Leukocyte- and Platelet-Rich Fibrin Versus Connective Tissue Graft for a Coronally Advanced Flap in the Treatment of Miller Class I and II Localized Gingival Recessions: A Randomized Controlled Clinical Trial

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The aim of the present study was to compare leukocyte- and platelet-rich fibrin (L-PRF) membranes with a connective tissue graft (CTG) in combination with a coronally advanced flap (CAF) in the treatment of Miller Class I or II localized gingival recessions. A randomized controlled clinical trial with 17 recessions in each group was initiated; the control group received treatment with CAF+CTG, and the test group received CAF+L-PRF. The following variables were measured before treatment and after 1, 3, and 6 months: gingival recession depth (RD), gingival recession width (RW), gingival thickness (GT), probing depth (PD), clinical attachment level (CAL), and keratinized tissue height (KTH). Also, the root coverage percentage (RC), the pain score, postoperative complications, and the root coverage esthetic score (RES) were recorded after surgery. Both treatments presented significant improvements in the RD, RW, and CAL at 1, 3, and 6 months. CTG achieved a significantly higher RC at 1, 3, and 6 months and a significantly higher RES score at 6 months. L-PRF presented a significantly lower pain score and less postoperative complications. Both strategies were effective for the treatment of localized gingival recessions. The CTG obtained higher RC and esthetic results, and L-PRF had less pain and postsurgical complications. Int J Periodontics Restorative Dent 2021;41:e287–e296. doi: 10.11607/prd.5093

The coronally advanced flap (CAF) with a connective tissue graft (CTG) has shown the best clinical results for the treatment of localized gingival recessions, with or without loss of interdental tissue.\(^1,2\) Despite the predictability of this technique, some disadvantages have been reported, mainly due to the need for a donor site to obtain the connective tissue graft, resulting in a longer surgery and higher morbidity (postoperative pain, bleeding, infection, edema, etc).\(^3,4\)

Recently, leukocyte- and platelet-rich fibrin (L-PRF), an autologous platelet concentrate, has emerged as an interesting alternative due to its biologic properties (angiogenic, immunomodulation, antimicrobial, physical strength, etc) that promote the regenerative process with a simple elaboration protocol.\(^5-8\)

Due to the biologic properties mentioned above, L-PRF has been evaluated in different clinical applications (alveolar ridge preservation, intrabony defect regeneration, sinus elevation procedures, root coverage procedures, implant therapy, etc).\(^9-16\) However, the benefits obtained from L-PRF in the treatment of gingival recessions is still unclear.

The purpose of this study was to compare L-PRF membranes with CTG during a CAF procedure in the treatment of Miller Class I or II localized gingival recessions.

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Materials and Methods

Study Design and Participants

A randomized controlled clinical trial enrolling 13 patients (34 single recessions) was initiated, with 17 control sites (CAF+CTG) and 17 test sites (CAF+L-PRF) (Fig 1). Most patients received two or even three separate interventions, following the randomization schedule.

This study was approved by the ethical committee of Universidad de Los Andes, Santiago, Chile (CEC201627), and is in full accordance with the ethical principles of the Declaration of Helsinki, as revised in 2000. The patients were informed of the benefits and risks of the study, and each participant signed an informed consent form. This study is registered at ClinicalTrials.gov as NCT04165044.

The following inclusion criteria were applied: systemically healthy patients > 18 years of age; at least one localized Miller Class I or II gingival recession ≥ 3 mm at the buccal aspect of the anterior dentition and/or premolars; an identifiable cemento-enamel junction (CEJ); no bleeding on probing; and good pulp vitality. The exclusion criteria were as follows: smoking, pregnancy, active periodontal disease, previous periodontal surgical procedures in the recession area, coagulation disorders, anticoagulant treatment, and inability to comply with the study and/or maintenance visits.

