. Good primary wound closure was obtained in all cases. At one year, mean PD-reduction was $7\pm 2.8\text{mm}$. No sites demonstrated residual pocket depth greater than 5mm. Ten sites showed PD of 2-3mm and two sites with 4-5mm.
- The mean CAL improvement was $6.83\pm 2.51\text{mm}$, with nine sites showing $\geq 6\text{mm}$ and three sites 4-5mm of attachment gain.
- No difference in recession from baseline to one year could be observed.
- A small improvement (statistically significant) regarding full-mouth plaque and bleeding scores was observed at one year.



LIMITATIONS

- Few subjects in total and the lack of a control group to evaluate the proposed surgical approach in comparison to other flap designs.
- The use of antibiotics may have prevented wound-healing failures, and thus makes it difficult to analyse the benefit of the suggested flap design.
- The suggested technique is operator-sensitive and will require excellent surgical skills and microsurgical equipment.
- Not applicable to all types of intrabony defects.
- No motivation is provided to explain the rationale behind the use of a combination of two different biomaterials.



CONCLUSIONS

- The tunnel-like EPP technique may decrease the risk of early wound failure and exposure of biomaterials.
- This approach may also provide optimal conditions for blood-clot stability.
- The technique can be used in two- and three-wall defects accessible from the buccal aspect.
- Furthermore, multi-centre, randomised, controlled trials are needed to confirm the outcomes obtained from this study.



IMPACT

- In cases of interdental two- or three-wall intrabony defects with an intact lingual wall, the technique may reduce soft-tissue complications following reconstructive treatment.
- If future clinical trials can confirm that the EPP technique causes minimal gingival recessions, this technique could be useful in aesthetically demanding situations, such as surgery in the frontal areas.



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