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Case Report

The PRF–ORC wrap technique for periodontal intrabony defect treatment: A case report

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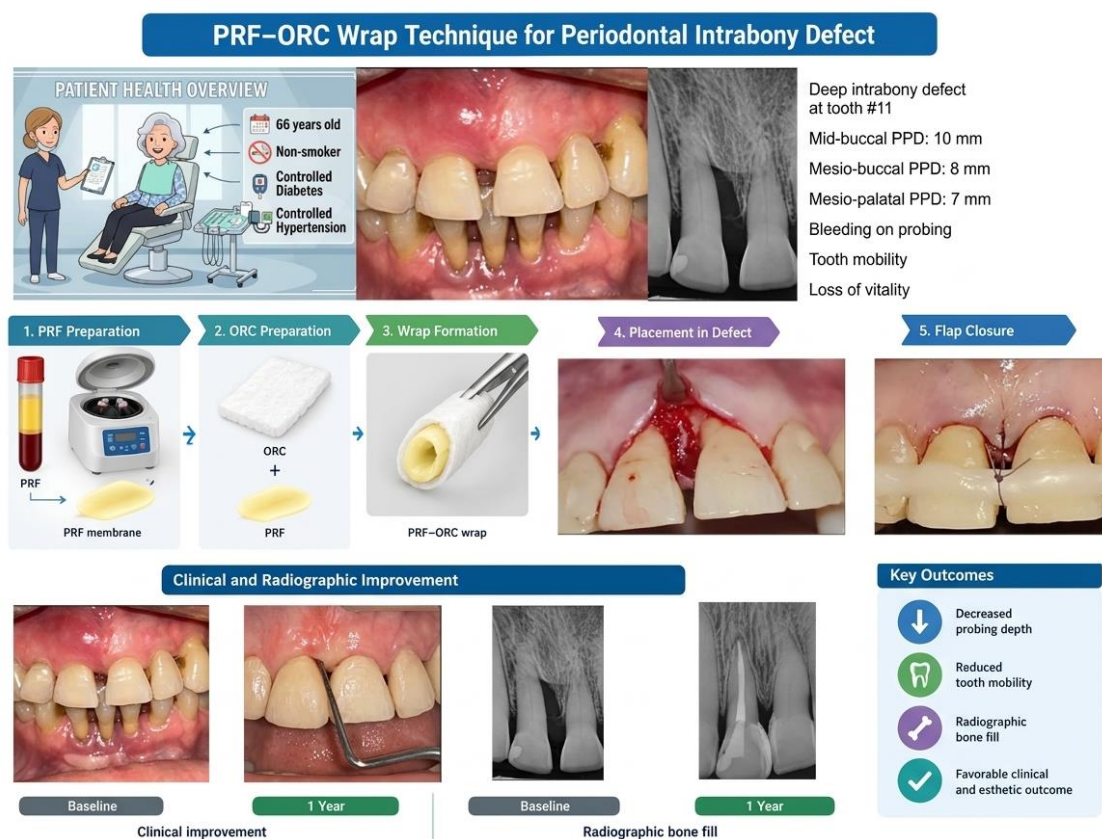
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Abstract

Platelet-rich fibrin (PRF) is widely used in periodontal regeneration because it is autologous, easy to prepare, and releases growth factors over time to support wound healing and bone formation. This case report presents a novel PRF-oxidized regenerated cellulose (ORC) wrap technique for treating a periodontal intrabony defect. A 66-year-old non-smoking female with controlled diabetes and hypertension presented with a deep intrabony defect at tooth #11. Probing pocket depths (PPD) were 10 mm (mid-buccal), 8 mm (mesiobuccal), and 7 mm (mesiopalatal), accompanied by bleeding on probing, mobility, and loss of vitality. Temporary splinting and endodontic treatment were completed prior to phase I periodontal therapy, reducing PPDs to 4 mm (mid-buccal) and 7 mm (mesiobuccal). Periodontal flap surgery was performed; following defect debridement and root surface instrumentation, PRF wrapped in ORC was placed into the defect. Clinical and radiographic evaluation over a 1-year follow-up period showed significant improvements: PPD decreased to 3 mm at mesiobuccal and mesiopalatal sites, tooth mobility was reduced, and substantial bone fill was observed. Overall, the PRF–ORC wrap technique demonstrated favorable outcomes in this intrabony defect. However, a single-case finding cannot establish efficacy, predictability, or cost-effectiveness. Controlled clinical studies are needed to evaluate its full potential and associated tissue response.

Graphical Abstract



Key words: Case report, intrabony defects, oxidized regenerated cellulose, platelet-rich fibrin, radiographic bone fill.