Initial Therapy and Clinical Measurements

The enrolled patients received a prophylaxis session (scaling and professional tooth cleaning). All patients had < 20% of plaque according to the O’Leary oral hygiene index.17

All clinical measurements were performed by a single trained and calibrated examiner (C.A.) who was blinded to the assigned treatment. An individual stent was prepared for all patients to take measurements from one constant reference point.

The following parameters were evaluated at baseline and 1, 3, and 6 months posttreatment: (1) gingival recession depth (RD), measured as the distance between the CEJ and gingival margin (GM); (2) gingival recession width (RW), measured at the CEJ; (3) probing depth (PD); (4) clinical attachment level (CAL); (5) keratinized tissue height (KTH), measured from the mucogingival junction to the GM; (6) gingival thickness (GT) at 3 mm from the GM, measured under local anesthesia with an endodontic spacer (no. 25) with a silicone disc stopper and an endodontic ruler; and (7) root coverage (RC), measured at 1, 3, and 6 months after surgery, and calculated in percentages according to the following formula: [(preoperative RD – postoperative RD) / preoperative RD] × 100.

RD, PD, CAL, KTH, and GT at 1, 3, and 6 months were calculated.

Patient Evaluation of Postoperative Morbidity and Esthetics

A 100-mm visual analog scale (VAS) was used to measure the patient pain score (0 = no pain; 50 = average pain; 100 = unbearable pain) at 24, 48, and 72 hours after surgery. The incidence of postoperative complications (hematoma, swelling, bleeding, infection, wound dehiscence, etc) was also recorded at 24, 48, and 72 hours after surgery, registered as dichotomous answers (present/absent). The root coverage esthetic score (RES) was evaluated at 6 months postoperative according to the criteria of Cairo et al.19

Surgical Treatment

After preparing the CAF, but just prior to grafting, the surgeon opened the envelope with the patient’s assigned treatment. All surgeries were performed by a single expert periodontist (A.S.R.).

Under local anesthesia, the root area corresponding to buccal attachment loss (gingival recession + buccal PD) was polished with Gracey curettes. The surface was then washed with a saline solution for 30 seconds. Additionally, a chemical treatment of the root surface was completed using Tetracycline HCl (250 mg/mL) for 3 minutes, mixing 250 mg in 1 mL of sterile water. After that, the root surface was rinsed
Assessed for eligibility
• Patients: n = 20
• Gingival recessions: n = 48

Excluded
• Patients: n = 7 (not meeting inclusion criteria)
• Gingival recessions: n = 14 (not meeting inclusion criteria)

Randomized
• Patients: n = 13
• Gingival recessions: n = 34

Allocation to intervention CAF+CTG (Control)
• Patients: n = 12
• Gingival recessions: n = 17

Allocation to intervention CAF+L-PRF (Test)
• Patients: n = 11
• Gingival recessions: n = 17

Follow-up
• Lost to follow-up: n = 0
• Discontinued intervention: n = 0

Analysis
• Patients: n = 11
• Gingival recessions: n = 17
• Excluded from analysis: n = 0

Enrollment

Fig 1 The CONSORT study flowchart.

again for 60 seconds with a saline solution.

The CAF (Figs 2 and 3) was made following the protocol described by de Sanctis and Zucchelli.20 A trapezoidal-shaped flap, split-full-split from the coronal to apical sides, was elevated; the papillae (mesial and distal) were deepithelialized. When the flap margin could be passively extended coronal to the CEJ, the flap mobilization was considered satisfactory.

According to the treatment assignment (control or test), a CTG from the palate or a double L-PRF membrane was positioned over the recession and the surrounding bone, up to the level of the CEJ, achieving stabilization with resorbable sutures. After that, the flap was coronally advanced and stabilized with interrupted sutures (resorbable), then anchored to incisal contact points on the treated teeth (mesial and distal), which were created with a flowable, light-curing...
Fig 2  Surgical protocol for the control group (CAF+CTG). (a) CAF elaboration. (b) Mesial and distal papillae deepithelialization. (c) Root planing. (d) Chemical conditioner. (e) CTG donor site. (f) CTG dimensions. (g) CTG sutured in the receptor area. (h) CAF sutured in the final position.

