JCP DIGEST 01 2019 SERIES

Selected from Journal of Clinical Periodontology VOLUME 46

Scientific release from the EFP

EFP European Federation of Periodontology

RAPPORTEURS

Oded Heyman, Adi Eden, Sharon Shany Kdoshim, and Sagy Talmor, with Prof Moshe Goldstein

AFFILIATION

Prepared by first-year residents of the Postgraduate Programme in Periodontology, The Hadassah–Hebrew University Medical Center, Jerusalem, Israel

study

Recession coverage: connective tissue graft versus collagen matrix

Małgorzata Pietruska, Anna Skurska, Łukasz Podlewski, Robert Milewski, Jan Pietruski
J Clin Periodontol. 2019; 46:86–95.

Summarised from original article 'Comparison of connective tissue graft versus collagen matrix in recession coverage using a modified coronally advanced tunnel technique,' with kind permission from Wiley Online Library

JCP Digest 01, published by the EFP in May 2019.

RELEVANT BACKGROUND

Surgical treatment of gingival recession is used when there is need to cover exposed roots, as well as to gain soft-tissue volume. The modified coronally advanced tunnel technique (MCAT) is one of many surgical approaches used for this purpose. The absence of vertical incisions using MCAT ensures good vascularisation, nourishment, and faster healing in the early phase.

While the use of subepithelial connective-tissue graft (SCTG) is generally suggested as the best option for root coverage and phenotype thickening, this procedure has the disadvantages that it requires another surgical site (donor site), the amount of tissue harvested may be limited, the surgery takes longer, and the risk of postsurgical complications is increased. Thus, there is a search for alternative materials to autogenous soft tissue.

Xenogeneic collagen matrix (CM) is a new membrane made of tightly packed collagen fibres on a thick porous scaffold. This enables clot formation and ingrowth of adjacent tissue without the post-surgical discomfort from autogenous harvesting. However, the clinical efficacy of CM has not yet been clearly confirmed.

AIMS

The aim of this study was to compare reduction in the height of gingival recession and gain in soft-tissue thickness after treatment of Miller class 1 and 2 multiple recessions, using MCAT randomly combined with CM or SCTG.

MATERIALS AND METHODS

- Single-centre, randomised, split-mouth, assessor-blind trial.
- 20 patients –13 women aged 20-56 and seven men aged 23-43.
- Inclusion criteria were as follows:
  - At least two single-rooted teeth with ≥1mm deep gingival recession without loss of clinical attachment level (CAL) other than the buccal aspect (Miller class 1/2), in two different quadrants in the mandible.
  - FMPS and FMBS lower than 20%.
  - Over 18 years of age.
  - Non-smokers and excluding pregnant or breastfeeding women.
  - No active periodontal disease.
  - A detectable CEJ without caries or restorations on the cervical area.
- Clinical parameters were measured for each gingival recession defect:
  - Gingival recession height (GR).
  - Recession width (RW) at CEJ level.
  - Probing depth (PD).
  - CAL.
  - Gingival thickness (GT).
  - Keratinised tissue (KT).
- The effectiveness of the treatment was calculated by the following factors:
  - Recession reduction.
  - Mean root coverage (MRC) and complete root coverage (CRC) as percentages.
  - Gingival-thickness gain.
  - Keratinised-tissue gain.
  - For aesthetic evaluation, an independent examiner evaluated the outcome according to the Root Coverage Esthetic Score (RES).
- Surgical procedure: A single surgeon carried out all surgical interventions using the modified coronally advanced tunnel technique with collagen matrix on one side of the mandible (46 recessions – Test) or subepithelial connective-tissue graft on the opposite side (45 recessions – Control).
- All adjacent gingival recessions on one side were treated within a single intervention, and both sides were covered during a single appointment. Check-up appointments were scheduled accordingly over 12 months of observation.