Introduction

Periodontitis is a chronic, multifactorial inflammatory disease associated with dysbiotic biofilms and characterized by progressive destruction of tooth-supporting tissues, including the periodontal ligament and alveolar bone, ultimately leading to clinical attachment loss and tooth loss if untreated.¹ Intrabony defects, formed by vertical bone resorption adjacent to the root surface, are a characteristic feature of periodontitis. Although these defects pose a therapeutic challenge, their morphology may provide a favorable environment for regenerative procedures by supporting wound stability and cell repopulation.^{2,3}

Periodontal regeneration aims to restore the lost periodontal structures, including alveolar bone, periodontal ligament, and cementum. Various regenerative approaches have been proposed to treat intrabony defects, including bone grafts, guided tissue regeneration (GTR), enamel matrix derivatives (EMD), recombinant growth factors, and adjunctive biomaterials such as hyaluronic acid.³⁻⁶ More recently, combined regenerative approaches have increasingly been used to enhance clinical outcomes and treatment predictability. However, these techniques may still have limitations, including high cost, technique sensitivity, and postoperative complications. In recent years, autologous platelet concentrates have emerged as biologically active adjuncts in periodontal regeneration, with platelet-rich fibrin (PRF) being among the most extensively investigated.⁷ As a second-generation platelet concentrate, PRF is obtained through a simplified centrifugation protocol without the use of anticoagulants, resulting in a dense fibrin matrix enriched with platelets, leukocytes, cytokines, and a sustained release of growth factors such as platelet-derived growth factor (PDGF), transforming growth factor- β (TGF- β), and vascular

endothelial growth factor (VEGF).⁷ This three-dimensional fibrin scaffold not only promotes angiogenesis and cell migration but also enhances soft and hard tissue healing by providing a favorable microenvironment for tissue regeneration.⁷⁻⁹ Experimental and clinical studies have demonstrated that PRF can improve clinical attachment gain, reduce probing depth, and enhance bone fill in intrabony defects.^{8,10} Furthermore, its autologous origin, ease of preparation, and cost-effectiveness make it an attractive alternative or adjunct to conventional regenerative materials, particularly in minimally invasive and biologically driven treatment approaches.

Oxidized regenerated cellulose (ORC) is a widely used bioresorbable hemostatic agent that promotes rapid blood coagulation and stabilizes the initial clot.¹¹ Upon contact with blood, ORC forms a gelatinous matrix that promotes platelet aggregation and provides a physical scaffold to retain the clot.¹¹ In addition to its hemostatic properties, ORC has been reported to have mild antimicrobial effects and support early wound healing by maintaining a stable environment at the defect site.^{11,12} These characteristics make it a potentially valuable adjunct in periodontal regenerative procedures, where clot stability is a critical determinant of successful healing and tissue regeneration. However, despite these favorable properties, researchers have not explored using ORC in combination with autologous platelet concentrates such as PRF in a structured configuration. Therefore, this case report describes a novel approach to treating a periodontal intrabony defect, in which PRF and ORC were combined in a wrap-like configuration and applied as a single composite grafting material.

Case Report

Patient Presentation, Diagnosis, and Treatment Planning

A 66-year-old non-smoking female patient with controlled diabetes mellitus and hypertension presented to the Department of Periodontology at Izmir Katip Çelebi University Faculty of Dentistry for periodontal treatment. The patient provided written informed consent for treatment and publication of clinical data and images, in accordance with the department's standard protocol. The patient's chief complaint was redness and mobility of the maxillary right central incisor.

Clinical examination revealed that the patient was diagnosed with localized periodontitis (stage III, grade B). Periodontal assessment of the involved tooth demonstrated probing pocket depths (PPD) of 10 mm at the mid-buccal site, 8 mm at the mesiobuccal site, and 7 mm at the mesiopalatal site (Table 1). The tooth exhibited grade II mobility and clinical signs of inflammation, including redness, swelling, and bleeding on probing (Figure 1A). Pulp vitality testing indicated that the tooth was non-vital. Radiographic evaluation revealed a deep intrabony defect on the mesial aspect of the tooth (Figure 1B). The differential diagnosis included a primary endodontic lesion, a combined endodontic-periodontal lesion, vertical root fracture, and occlusal trauma. Although tooth #11 was non-vital, the baseline periapical radiograph showed no distinct periapical radiolucency. In contrast, a localized angular intrabony defect was evident on the mesial aspect of the tooth and corresponded to the localized periodontal findings. No clinical or radiographic findings specifically suggestive of a vertical root fracture were identified, and no crack or root fracture was observed during surgical exploration of the involved area. Mild fremitus was detected clinically and was reduced by selective occlusal adjustment. Overall, the clinical, radiographic, and surgical findings were considered most consistent with a localized periodontal lesion associated with an intrabony defect, with an occlusal component also identified.

Clinical periodontal measurements, including PPD, gingival recession, and clinical attachment level (CAL), were recorded using a periodontal probe. PPD was measured from the gingival margin to the base of the periodontal pocket/sulcus, while the position of the gingival margin

was assessed relative to the cemento-enamel junction (CEJ). CAL was calculated as the distance from the CEJ to the base of the periodontal pocket/sulcus. At baseline, the gingival margin was located approximately 1 mm coronal to the CEJ, with no clinically detectable gingival recession. Bleeding on probing (BOP), gingival index, and plaque index scores were also recorded at baseline and follow-up visits.