Fig 3  Surgical protocol for the test group (CAF+L-PRF). (a) CAF elaboration. (b) Mesial and distal papillae deepithelialization. (c) Root planing. (d) Chemical conditioner. (e) Two L-PRF membranes. (f) Two L-PRF membranes sutured together. (g) L-PRF sutured in the receptor area. (h) CAF sutured in the final position.
resin (Filtek Z350 XT, 3M ESPE). Finally, using a gauze moistened with saline solution, gentle pressure was applied over the area, and a light-curing periodontal dressing (Barricaid, Dentsply Sirona) was applied at the surgical site.

**L-PRF Preparation**

Venous blood was drawn from the patient in two 10-mL vacutainer tubes without anticoagulant. The tubes were centrifuged at 408 g for 12 minutes using a table centrifuge (IntraSpin, Intra-Lock), according to the protocol described by Temmerman et al.\(^\text{21}\) The L-PRF clots were removed from the tube, separated from the red cells, and placed in the Xpression box (IntraSpin) to convert them into membranes. The two L-PRF membranes were attached using a resorbable suture in order to obtain one thick and more-stable membrane. Then, the double membrane was shaped and sized according to the characteristics of each defect.

**Postsurgical Instructions**

A nonsteroidal anti-inflammatory drug (ketoprofen; 100 mg) was administered immediately before the surgery and at 12-hour intervals for 2 days afterward. The patients received the following written and oral instructions: do not touch the involved area, only use a liquid diet, and do not participate in any hard effort or sports activity for 2 weeks postoperative, until the sutures are removed. Patients were also instructed not to brush the treated teeth, just to rinse with chlorhexidine solution (0.12%) three times a day for 1 minute each. After suture removal, chlorhexidine rinsing was maintained for another 2 weeks. After that, the patients were again instructed with an atraumatic tooth-brushing technique.

**Randomization, Allocation Concealment, and Calibration**

Computer-generated randomization was used to assign the patients, with an allocation ratio of 1:1, into two study groups: CAF+L-PRF (17 gingival recessions; test group) and CAF+CTG (17 gingival recessions; control group). To conceal the treatment assignment, opaque envelopes were used to mask the name of the intervention, contained inside.

During the intra-examiner calibration period, a 90% level of calibration (kappa coefficient = 0.90) was detected after triplicate measurement of RD in 50 recession defects.

**Statistical Analysis**

The sample size was based on the detection of a 1-mm difference in gingival recession reduction between the treatment groups (SD: 0.93) with a two-sided, 5% significance level and a power of 85%.\(^\text{22}\) The sample size calculation was obtained using the software STATA (version 14, StataCorp).

Ordinal and continuous data were averaged per patient and analyzed using a linear mixed model with patient as a random factor. A generalized estimating equation model for binary data was applied using patient as a grouping factor. If a patient received the same treatment more than once, mean values were calculated per treatment.

Because 10 patients received both interventions, an extra analysis was conducted with a “split-mouth” approach.

**Results**

Patient demographics and general baseline characteristics are presented in Table 1.

A total of 13 patients (9 women, 4 men; age range: 26 to 53 years; mean age: 41.7 ± 9.11 years) with 34 localized gingival recessions were evaluated in the present study. Most patients received two treatments, although a few received up to four treatments, on different days, following the randomization schedule (Table 2).

Ten patients received both test and control treatments at least once. Their data were used for a separate split-mouth analysis.

All patients satisfactorily completed the study, maintaining adequate oral hygiene according to the instructions received. Almost all baseline parameters (except RW) did not show statistically significant differences between groups, revealing an effective randomization process (Table 3).

Both approaches, with either parallel-group or split-mouth analysis, revealed significant improvements for
RD, RW, CAL, and KTH at all follow-up times, with the exception of KTH at 6 months for the CAF+CTG group (Table 3).

The intergroup comparisons of clinical parameters, analyzed as either parallel observations or by applying a split-mouth concept, are shown in Table 3.