JCP DIGEST 01 2019 SERIES

Selected from

Journal of Clinical Periodontology

VOLUME 46

Scientific release from the EFP

EFP European Federation of Periodontology

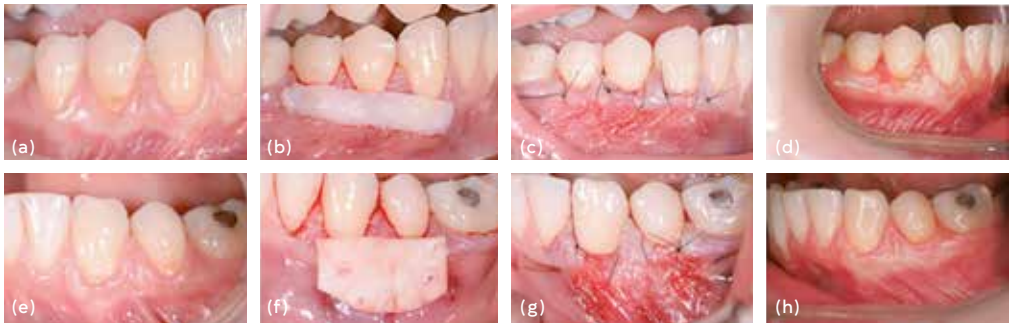

Figure 1: Complete recession coverage after MCAT+SCTG on the right side and MCAT+CM on the left side in mandible: (a) SCTG side at baseline – canine, first, and second premolar with minor recessions on the right side in lower jaw; (b) intra-operative view of SCTG before placement; (c) SCTG covered by coronally advanced flap; (d) postoperative (12 months) view of complete root coverage; (e) CM side at baseline – canine and first premolar with minor recessions on the left side in lower jaw; (f) intra-operative view with CM prepared for installation; (g) CM covered by coronally advanced flap; (h) postoperative (12 months) view of complete root coverage.

results

- No patient was lost during the study.
- Most patients went through the first two weeks post-op without any special events, and no additional intervention was necessary.
- At baseline, there were no significant differences, in any of the parameters evaluated, between the side treated with CM and that treated with SCTG.
- At 12-month post-op:
  - CAL gain was significant in both sides (no significant difference between sides).
  - MRC was significantly greater on the SCTG side (83.1% vs. 53.2%).
  - There was CRC in 67% of the sites treated with SCTG, but in only 20% of those treated with CM.
  - Significant GR reduction was achieved (in both height and width) on both sides, however, it was significantly greater on the SCTG side.
  - KT was significantly increased on both sides and was significantly greater on the SCTG side.
  - GT was significantly enlarged on both sides and was significantly greater on the SCTG side.
  - The average RES was significantly higher on the SCTG side.
  - Significant differences were also evident in three component parameters of the aesthetic evaluation: gingival margin, muco-gingival alignment, and gingival colour. However, there were no significant differences in the marginal-tissue contour and soft-tissue texture.
- FMPS and FMBS were without any significant differences between sides at baseline and 12-months post-op.

LIMITATIONS

- As reduced surgery time may be an advantage of CM over SCTG, it would have been beneficial to add this parameter to the comparisons.

CONCLUSIONS

- Both methods achieved beneficial clinical outcomes when treating multiple gingival recessions in the mandible.
- Subepithelial connective-tissue graft demonstrated a superior clinical outcome over 12-months of observation compared to xenogeneic collagen matrix for most parameters evaluated.
- Further research in the biomaterials field is required in order to find a comparable replacement to autogenous grafting.

IMPACT

- Using xenogeneic collagen matrix with MCAT may be considered for treatment of multiple gingival recessions in the mandible. However, reducing the post-surgical discomfort using xenogeneic grafting might be less of an advantage when compared to the superior clinical outcomes achieved with autogenous grafting.

LINK TO ORIGINAL JCP ARTICLE:

https://www.onlinelibrary.wiley.com/doi/full/10.1111/jcpe.13031

Access through EFP members' page log-in: http://www.efp.org/members/jcp.

links