At the initial visit, supragingival scaling was performed, and the patient received detailed oral hygiene instructions. At the next appointment, root canal treatment of the affected tooth was completed before subgingival instrumentation because it was non-vital. Given the tooth mobility, a temporary periodontal splint was applied to stabilize the involved tooth (Figure 1C). In addition, a permanent intracoronal periodontal splint was placed for the mandibular anterior teeth, which were subjected to secondary occlusal trauma (Figure 1C).

One week later, the patient's oral hygiene status was re-evaluated, and full-mouth subgingival root surface debridement was performed under local anesthesia. At the completion of this session, the patient was prescribed a combination antibiotic regimen consisting of amoxicillin (Largopen; Bilim, Istanbul, Turkey) (500 mg, three times daily for 7 days) and metronidazole (Flagyl; Sanofi Aventis Pharm Inc Co, Istanbul, Turkey) (500 mg, three times daily for 7 days). The patient was then scheduled for a follow-up visit after 4 weeks. At this appointment, comprehensive periodontal clinical parameters were reassessed and recorded using a standardized periodontal charting form. At the 4-week follow-up, the damaged maxillary temporary periodontal splint was removed, and marked clinical improvements were observed in overall periodontal parameters throughout the dentition. However, site-specific evaluation of the affected tooth revealed residual periodontal pockets, with probing depths of 4 mm at the mid-buccal site and 7 mm at both the mesiobuccal and mesiopalatal sites (Figure 2A, D) (Table 1). Despite the overall improvement, healing at the mesial aspect of the tooth was deemed insufficient. Therefore, periodontal flap surgery was planned to eliminate the pocket and treat the intrabony defect.

Surgical Procedures and Clinical Management

At the surgical appointment, 10 mL of venous blood was drawn from the patient before the procedure to prepare platelet-rich fibrin (L-PRF). The blood sample was immediately transferred into sterile glass tubes without anticoagulant and centrifuged (Hettich EBA 20, Tuttlingen, Germany) according to the L-PRF protocol at 2700 rpm (RCFmax: 635 g, RCFclot: 350 g) for 12 minutes (Figure 3A).¹³ After centrifugation, the fibrin clot in the middle layer was carefully retrieved and separated from the red blood cell fraction. The resulting L-PRF clot was then gently compressed into a membrane for subsequent use during the surgical procedure (Figure 3B).

Following administration of local anesthesia using 4% articaine hydrochloride (Maxicaine, Vem İlaç, Ankara, Turkey), sulcular incisions were made on the labial and palatal aspects of the maxillary central incisors. A simplified papilla preservation envelope flap was elevated as a full-thickness flap from the labial aspect only (Figure 3C). Granulation tissue within the defect area was thoroughly curetted using surgical curettes. Residual calculus deposits and contaminated cementum on the root surfaces of the involved teeth were meticulously debrided using curettes and ultrasonic instruments. A deep intrabony defect (3-walled in the apical portion and one-walled in the coronal portion) was observed on the mesial aspect of the maxillary right central incisor (Figure 3D). Subsequently, a commercially available ORC sheet (Reoxcel-Sigma Knit, SkyTeks, Istanbul, Turkey) was trimmed with scissors to match the dimensions of the defect. An L-PRF membrane of similar size was then prepared and placed over the ORC layer (Figure 3E, F). These two layers were combined and folded into a wrap-like configuration, with the ORC forming the outer layer and the L-PRF membrane positioned internally (Figure 3G, H, I). The prepared composite material was then carefully condensed and

placed into the intrabony defect (Figure 3J). A temporary surgical splint was applied to the patient. The flap was repositioned and secured using 5-0 polyglactin resorbable sutures (Pegelak, Doğsan, Turkey), with additional stabilization achieved by anchoring the sutures to the existing splint (Figure 3K).

Postoperative Care and Follow-up

Postoperatively, the patient was prescribed systemic antibiotics (amoxicillin 500 mg, three times daily for 3 days), a nonsteroidal anti-inflammatory drug (flurbiprofen, three times daily for 3 days), and a 0.12% chlorhexidine mouth rinse to be used twice daily for 4 weeks. Oral hygiene instructions were reinforced at the 1-, 3-, and 6-month follow-up visits, and supragingival scaling was performed as needed.