Table 4 shows the results for pain score (VAS), postoperative complications, and RES. RES evaluation is shown in Fig 4. Hematoma and swelling (simultaneously) were the only postoperative complications observed in the patients.

Table 1 General Gingival Recession Characteristics by Group

<table>
<thead>
<tr>
<th>Patients</th>
<th>Control group (CAF+CTG)</th>
<th>Test group (CAF+L-PRF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>12 (70.6)</td>
<td>15 (88.2)</td>
</tr>
<tr>
<td>Male</td>
<td>5 (29.4)</td>
<td>2 (11.8)</td>
</tr>
<tr>
<td>Age, ya</td>
<td>41.4 (8.7)</td>
<td>41.5 (9.6)</td>
</tr>
</tbody>
</table>

Gingival recession site

<table>
<thead>
<tr>
<th>Incisors</th>
<th>Control group (CAF+CTG)</th>
<th>Test group (CAF+L-PRF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canines</td>
<td>7 (41.2)</td>
<td>8 (47.1)</td>
</tr>
<tr>
<td>Premolars</td>
<td>5 (29.4)</td>
<td>7 (41.2)</td>
</tr>
<tr>
<td>Maxilla</td>
<td>14 (82.4)</td>
<td>8 (47.1)</td>
</tr>
<tr>
<td>Mandible</td>
<td>3 (17.7)</td>
<td>9 (52.9)</td>
</tr>
</tbody>
</table>

CAF = coronally advanced flap; CTG = connective tissue graft; L-PRF = leukocyte- and platelet-rich fibrin.

Table 2 Individual Patient Treatment

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>CAF+CTG</th>
<th>CAF+L-PRF</th>
<th>Recession sites, n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
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<td>3</td>
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<tr>
<td>4</td>
<td>2</td>
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<td>5</td>
<td>0</td>
<td>2</td>
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<tr>
<td>6</td>
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<td>2</td>
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<td>7</td>
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</tr>
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<td>8</td>
<td>2</td>
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<td>9</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<td>10</td>
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<td>1</td>
<td>3</td>
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<td>11</td>
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</tr>
<tr>
<td>12</td>
<td>1</td>
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<td>2</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>17</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 1 General Gingival Recession Characteristics by Group

Table 2 Individual Patient Treatment

Discussion

The present randomized controlled clinical trial compared the clinical parameters, pain score, postoperative complications, and esthetic results obtained with CAF+L-PRF (test group) and CAF+CTG (control group) used to treat Miller Class I and II localized gingival recessions.

Significant improvements were seen in both groups for RD, RW, CAL, and KTH at 1, 3, and 6 months, with the exception of KTH at 6 months for CAF+CTG. These results were in accordance with other clinical trials, where platelet concentrates “like PRF” were compared to CTG during CAF for treatment of gingival recessions.23–25

The intragroup comparison (as parallel groups) revealed a significantly higher reduction in RD in the control group compared to the test group at 1 and 6 months. However, split-mouth analyses only showed a statistically significant difference
### Table 3: Intra- and Intergroup Comparison of Clinical Parameters at Baseline and Changes at 1, 3, and 6 Months

