Treatment of multiple adjacent Miller Class I and III gingival recessions with a porcine acellular dermal matrix: 4 year results

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Methods

Aim

The aim of the present study was to evaluate the clinical results four years after treatment of multiple adjacent Miller Class I and III gingival recessions (R) treated with the modified coronally advanced tunnel (MCAT) in conjunction with a porcine acellular dermal matrix (PADM).

Methods

- Nine periodontally healthy non-smoking patients (7 female, mean age 37.5 ± 7.36 years) presenting at least 2 adjacent Miller Class I, II or III gingival recessions (depth ≥ 2mm) were included in the present study.
- In order to be included, patients had to be systemically healthy and have a good oral hygiene (full-mouth plaque score ≤25%, O’Leary).
- After receiving individual oral hygiene instructions and professional tooth cleaning all patients were treated with the MCAT as follows:
  - Following local anesthesia, the exposed root surfaces were root planed (Fig. a).
  - Using microsurgical blades and tunneling knives, mucoperiosteal flaps were raised beyond the mucogingival junction at each involved tooth (Fig. b-c); these flaps were then extended laterally from each recession forming a mucoperiosteal tunnel.
  - All muscle insertions and inserting collagen fibres were cut and released from the inner aspect of the tunnel, achieving a tensionfree movement of the flap towards coronally (Fig. d).
  - Interdental papillae were left intact, having only been slightly undermined.
  - A PADM (Mucoderm®, Bottiss Dental, Berlin, Germany) was trimmed for the entire recession area and soaked in sterile saline solution for 3 min (Fig. e).
  - By means of matress sutures, the membrane was pulled in the tunnel and fixed on the inner aspect of the flap (Fig. f).
  - The membrane was fixed at the CEJ of each treated tooth by means of suture sutures (6-0 Seralon, Serag-Wiessner) (Fig. f).
  - The tunnel flap was moved coronally and fixed by suture sutures, so as to cover completely the CM (Fig. g).

- The following parameters were evaluated at baseline and at 12 months after surgery: gingival recession depth (ED), width of attached gingiva (AG), probing pocket depths (PD) and clinical attachment level (CAL).
- The primary outcome variable was complete root coverage (CRC).

Results

- In total 41 recessions (Miller Class I: n=23/56.09%; Miller class III n=14, 34.14%) were evaluated after 4 years.
- At 1 and 4 years, statistically highly significant (p< 0.001) RC was obtained in all nine patients. MRC decreased from 72.05±30.18% at 1 year to 56.79±27.53% at 4 years.

Conclusion

- The use of MCAT+PADM represents a valuable treatment option for multiple adjacent maxillary and mandibular Miller class I and III gingival recessions providing long-term stability.

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The modified coronally advanced tunnel (MCAT)- surgical steps