Clinical healing was uneventful, with no signs of infection or adverse clinical symptoms. The patient was followed up at 1 week, 2 weeks, 1 month, 3 months, 6 months, and 1 year postoperatively. Periapical intraoral radiographs of the defect site were obtained at baseline, as well as at 6 months and 1 year following surgery. In this case report, a reduction in PPD and a gain in CAL were observed at 3-month, 6-month, and 1-year follow-up evaluations. Periodontal assessment of the involved tooth demonstrated PPD of 3 mm at the mid-buccal site, 4 mm at the mesiobuccal site, and 4 mm at the mesiopalatal site at 3 months postoperatively (Table 1). Tooth mobility was grade I. Measurements at 6 months postoperatively were the same as at 3 months (Figure 2B) (Table 1). The temporary periodontal splint was removed at 6 months postoperatively, and the mobility of the treated tooth was found to be within physiological limits. Radiographic assessment demonstrated increased bone fill within the intrabony defect compared with baseline measurements (Figure 2E). At the 6-month follow-up, sites presenting with 4-mm periodontal pockets underwent repeated subgingival root debridement. The diastema between the maxillary central incisors was closed with restorative treatment. At the one-year postoperative evaluation, periodontal examination of the affected tooth revealed probing depths of 3 mm at the mid-buccal, mesiobuccal, and mesiopalatal aspects (Figure 2C) (Table 1), and radiographic assessment demonstrated favorable bone fill compared with baseline (Figure 2F). The chronological sequence of the patient's clinical presentation, treatment interventions, and postoperative follow-up is summarized in Table 2.

At the initial presentation, the patient was anxious and felt hopeless about the prognosis of her affected tooth because of its mobility and associated periodontal problems. She reported that she tolerated the treatment procedures well and that all stages progressed without complications. During follow-up, she expressed high satisfaction with the treatment outcome, particularly because the tooth's pathological mobility was eliminated and the diastema closed, resulting in a favorable esthetic outcome. The patient also expressed particular satisfaction with preserving her natural tooth rather than requiring its extraction.

Discussion

In the present case, a deep periodontal intrabony defect was successfully managed using the PRF–ORC wrap technique. This approach involves preparing a composite biomaterial tailored to the defect dimensions, with ORC forming the outer layer and L-PRF positioned internally in a wrap-like configuration, then surgically placed into the defect. In the present case, the PRF–ORC wrap was followed by favorable clinical and radiographic changes, including reduced probing depth, clinical attachment gain, and radiographic bone fill. However, these observations should be interpreted with caution because they are derived from a single uncontrolled case and cannot establish the efficacy or regenerative superiority of the technique. A substantial body of evidence from randomized clinical trials and systematic reviews has evaluated the efficacy of PRF in the regenerative treatment of periodontal intrabony defects. Multiple randomized clinical trials and systematic reviews/meta-analyses consistently show

that adjunctive PRF with open-flap debridement (OFD) yields significantly greater reductions in PPD, improved CAL gain, and enhanced bone fill than OFD alone.^{10,14–16} Furthermore, network and conventional meta-analyses have reported that PRF, either used alone or in combination with other biomaterials, provides clinical outcomes that are superior to OFD and generally comparable to established regenerative approaches, including bone grafts, guided tissue regeneration membranes, platelet-rich plasma (PRP), and EMD.^{10,15,17–19} These findings support using PRF as an effective, predictable biomaterial for the regenerative management of intrabony periodontal defects. Consistent with the present case, L-PRF alone has also been used to treat periodontal intrabony defects with favorable outcomes. In a case series of four patients, L-PRF was used with a non-incised papilla surgical approach (NIPSA) to manage deep, non-contained intrabony defects associated with soft tissue recession. The L-PRF membrane was positioned vestibularly to support healing of both hard and soft tissues. At the 1-year follow-up, all cases showed marked reductions in PPD, significant clinical attachment gain, no bleeding on probing, and notable improvements in soft tissue architecture. The authors concluded that adjunctive L-PRF use with the NIPSA technique may improve clinical outcomes, particularly in challenging defect configurations such as deep, non-contained intrabony defects.²⁰ Similarly, another case report demonstrated that the surgical placement of L-PRF alone in a periodontal intrabony defect resulted in significant reductions in PPD, gains in CAL, and radiographic evidence of bone formation at the 6-month follow-up. These findings further support the role of PRF-released growth factors in accelerating both soft and hard tissue healing.²¹