<table>
<thead>
<tr>
<th>Clinical parameters</th>
<th>Analysis as parallel groupsa</th>
<th>Analysis as split-mouthb</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAF+CTG (n = 12)</td>
<td>CAF+L-PRF (n = 11)</td>
<td>P</td>
</tr>
<tr>
<td>RD, mm</td>
<td>Baseline</td>
<td>3.2 (0.7)</td>
<td>3.3 (0.5)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>-3.6 (1.2)**</td>
<td>-2.4 (0.4)**</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>-3.1 (0.9)**</td>
<td>-2.5 (0.6)**</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>-3.2 (0.7)**</td>
<td>-2.4 (0.7)**</td>
</tr>
<tr>
<td>RW, mm</td>
<td>Baseline</td>
<td>3.6 (1.0)</td>
<td>4.2 (1.2)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>-2.9 (1.8)**</td>
<td>-1.5 (1.4)**</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>-3.2 (1.7)**</td>
<td>-1.8 (1.7)**</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>-3.4 (1.5)**</td>
<td>-1.9 (1.7)**</td>
</tr>
<tr>
<td>GT, mm</td>
<td>Baseline</td>
<td>1.5 (0.5)</td>
<td>1.7 (0.9)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>0.6 (0.9)</td>
<td>0.5 (1.1)</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>0.3 (0.8)</td>
<td>0.1 (0.9)</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>0.2 (0.8)</td>
<td>-0.1 (1.0)</td>
</tr>
<tr>
<td>PD, mm</td>
<td>Baseline</td>
<td>1.6 (0.4)</td>
<td>1.6 (0.5)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>0.6 (0.6)</td>
<td>0.3 (0.7)</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>0.2 (0.5)</td>
<td>0.1 (0.4)</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>0.1 (0.5)</td>
<td>0.0 (0.4)</td>
</tr>
<tr>
<td>CAL, mm</td>
<td>Baseline</td>
<td>4.8 (1.0)</td>
<td>4.9 (0.6)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>-3.0 (1.3)**</td>
<td>-2.1 (0.9)**</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>-2.9 (0.9)**</td>
<td>-2.5 (0.9)**</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>-3.0 (0.8)**</td>
<td>-2.4 (0.8)**</td>
</tr>
<tr>
<td>KTH, mm</td>
<td>Baseline</td>
<td>4.1 (1.3)</td>
<td>3.3 (1.0)</td>
</tr>
<tr>
<td></td>
<td>Δ 1 mo</td>
<td>2.1 (1.7)**</td>
<td>1.4 (1.1)**</td>
</tr>
<tr>
<td></td>
<td>Δ 3 mo</td>
<td>1.8 (1.7)**</td>
<td>1.6 (1.7)**</td>
</tr>
<tr>
<td></td>
<td>Δ 6 mo</td>
<td>1.2 (1.9)</td>
<td>1.6 (1.6)**</td>
</tr>
<tr>
<td>RC, %</td>
<td>1 mo</td>
<td>93.4 (13.0)</td>
<td>74.2 (13.2)</td>
</tr>
<tr>
<td></td>
<td>3 mo</td>
<td>94.8 (10.5)</td>
<td>78.0 (15.0)</td>
</tr>
<tr>
<td></td>
<td>6 mo</td>
<td>97.6 (5.7)</td>
<td>74.2 (18.8)</td>
</tr>
</tbody>
</table>

CAF = coronally advanced flap; CTG = connective tissue graft; L-PRF = leukocyte- and platelet-rich fibrin; RD = gingival recession depth; RW = gingival recession width; GT = gingival thickness; PD = probing depth; CAL = clinical attachment level; KTH = keratinized tissue height; RC = root coverage.

Data are presented as mean (SD). Bolded P values indicate statistical significance for intergroup comparison (CAF+CTG vs CAF+L-PRF). Negative RD values indicate a reduction in gingival recession.

*If a patient received a test or control treatment more than once, a mean value per treatment was used.

*P ≤ .05.

**P ≤ .01 for changes (comparison between baseline and the results at 1, 3, and 6 months).
between the treatment groups at 1 month. Jankovic et al also reported a nonsignificant difference ($P = .270$) in RD at 6 months for CAF+CTG (3.07 ± 0.3 mm) and CAF+PRF (2.83 ± 0.37 mm).24

At 1, 3, and 6 months, RW (analyzed as parallel groups) showed significantly higher decreases for CAF+CTG. However, when the data underwent split-mouth analysis, it was no longer statistically significant; these data were in accordance with the results obtained by Eren and Atilla.23