The potential role of ORC in periodontal regeneration has also been explored in a series of studies conducted by Galgut.²² In these investigations, ORC in mesh form was utilized over periodontal defects in humans as a biodegradable barrier membrane within guided tissue regeneration (GTR) protocols. Clinical outcomes demonstrated favorable healing, with postoperative probing depths reduced to <3 mm, and in some cases, reduced gingival recession compared to conventional approaches.²² In subsequent studies, the ORC mesh was further modified to extend coronally and interdentally, covering furcation and infrabony defects to function as a customized barrier membrane. The material fully resorbed during healing, with minimal early recession, supporting its potential as a biodegradable alternative to traditional GTR membranes.²³ Additionally, ORC was applied both as a defect infill material and as a barrier in human infrabony defects. Radiographic evaluations revealed progressive filling of the defects with bone-like tissue over time, although complete regeneration was not always achieved, even after 12 months.²⁴ Furthermore, a case report by Galgut described a GTR-type approach for the management of extensive circumferential periodontal defects using oxidized cellulose mesh placed beneath a flap, reporting favorable soft tissue healing; however, the extent of true periodontal regeneration, particularly in terms of hard tissue and periodontal ligament formation, remained uncertain.²⁵ More recently, other investigators have evaluated biodegradable ORC-based materials in the treatment of periodontal infrabony defects. Chaturvedi et al.²⁶ evaluated a 25% doxycycline-loaded biodegradable membrane and a biodegradable membrane alone in patients with two- or three-walled infrabony defects and reported improvements in probing depth, clinical attachment level, and radiographic bone fill in both groups, with greater PPD reduction and linear bone fill in the doxycycline-loaded membrane group.²⁶ In another study, Shiggaon et al.²⁷ investigated Surgicel®, an ORC-based absorbable hemostatic material, as a graft for managing periodontal defects. Although treatment improved PPD and CAL, the ORC and control groups showed no significant differences, suggesting that ORC's regenerative potential when used alone may be limited.²⁷ Collectively, these findings indicate that ORC may have potential as a bioresorbable material for periodontal wound management and may provide favorable physical properties for clot stabilization and space maintenance; however, its regenerative potential when used alone remains insufficiently

established. In this context, the present case explored the combination of ORC with L-PRF in a wrap-like configuration for the management of an intrabony periodontal defect.

The rationale for combining L-PRF and ORC in this technique is based on the potentially complementary biological and physical properties of the two materials. These properties may theoretically create a favorable environment for wound stabilization and healing; however, the combined effect cannot be determined from this single-case report. L-PRF, a second-generation autologous platelet concentrate, is characterized by a dense, highly organized fibrin network that serves as a scaffold for cell migration and tissue regeneration.²⁸ It contains a wide range of angiogenic and regenerative growth factors, including VEGF, EGF, PDGF, TGF- β , and FGF-2, released gradually over 7 to 14 days.^{29–31} This sustained release profile supports angiogenesis, enhances vascularization, and promotes both soft and hard tissue healing, closely mimicking natural wound healing processes.^{31–33} In contrast, ORC is a bioabsorbable, plant-based hemostatic agent that promotes rapid clot formation by providing a surface for platelet adhesion and aggregation while concentrating coagulation factors through fluid absorption.¹¹ Its ability to stabilize the blood clot is particularly critical in periodontal regeneration, where early wound stability directly influences clinical outcomes.^{22–25} In addition, ORC has intrinsic antimicrobial properties and fully resorbs within 7 to 14 days, eliminating the need for a second intervention.¹¹ Therefore, the combination of L-PRF and ORC may theoretically provide complementary biological and physical properties that could support wound stabilization and healing. However, this single-case report does not allow determination of whether this combination provides additional clinical benefit or results in true periodontal regeneration. Another advantage of this combined approach is its handling characteristics. Although PRF can be fragmented and placed into periodontal defects, its slippery consistency may make manipulation and precise placement challenging. When combined with ORC, the material becomes easier to handle, allowing improved condensation into the defect. Moreover, the composite structure enhances positional stability, helping the graft remain more securely in the defect site during the early phases of healing. In the present case, the coronal portion of the defect was predominantly one-walled, which presents inherent challenges for graft stability and containment. The PRF–ORC combination improved handling, condensation, and stabilization of the graft material within the defect. In contrast, PRF alone may have made it difficult to achieve adequate condensation and maintain positional stability due to its inherently pliable, slippery nature.

No pain, swelling, or signs of infection were observed in the patient following the PRF–ORC wrap technique. The uneventful postoperative healing in this case may be partly attributed to ORC's properties. Beyond its well-established hemostatic function, ORC has been reported to exhibit intrinsic bactericidal activity and low immunogenicity, which may enhance its clinical utility in contaminated surgical sites and infection-prone environments.¹¹ In combination with PRF, these properties may improve wound stability and reduce inflammatory burden, supporting predictable, uncomplicated healing.

Importantly, the clinical and radiographic improvements observed in this case cannot be attributed solely to the PRF–ORC wrap. The treated tooth underwent several concomitant interventions, including endodontic treatment, splinting, initial scaling and root planing, surgical flap debridement, and subsequent subgingival debridement at the 6-month follow-up. Each of these interventions may have contributed to inflammation resolution, tooth stabilization, and improved clinical and radiographic findings. Therefore, the observed outcome should be considered the result of the overall treatment sequence rather than an isolated effect of the PRF–ORC technique. Furthermore, although a potential complementary interaction between L-PRF and ORC has been proposed based on their respective biological and physical properties, such a synergistic effect cannot be established from a single uncontrolled case. Accordingly, the favorable clinical and radiographic changes observed in this case should be interpreted as preliminary observations rather than evidence of the independent efficacy of the

PRF–ORC approach. Controlled clinical studies with appropriate comparators are necessary to determine the independent contribution of the PRF–ORC approach to periodontal healing. An important limitation to be considered in this study is that the radiographs were not obtained using a standardized and reproducible imaging protocol. Differences in positioning and angulation may therefore limit precise, independent assessment of radiographic changes over time. Accordingly, the observed radiographic bone fill should be interpreted cautiously.

Conclusion

Within the limitations of this single case report, the PRF–ORC wrap technique was associated with favorable clinical and radiographic healing of the treated intrabony defect over a 1-year follow-up period. These findings provide preliminary clinical observations regarding the use of this composite approach but cannot establish its efficacy, predictability, or ability to promote true periodontal regeneration. Controlled clinical studies with larger sample sizes, appropriate comparators, and objective assessments of tissue response are required to further evaluate this approach.

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Authors' Contribution

Conceptualization: Mehmet Sağlam

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Writing—original draft: Mehmet Sağlam

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Competing Interests

The authors declare that they have no competing interests regarding the authorship and/or publications of this paper.

Consent to Publication

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

Data Availability

All data supporting the findings of this case report are included within the article.

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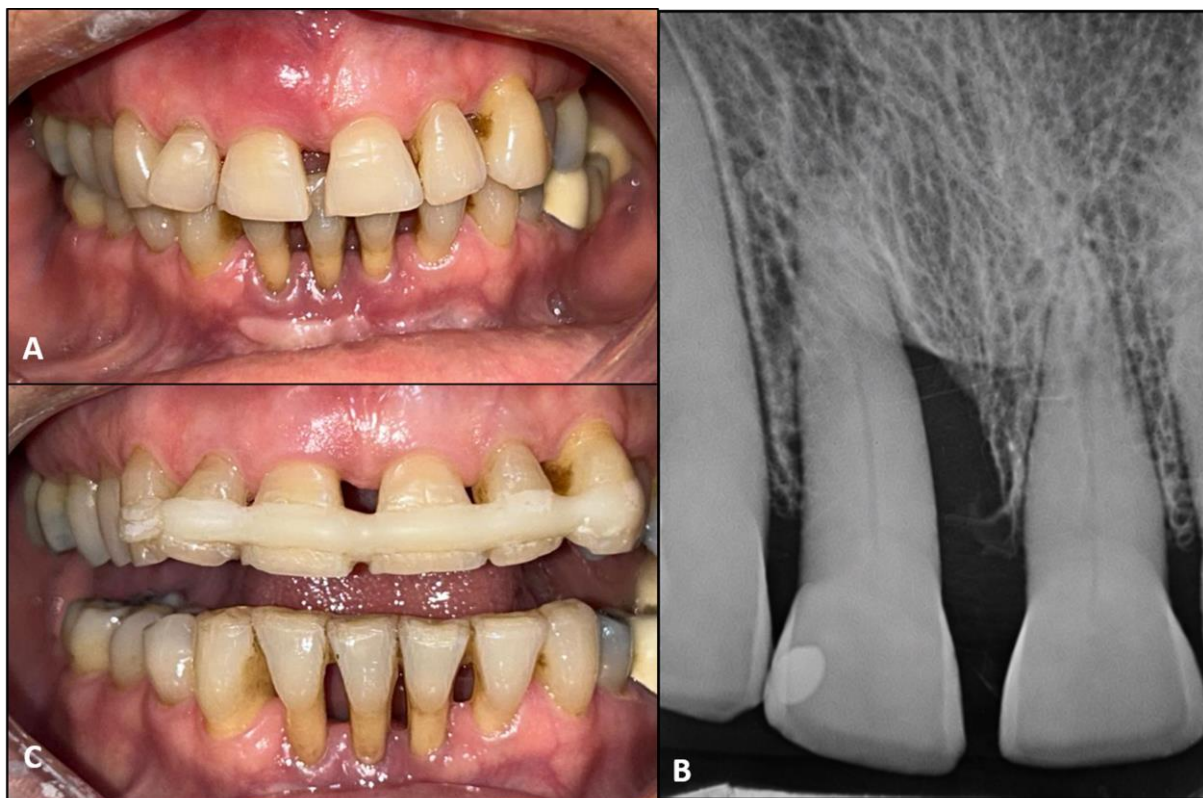


Figure 1. Baseline clinical and radiographic findings and periodontal splinting. (A) Baseline clinical appearance of the patient. (B) Baseline radiograph of tooth #11. (C) Temporary periodontal splint applied before SRP procedure.