Alternatively, with both analyses, RC showed a statistically significant difference between test and control groups at 1, 3, and 6 months. The split-mouth analyses reported a mean RC of 97.1% ± 6.2% and 75% ± 19.6% for CAF+CTG and CAF+L-PRF, respectively ($P = .01$). Similar results were obtained by Jankovic et al (CAF+CTG: 92.0% ± 15.5%; CAF+PRF: 88.7% ± 10.7%) using the same evaluation method.24
Despite the significant difference between treatment groups, the RC reached by CAF+L-PRF in the present study seems clinically comparable with the RC obtained by CAF+CTG (75% to 98%) at 6 months in other studies.\textsuperscript{23,25,26}

The present study did not show significant differences between treatment strategies for GT, PD, CAL, and KTH at 1, 3, and 6 months. These results were in accordance with the results obtained in the meta-analysis by Castro et al.\textsuperscript{11}

A slight improvement in RD was observed between 3 and 6 months in the CAF+CTG group (–3.1 ± 0.9 mm to –3.2 ± 0.7 mm) but not for CAF+L-PRF (–2.5 ± 0.6 mm to –2.4 ± 0.7 mm) (negative values indicate a reduction in gingival recession). The prolonged improvement for CAF+CTG could be explained by the creeping attachment phenomenon, first described by Goldman et al.\textsuperscript{27} Eren et al showed similar histologic results for sites treated with CAF+CTG and CAF+L-PRF 1 month after grafting.\textsuperscript{28} However, at 6 months, the CAF+CTG had a significantly higher CD31, CD34, and VEGF expression, a statistically greater number of vessels, and lower number of rete pegs compared to CAF+PRF.\textsuperscript{28} These findings could indicate that CTG maturation is not complete at 6 months and could eventually explain a longer time of creeping attachment.

Regarding the pain score and postoperative complications, CAF+L-PRF sites showed significant favorable values compared to CAF+CTG. These results are in accordance with a systematic review that reported less pain and swelling side effects associated with CAF+L-PRF use.\textsuperscript{11}

However, the RES results indicated a significant difference in favor of CAF+CTG at 6 months, but not when the data were analyzed as split-mouth. The difference was principally associated with the variable gingival margin, observing more sites with complete root coverage in CAF+CTG and obtaining the maximum score. A split-mouth case report using an envelope technique also showed a higher RES score for CAF+CTG vs CAF+L-PRF after 6 months, associated with the gingival margin position.\textsuperscript{29}

The use of CAF+L-PRF has also been evaluated for the treatment of multiple gingival recessions, showing significant improvement for the clinical parameters after 6 and 12 months.\textsuperscript{20,25} Öncü reported higher RC and KTH for CAF+CTG at 6 months, and superior GT and less postoperative pain for CAF+L-PRF.\textsuperscript{30}

The present randomized controlled clinical trial is the first to compare CAF+L-PRF vs CAF+CTG using the established protocol. Previous studies evaluated platelet concentrates “like PRF,” using different g-forces, times, or centrifuges. For that reason, it is difficult to compare the present results with other studies. Further, several clinical parameters were evaluated to give a broad description of the effectiveness of both therapies.

A limitation of the present study was the number of patients. According to the sample size, 34 isolated gingival recessions needed to be included. Patients often presented with more than one localized gingival defect that fulfilled the inclusion criteria for the study. It was then decided to enroll these patients a second, third, or fourth time, though strictly following the randomization protocol. Due to the impact of individual patient characteristics on the final results, a mean was always calculated when the same intervention was present more than once, and a mixed generalized model was applied that incorporated the patient as a random factor. Still, 10 patients received both interventions. Therefore, an extra analysis (split-mouth) was performed. Additionally, a longer follow-up time could have been considered to observe changes in the gingival margin position after 6 months in both groups, associated with a possible creeping attachment phenomenon.

Further studies with a larger sample size, using the established protocol for L-PRF, with similar evaluation methods and a longer follow-up, are needed to confirm these results.

Conclusions

In the present study, both CAF+L-PRF and CAF+CTG were effective for the treatment of Miller Class I or II localized gingival recessions. However, CAF+CTG obtained higher percentages of root coverage and the best esthetic results. Alternatively, CAF+L-PRF had a lower pain score and less postoperative complications.
Acknowledgments
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References