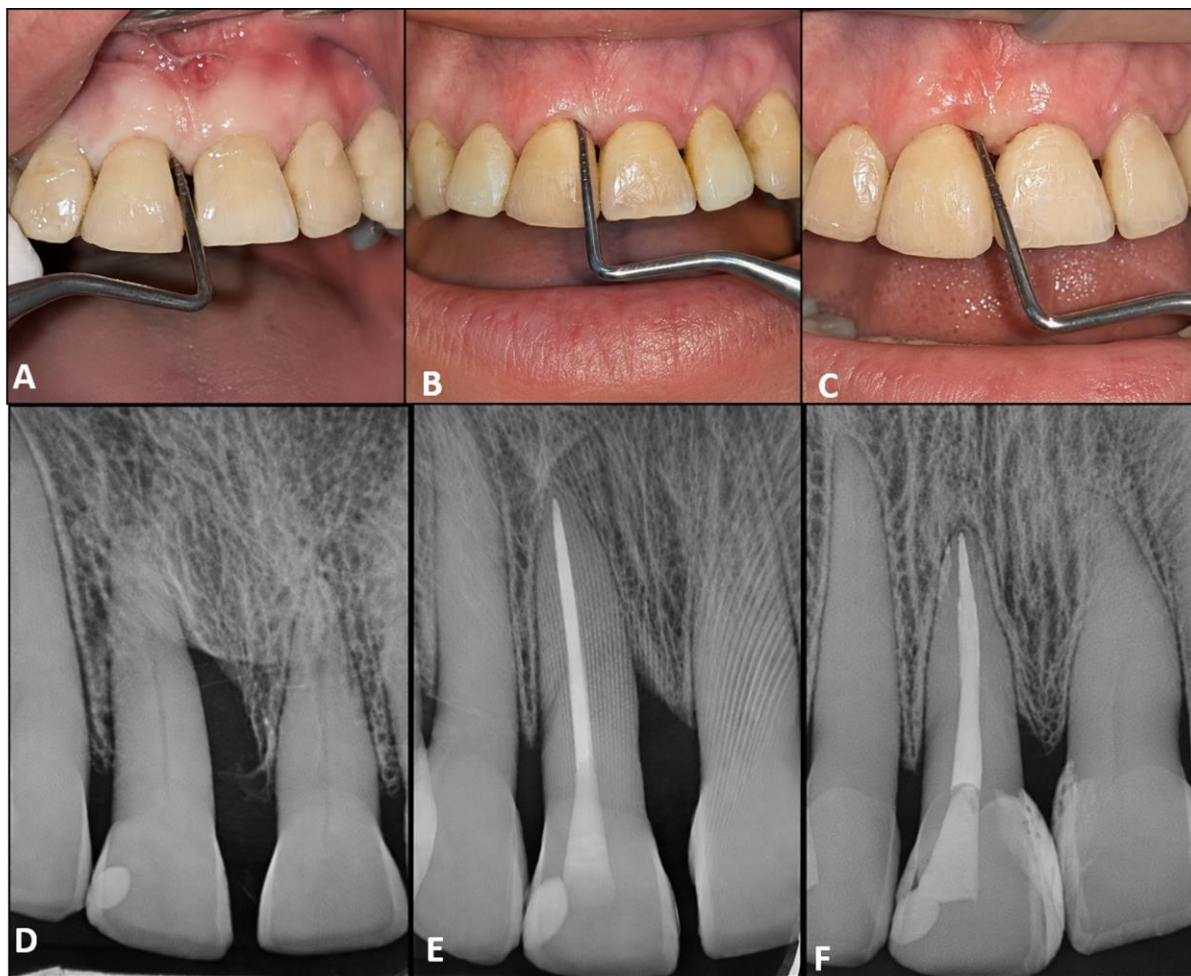


Figure 2. Clinical and radiographic findings during follow-up. (A) Clinical appearance immediately before surgery. (B) Clinical appearance at 6 months postoperatively. (C) Clinical appearance at 1 year postoperatively. (D) Baseline radiographic image (shown for longitudinal comparison). (E) Radiographic image at 6 months postoperatively. (F) Radiographic image at 1 year postoperatively.

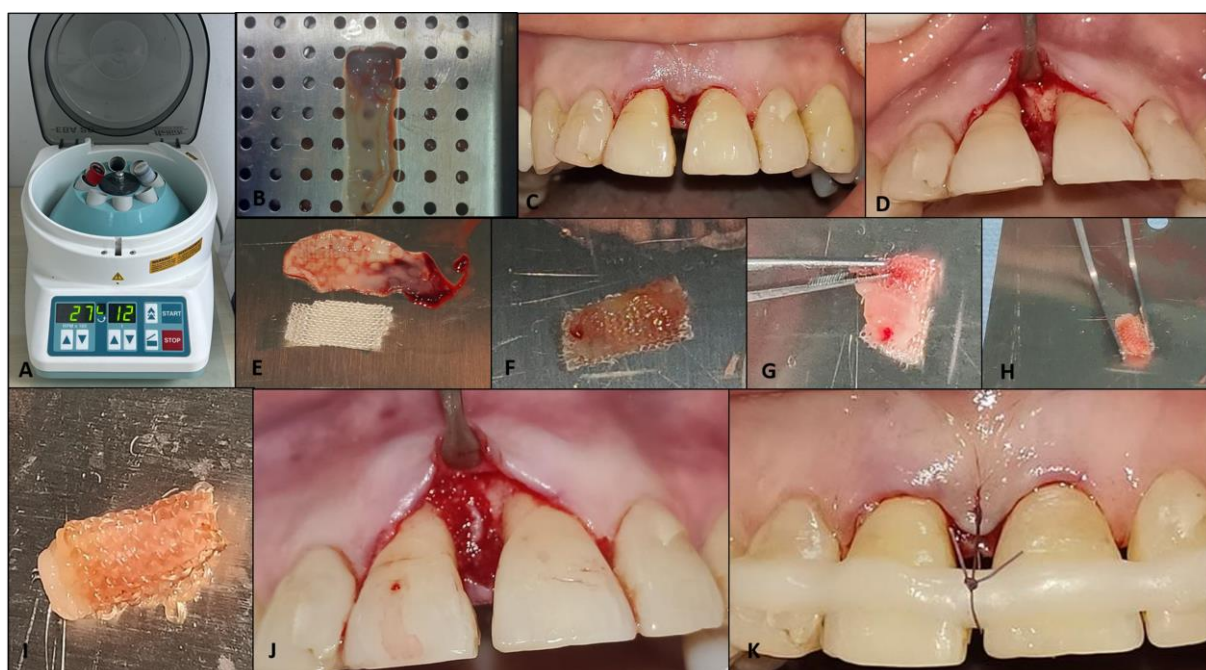


Figure 3. Preparation and application of the PRF–ORC wrap technique. (A) Centrifuge device used for PRF preparation. (B) Prepared PRF membrane. (C) Clinical appearance of the envelope flap performed to access the intrabony defect. (D) Clinical appearance of the intrabony defect. (E) Appearance of the ORC and PRF prepared for the defect. (F) PRF placed over the ORC during preparation of the wrap material. (G–I) Preparation of the wrap-like configuration, with the PRF inside and the ORC outside. (J) Placement of the wrap-shaped material into the intrabony defect. (K) Clinical appearance after flap suturing.

Table 1. PD and CAL values for the involved tooth

	Tooth Mobility	Probing depth (mm)						Gingival recession (mm)						Clinical attachment level (mm)					
		DB	B	MB	DP	P	MP	DB	B	MB	DP	P	MP	DB	B	MB	DP	P	MP
Baseline	II	5	1 0	8	3	3	7	0	0	0	0	0	0	4	9	7	0	0	6
Presurgery	II	3	4	7	3	3	7	0	0	0	0	0	0	2	3	6	0	0	6
Postoperation (3 mo)	I	3	3	4	3	3	4	0	0	0	0	0	0	2	2	3	0	0	3
Postoperation (6 mo)	PM	3	3	4	3	3	4	0	0	0	0	0	0	2	2	3	0	0	3
Postoperation (1 year)	PM	3	3	3	3	3	3	0	0	0	0	0	0	2	2	2	0	0	2
		GI						PI						BOP					
		DB	B	MB	DP	P	MP	DB	B	MB	DP	P	MP	DB	B	MB	DP	P	MP
Baseline		2	2	2	1	1	2	2	2	2	2	2	2	+	+	+	-	-	+
Presurgery		0	0	0	0	0	0	0	0	1	0	0	1	-	-	-	-	-	-
Postoperation (3 mo)		0	0	0	0	0	0	0	0	1	0	0	1	-	-	-	-	-	-
Postoperation (6 mo)		0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
Postoperation (1 year)		0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-

B: buccal; DB: distal buccal; DP: distal palatal; P: palatal; MB: mesial buccal; MP: mesial palatal. PM: physiologic mobility

Table 2. Timeline of the patient's clinical course and treatment

Time point	Clinical event / intervention
Initial presentation	The patient presented with redness and mobility of tooth #11. Clinical and radiographic periodontal examination revealed a deep intrabony defect, Grade II mobility, and loss of vitality.
Initial visit	Supragingival scaling and oral hygiene instructions were provided.
Following appointment	Root canal treatment of tooth #11 was completed because of its non-vital status. A temporary periodontal splint was applied because of tooth mobility.
1 week later	Full-mouth subgingival root surface debridement was performed under local anesthesia.
4 weeks after initial periodontal therapy	Comprehensive periodontal parameters were reassessed. The temporary splint was removed. Residual deep periodontal pockets were detected at the mesial aspect of tooth #11, and periodontal flap surgery was planned.
Surgical appointment	L-PRF was prepared from 10 mL of venous blood. The intrabony defect was surgically debrided and treated with the PRF-ORC wrap technique. A temporary surgical splint was applied.
1 week postoperatively	Clinical healing was assessed; no adverse clinical findings were observed.
2 weeks postoperatively	Clinical healing was assessed; no adverse clinical findings were observed.
1 month postoperatively	Clinical follow-up was performed.
3 months postoperatively	Periodontal clinical parameters were recorded; PPD reduction and CAL gain were observed.
6 months postoperatively	Clinical and radiographic evaluation was performed. The temporary splint was removed, and the tooth exhibited physiological mobility.
1 year postoperatively	Final clinical and radiographic evaluation demonstrated maintained periodontal probing depths and favorable radiographic bone fill.